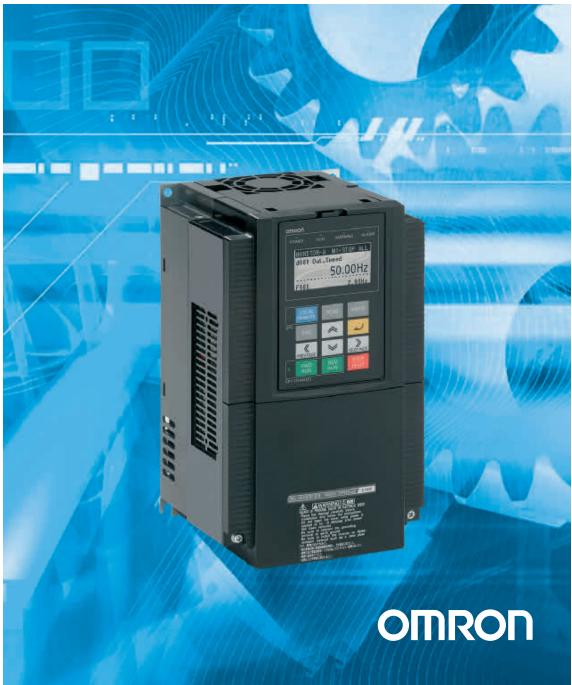


RX Customised to your machine Model: 3G3RX 200 V Class Three-Phase Input 0.4 to 55 kW 400 V Class Three-Phase Input 0.4 to 132 kW

QUICK START GUIDE



OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided with them. Failure to heed precautions can result in injury to people or damage to property.

OMRON Product References

All OMRON products are capitalized in this manual. The word "Unit" is also capitalized when it refers to an OMRON product, regardless of whether or not it appears in the proper name of the product.

© OMRON, 2012

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of OMRON.

No patent liability is assumed with respect to the use of the information contained herein. Moreover, because OMRON is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, OMRON assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

1 SPECIFICATIONS	3
1.1 Upon receipt	
1.2 Technical specification	
1.3 Power ratings	
2 INSTALLATION	6
2.1 Wiring sizes and protection	
2.2 Terminal symbols, screw size and tightening torque	
2.3 Installation dimensions	
2.4 Installation environment clearance	
2.5 Wiring overview	
2.6 Power wiring	
2.7 Control wiring	
2.8 Digital inputs SINK/SOURCE (NPN/PNP) settings	
3 PROGRAMMING RX	
3.1 Digital operator	
3.2 Navigation	
3.3 Language selection	
3.4 Initialization	
3.5 Inverter modes	
3.6 Basic settings	
3.7 Auto tuning (vector control modes)	
3.8 Ramps adjustment	
3.9 DC braking	
3.10 V/F curve	
3.11 Torque boost function	
3.12 Analog inputs	
3.13 Digital inputs	
3.14 Digital outputs	
3.15 Analogue outputs	
3.16 Torque limit	
3.17 Torque control	
3.18 Electronic thermal overload	
3.19 Carrier frequency (PWM)	
3.20 PID function	
3.21 Current limitation functions	
3.22 Overvoltage protection	
3.23 Controlled stop at power loss	
4 PARAMETER LIST	35
4.1 Parameter group D: Monitors	
4.2 Parameter group A	
4.3 Parameter group B	
4.4 Parameter group C	
4.5 Parameter group H	
4.6 Parameter group P	
4.7 Parameter group F	
4.8 Parameter group U: User parameters	50

1 SPECIFICATIONS

1.1 Upon receipt

Please perform the following task after receiving the drive:

- Inspect the driver for damage. If the drive appear damage upon receipt, contact your supplier.
- Verify the receipt of the correct model by checking the information on the nameplate. If you have received the wrong model contact your supplier.
- Refer to the User's Manual for detailed information about the product and functions.

Basic specifications and EMC filter

Voltage	Туре	HD (150% ov	erload for 60s)	ND (120% ov	erload for 60s)	TMC filter				
vonage	3G3RX-	Max Motor (KW)	Rated current (A)	Max Motor (KW)	Rated current (A)	EMC filter				
	A2004	0.4	3.0	0.75	3.7					
	A2007	0.75	5.0	1.5	6.3					
	A2015	1.5	7.5	2.2	9.4	AX-FIR2018-RE				
	A2022	2.2	10.5	3.7	12.0					
	A2037	3.7	16.5	5.5	19.6					
	A2055	5.5	24.0	7.5	30.0					
	A2075	7.5	32.0	11	44.0	AX-FIR2053-RE				
3 x 200 V	A2110	11	46.0	15	58.0					
	A2150	15	64.0	18.5	73.0					
	A2185	18.5	76.0	22	85.0	AX-FIR2110-RE				
	A2220	22	95.0	30	113.0					
	A2300	30	121.0	37	140.0	AX-FIR2145-RE				
	A2370	37	145.0	45	169.0	AX-FIR3250-RE				
	A2450	45	182.0	55	210.0	AX-FIR3200-RE				
	A2550	55	220.0	75	270.0	AX-FIR3320-RE				
	A4004	0.4	1.5	0.75	1.9					
	A4007	0.75	2.5	1.5	3.1					
	A4015	1.5	3.8	2.2	4.8	AX-FIR3010-RE				
	A4022	2.2	5.3	4.0	6.7					
	A4040	4.0	9.0	5.5	11.1					
	A4055	5.5	14.0	7.5	16.0					
	A4075	7.5	19.0	11	22.0	AX-FIR3030-RE				
	A4110	11	25.0	15	29.0					
	A4150	15	32.0	18.5	37.0					
3 x 400 V	A4185	18.5	38.0	22	43.0	AX-FIR3053-RE				
	A4220	22	48.0	30	57.0					
	A4300	30	58.0	37	70.0	AX-FIR3064-RE				
	A4370	37	75.0	45	85.0	AX-FIR3100-RE				
	A4450	45	91.0	55	105.0	AX-FIR3130-RE				
	A4550	55	112.0	75	135.0	AX-FIR3130-RE				
	B4750	75	149.0	90	160.0					
	B4900	90	176.0	110	195.0	AX-FIR3250-RE				
	B411K	110	217.0	132	230.0					
	B413K	132	260.0	160	290.0	AX-FIR3320-RE				

1.2 Technical specification

Control methods Phase-to-phase sinusoidal pulse with modulation PWM (Essendres vector control, dose loop vector with motor feedback, V/F) Output frequency range 0.10 to 400.00 Hz Prequency precision Analogue set value: 50.0% of the max, frequency (25 ±10 °C) Resolution of frequency set value Analogue set value: 50.0% of the max, frequency (25 ±10 °C) Resolution of output frequency 0.11 Hz Resolution of output frequency 0.11 Hz Variable set value: 0.01 Hz Overload capability 150%/0.3 Hz (under sensor-less vector control of 10 Hz) Overload capability 150%/0.6%, 200%/3 for CT: 120%/60 NT V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/F braking constant torque, sensor-less vector control, 40 Hz, Analogue inputs Analogue inputs Analogue inputs Analogue inputs Analogue inpu		Model number 3G3RX-	Specifications
Frequency precision Digital set value: ±0.01% of the max. frequency Resolution of frequency set value Analogu set value: ±0.01% of the max. frequency (25±10°C) Resolution of of requency set value Analog input: 12 bit Resolution of output frequency 0.01Hz Starting torque 150%/0.3 Hz (under sensor-less vector control at 0 Hz) Overload capability 200%/Torque at 0 Hz (under sensor-less vector control at 0Hz, when a motor size one rank lower than specified is connected) Verload capability 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/foptionally changeable at base frequencies of 30 to 400 Hz, V/f braking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogu output, analogue output, analogue output, analogue output, analogue output analogue output analogue output analogue output analogue output analogue output analogue output. Analogue output analogue output, analogue output and anat toto 10 V 10 KΩ), 4 to 20 mA (100 Ω)		Control methods	Phase-to-phase sinusoidal pulse with modulation PWM (Sensorless vector control, close loop vector with motor feedback, V/F)
Prequency precision Analogue set value: ±0.2% of the max. frequency (25 ± 10 °C) Resolution of frequency set value Digital set value: 0.01 Hz Analog input: 12 bit 0.01Hz Resolution of output frequency 0.01Hz Starting torque 150%/0.3 Hz (under sensor-less vector control at 0 Hz) 200%/Torque at 0 Hz (under sensor-less vector control at 0Hz, when a motor size one rank lower than specified is connected) Overload capability 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/forptionally changeable at bas frequencies of 30 to 400 Hz, V/f Draking constant torque, reduction torque, sensor-less vector control, sensor-less vector control, sensor-less vector control, sensor-less vector control, 00 10 0 V 10 to 10 V 10 to 10 V 10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analogue output, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.00 (line/curve selection) Display Status indicator LEPS Run, Program, Power, Alarm, Hz, Amps, Volts, % Overrolad Display Overrolad 0.05 val 00 V type and 40 V for 200 V type Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Overrolage 80 V for 400 V type and 40 V for 200 V type Momentary pow		Output frequency range	0.10 to 400.00 Hz
Provide Analogue set value: 20% of the max. requercy (25 ± 10% C) Resolution of frequency set value Analogue set value: 20% Resolution of output frequency 0.01Hz Resolution of output frequency 0.01Hz Starting torque 150%/0.3 Hz (under sensor-less vector control or sensor-less vector control of 0 Hz) Starting torque 150%/0.3 Hz (under sensor-less vector control of 0.0), RS485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/F baking constant torque, sensor-less vector control, sensor-less vector control, not 0.0), RS485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/F baking constant torque, sensor-less vector control, sensor-less vector control, not 0.01 to 3600.0 % (inc/curve selection) Analogue outputs Analogue inputs 0 to 10 VDC (10 KQ), 4 to 20 mA (100 Q) Analogue outputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KQ), 4 to 20 mA (100 Q) Analogue outputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KQ), 4 to 20 mA (100 Q) Analogue outputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KQ), 4 to 20 mA (100 Q) Analogue outputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KQ), 4 to 20 mA (100 Q) Analogue outputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KQ), 4 to 20 m		Execution	Digital set value: ±0.01% of the max. frequency
Overload capability 150%/60s, 200%/35 for CT; 120%/60s VT Frequency set value 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f braking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analog content torque, reduction torque, sensor-less vector control at 0 Hz Analogue outputs Analogue outputs, Analog content torque, reduction torque, sensor-less vector control at 0 Hz Analogue outputs Analogue outputs, Analog content torque, reduction torque, sensor-less vector control, a sensor-less vector control, a sensor-less vector control at 0 Hz Analogue outputs Analogue outputs, Analogue outputs, Analog cortent output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Digital operator: Available to monitor 23 items, output frequency Motor overload protection Electron: Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% for 100 V type and 40 V for 200 V type Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature moni	s	Frequency precision	Analogue set value: $\pm 0.2\%$ of the max. frequency (25 ± 10 °C)
Overload capability 150%/c6s, 200%/35 for CT; 120%/c6os VT Frequency set value 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f Draking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V D 10 V D 10 V 10 K0), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analogue outputs, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Status indicator LEDS Run, Program, Power, Alarm, Hz, Amps, Volts, % Digital operator: Available to monitor 23 items, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload Diceclerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention level Stall prevention and constant speed Orgen of fault One when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity <th< th=""><th>ion</th><th>Desclution of frequency or est value</th><th>Digital set value: 0.01 Hz</th></th<>	ion	Desclution of frequency or est value	Digital set value: 0.01 Hz
Overload capability 150%/c6s, 200%/35 for CT; 120%/c6os VT Frequency set value 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f Draking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V D 10 V D 10 V 10 K0), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analogue outputs, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Status indicator LEDS Run, Program, Power, Alarm, Hz, Amps, Volts, % Digital operator: Available to monitor 23 items, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload Diceclerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention level Stall prevention and constant speed Orgen of fault One when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity <th< th=""><th>nct</th><th>Resolution of frequency set value</th><th>Analog input: 12 bit</th></th<>	nct	Resolution of frequency set value	Analog input: 12 bit
Overload capability 150%/60s, 200%/35 for CT; 120%/60s VT Frequency set value 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f braking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analog content torque, reduction torque, sensor-less vector control at 0 Hz Analogue outputs Analogue outputs, Analog content torque, reduction torque, sensor-less vector control at 0 Hz Analogue outputs Analogue outputs, Analog content torque, reduction torque, sensor-less vector control, a sensor-less vector control, a sensor-less vector control at 0 Hz Analogue outputs Analogue outputs, Analogue outputs, Analog cortent output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Digital operator: Available to monitor 23 items, output frequency Motor overload protection Electron: Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% for 100 V type and 40 V for 200 V type Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature moni	l fu	Resolution of output frequency	0.01Hz
Overload capability 150%/c6s, 200%/35 for CT; 120%/c6os VT Frequency set value 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f Draking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V D 10 V D 10 V 10 K0), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analogue outputs, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Status indicator LEDS Run, Program, Power, Alarm, Hz, Amps, Volts, % Digital operator: Available to monitor 23 items, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload Diceclerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention level Stall prevention and constant speed Orgen of fault One when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity <th< th=""><th>tro</th><th>Stanting toward</th><th>150%/0.3 Hz (under sensor-less vector control or sensor-less vector control at 0 Hz)</th></th<>	tro	Stanting toward	150%/0.3 Hz (under sensor-less vector control or sensor-less vector control at 0 Hz)
Overload capability 150%/c6s, 200%/35 for CT; 120%/c6os VT Frequency set value 0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), R5485 Modbus, Network options V/f Characteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f Draking constant torque, reduction torque, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V D 10 V D 10 V 10 K0), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analogue outputs, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Status indicator LEDS Run, Program, Power, Alarm, Hz, Amps, Volts, % Digital operator: Available to monitor 23 items, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload Diceclerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention level Stall prevention and constant speed Orgen of fault One when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity <th< th=""><th>Con</th><th>Starting torque</th><th>200%/Torque at 0 Hz (under sensor-less vector control at 0Hz, when a motor size one rank lower than specified is connected)</th></th<>	Con	Starting torque	200%/Torque at 0 Hz (under sensor-less vector control at 0Hz, when a motor size one rank lower than specified is connected)
V/f Obtaracteristics V/f optionally changeable at base frequencies of 30 to 400 Hz, V/f braking constant torque, reduction torque, sensor-less vector control, sensor-less vector control at 0 Hz Analogue inputs Analogue inputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analog voltage output, Analog current output, Pulse train output Accel/Decel times 0.01 to 360.00 s (line/curve selection) Display Status indicator LED's Run, Program, Power, Alarm, Hz, Amps, Volts, % Display Digital operator: Available to monitor 33 tiems, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overload Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / 1P00 Storage temperature -20°C+65°C (short-term temperature during transportation) Storage temperature -20°C+65°C (short-term	Ŭ	Overload capability	150%/60s, 200%/3s for CT; 120%/60s VT
Vircharacteristics If the the the sensor-less vector control at 0 Hz Analogue inputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analogue outputs, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Status indicator LED's Run, Program, Power, Alarm, Hz, Amps, Volts, % Display Digital operator: Available to monitor 23 items, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overvoltage 800 V for 400 V type and 400 V for 200 V type Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration and constant speed On when voltage between P and N is higher than 45V Degree of protection Power charge indication On when voltage between P and N is higher than 45V Degree of protection		Frequency set value	0 to 10 VDC (10 KΩ), -10 to 10 VDC (10 KΩ), 4 to 20 mA (100 Ω), RS485 Modbus, Network options
Analogue inputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue inputs Analogue inputs 0 to 10 V and -10 to 10 V (10 KΩ), 4 to 20 mA (100 Ω) Analogue outputs Analogue output, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curve selection) Display Status indicator LED's Run, Program, Power, Alarm, Hz, Amps, Volts, % Distantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overvoltage 800 V for 400 V type and 400 V for 200 V type Momentary power loss Decelerates to show with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed On when voltage between P and N is higher than 45V Degree of protection Power charge indication On when voltage between P and N is higher than 45V Degree of protection 120% CK ob°C Ambient tumidity 90% RH or less (without condensation) Storage temperature -20°C.+65°C (short-term temperature during transportation) Ambient tumidity 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz		V/f Characteristics	
Analogue outputs Analog voltage output, Analog current output, Pulse train output Accel/Decel times 0.01 to 3600.0 s (line/curre selection) Display Status indicator LED's Run, Program, Power, Alarm, Hz, Amps, Volts, % Digital operator: Available to monitor 23 items, output current, output frequency Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overload Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Operce of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient themperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max.1000 m			
Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overload 150% for 1 minute Overload 0 Vervoltage Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Ground fault Detection at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m	ity		
Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overload 150% for 1 minute Overload 0 Vervoltage Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Ground fault Detection at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m	ilali	÷ *	
Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overload 150% for 1 minute Overload 0 Vervoltage Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Ground fault Detection at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m	tio	Accel/Decel times	
Motor overload protection Electronic Thermal overload relay and PTC thermistor input Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overload 150% for 1 minute Overload 0 Vervoltage Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Ground fault Detection at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m	unc	Display	
Instantaneous overcurrent 200% of rated current for 3 seconds Overload 150% for 1 minute Overvoltage 800 V for 400 V type and 400 V for 200 V type Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Ground fault Detection at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) -10°C to 50°C Installation Installation height Max. 1000 m Xibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	Ē	· ·	
Overload 150% for 1 minute Overvoltage 800 V for 400 V type and 400 V for 200 V type Momentary power loss Decelerates to stop with DC bus controlled, coast to stop Cooling fin overheat Temperature monitor and error detection Stall prevention level Stall prevention during acceleration, deceleration and constant speed Ground fault Detection at power on Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz		4	
Original data Detection at point off Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	ns	Instantaneous overcurrent	200% of rated current for 3 seconds
Original data Detection at point off Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	ctio		
Original data Detection at point off Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	'n		
Original data Detection at point off Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	n f		
Original data Detection at point off Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	ctič		
Original data Detection at point off Power charge indication On when voltage between P and N is higher than 45V Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz	ote	•	Stall prevention during acceleration, deceleration and constant speed
Degree of protection IP20 / IP00 Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s² (0.6G), 10 to 55 Hz	P1	Ground fault	Detection at power on
Ambient humidity 90% RH or less (without condensation) Storage temperature -20°C+65°C (short-term temperature during transportation) Ambient temperature -10°C to 50°C Installation Indoor (no corrosive gas, dust, etc.) Installation height Max. 1000 m Vibration 3G3RX-A□004 to A□220, 5.9 m/s² (0.6G), 10 to 55 Hz			
	ons	Ambient humidity	90% RH or less (without condensation)
	liti	Storage temperature	-20°C+65°C (short-term temperature during transportation)
	onc	Ambient temperature	-10°C to 50°C
	ntc	Installation	Indoor (no corrosive gas, dust, etc.)
	bie	Installation height	Max. 1000 m
	Am	Will we die w	3G3RX-A□004 to A□220, 5.9 m/s ² (0.6G), 10 to 55 Hz
	7	Vibration	3G3RX-A□300 to B□13K, 2.94 m/s ² (0.3G), 10 to 55 Hz

1.3 Power ratings

It	em							Thre	e-phase 2	00 V class	s specifica	tions					
3G3RX inverte	rs, 200 V 1	models	A2004	A2007	A2015	A2022	A2037	A2055	A2075	A2110	A2150	A2185	A2220	A2300	A2370	A2450	A2550
Max. applicable	kW	at CT	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55
motor 4P	K VV	at VT	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75
	200 V	at CT	1.0	1.7	2.5	3.6	5.7	8.3	11.0	15.9	22.1	26.3	32.9	41.9	50.2	63.0	76.2
Rated output	200 V	at VT	1.3	2.1	3.2	4.1	6.7	10.4	15.2	20.0	26.3	29.4	39.1	49.5	59.2	72.7	93.5
capacity (kVA)	240 V	at CT	1.2	2.0	3.1	4.3	6.8	9.9	13.3	19.1	26.6	31.5	39.4	50.2	60.2	75.6	91.4
	240 V	at VT	1.5	2.6	3.9	5.0	8.1	12.4	18.2	24.1	31.5	35.3	46.9	59.4	71.0	87.2	112.2
Rated in	put voltag	e		3-phase (3-wire) 200 V -15% to 240 V +10%, 50/60 Hz \pm 5%													
Rated out	put voltag	ge	3-phase: 200 to 240 V (Cannot exceed that of incoming voltage.)														
Rated output cu	rrant (A)	at CT	3.0	5.0	7.5	10.5	16.5	24	32	46	64	76	95	121	145	182	220
Rated output cu	field (A)	at VT	3.7	6.3	9.4	12	19.6	30	44	58	73	85	113	140	169	210	270
Radio n	oise filter									Built-in							
Weig	ht (kg)		3.5	3.5	3.5	3.5	3.5	6	6	6	14	14	14	22	30	30	43
Regenerative braking				В	uilt-in bra	ıking resis	stor circui	t (dischar	ge resistor	separatel	y mounted	ł)		Regener	ative brak mou	ing unit so inted	eparately
Braking	Minin conne resistar	ction	50	50	35	35	35	16	10	10	7.5	7.5	5	-	-	-	-

It	em							Thre	e-phase 4	00 V class	s specifica	tions					
3G3RX inverte	rs, 400 V	models	A4004	A4007	A4015	A4022	A4040	A4055	A4075	A4110	A4150	A4185	A4220	A4300	A4370	A4450	A4550
Max. applicable	kW	at CT	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55
motor 4P	KVV	at VT	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75
	400 V	at CT	1.0	1.7	2.5	3.6	6.2	9.7	13.1	17.3	22.1	26.3	33.2	40.1	51.9	63.0	77.6
Rated output	400 V	at VT	1.3	2.1	3.3	4.6	7.7	11.0	15.2	20.9	25.6	30.4	39.4	48.4	58.8	72.7	93.5
capacity (kVA)	480 V	at CT	1.2	2.0	3.1	4.3	7.4	11.6	15.8	20.7	26.6	31.5	39.9	48.2	62.3	75.6	93.1
	400 V	at VT	1.5	2.5	4.0	5.5	9.2	13.3	18.2	24.1	30.7	36.5	47.3	58.1	70.6	87.2	112.2
Rated in	put voltag	e		3-phase (3-wire) 380 V -15% to 480V +10%, 50/60 Hz ±5%													
Rated out	put voltaş	ge	3-phase: 380 to 480 V (Cannot exceed that of incoming voltage.)														
Rated output cu	mont(A)	at CT	1.5	2.5	3.8	5.3	9.0	14	19	25	32	38	48	58	75	91	112
Kaled output cu	ffent (A)	at VT	1.9	3.1	4.8	6.7	11.1	16	22	29	37	43	57	70	85	105	135
Radio n	oise filter									Built-in							
Weig	Weight (kg)		3.5	3.5	3.5	3.5	3.5	6	6	6	14	14	14	22	30	30	30
			E	Built-in br	aking resi	stor circui	t (dischar	ge resistor	:)			Regener	ative brak mou		eparately		
Braking	Minin conne resistar	ction	100	100	100	100	70	70	35	35	24	24	20	-	-	-	-

It	tem		Three-ph	ase 400 V	class spec	ifications			
3G3RX inverte	ers, 400 V 1	nodels	B4750	B4900	B411K	B413K			
Max. applicable	kW	at CT	75	90	110	132			
motor 4P	K VV	at VT	90	110	132	160			
	400 V	at CT	103.2	121.9	150.3	180.1			
Rated output	400 V	at VT	110.8	135	159.3	200.9			
capacity (kVA)	480 V	at CT	128.3	146.3	180.4	216.1			
	480 V	at VT	133	162.1	191.2	241.1			
Rated in	put voltag	e	3-phase (3-wire) 380 V -15% to 480V +10%, 50/60 Hz ±5%						
Rated out	tput voltag	ge	3-phase: 380 to 480 V (Cannot exceed that of incoming voltage.)						
Datad autout au		at CT	149	176	217	260			
Rated output cu	rrent (A)	at VT	160	195	230	290			
Radio n	oise filter			Bui	lt-in				
Weig	Weight (kg)				80	80			
	Regene brak		Regene	rative brak mou	ing unit se nted	parately			
Braking	Minin conne resistar	ction	-	-	-	-			

2 INSTALLATION

2.1 Wiring sizes and protection

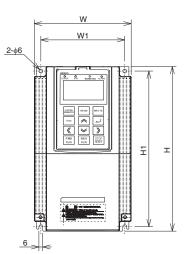
		Main	Circuit		Option	ı	Co	ntrol Circuit	Relay			
Type 3G3RX	[-	R(L1),S(L2),T(L3),U (T1),V(T2),W(T3)	Ro, To	Ground (symbol)	PD(+1),P N(-),RI	(+),	6, 5, 4, 3, 2, 1	0,02,0I,L,FM, FW, 8 l, CM1,PLC,P24,CM 4,13,12,11,TH				
A2004 to A202 A4004 to A404		M4		M4	M4							
A2055,A207 A4055,A407		M5		M5	M5							
A2110,A4110	0	M6		M5	M6							
A2150,A218 A4150 to A42		M6		M6	M6							
A2220		M8	M4	M6	M8			М3	М3			
A2300		M8	1014	M6	M8			1415	1415			
A4300		M6		M6	M6							
A2370		M8		M8	M8							
A4370		M8		M8	M8							
A2450		M8		M8	M8							
A4450,A4550	0	M8		M8	M8							
A2550, B4750 to H	3413K	M10		M8*	M10							
Screw Size	Screw Size M3		M4		M5		M6	M8	M10			
Torque	0.7 N	0.7 N·m (max. 0.8) 1.2 N·m (max. 1.4) 2.4 N·m (max. 4.0) 4.5 N·m (r		·m (max. 4.9)	8.1 N·m (max. 8.8) 20.0 N·m (m							

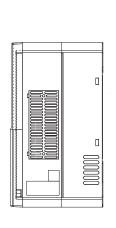
2.2 Terminal symbols, screw size and tightening torque

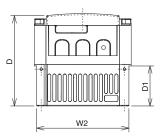
		200V				400V	
Motor Output (kW)	Inverter Model 3G3RX-	Power Terminal Wiring Size Range (AWG)	Torque (N·m)	Motor Output (kW)	Inverter Model 3G3RX-	Power Terminal Wiring Size Range (AWG)	Torque (N∙m)
0.4	A2004	14 (Stranded only)	1.8	0.4	A4004	14 (Stranded only)	1.8
0.75	A2007			0.75	A4007		
1.5	A2015			1.5	A4015		
2.2	A2022			2.2	A4022		
3.7	A2037	10 (Stranded only)		4.0	A4040		
5.5	A2055	8	4.0	5.5	A4055	12	4.0
7.5	A2075	6		7.5	A4075	10	
11	A2110	6 or 4		11	A4110	8	
15	A2150	2	4.9	15	A4150	6	4.9
18.5	A2185	1		18.5	A4185		
22	A2220	1 or 1/0	8.8	22	A4220	6 or 4	
30	A2300	2/0 or Parallel of 1/0		30	A4300	3	
37	A2370	4/0 (Prepared wire only) or	20.0	37	A4370	1	20.0
45	A2450	Parallel of 1/0		45	A4450	1	
55	A2550	350 kcmil (Prepared wire only) or Parallel of 2/0 (Prepared wire only)	19.6	55	A4550	2/0	
				75	B4750	Parallel of 1/0	
				90	B4900		
				110	B411K	Parallel of 3/0	35.0
				132	B413K		

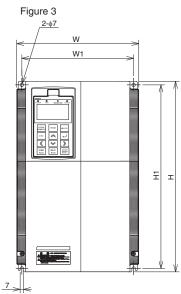
2.3 Installation dimensions

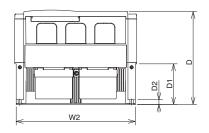
Figure 1

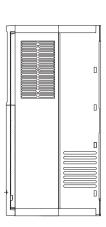


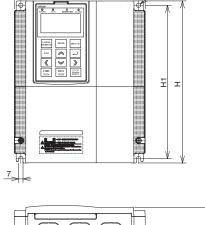


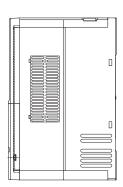












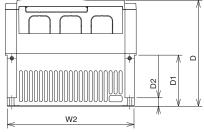


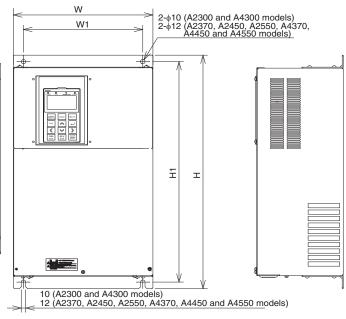
Figure 4

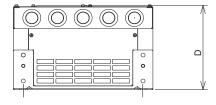
Figure 2

W

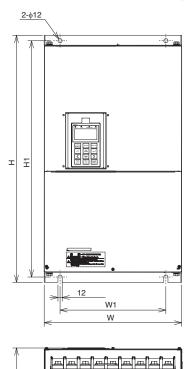
W1

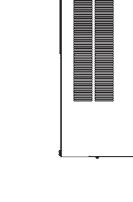
2-\$7





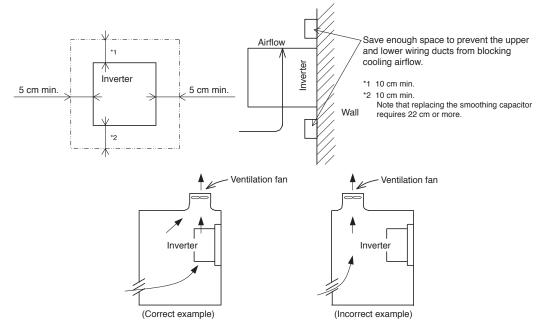






	T I LACADY					I	Dimensions i	n mm			
Voltage class	Inverter model 3G3RX-	Figure	W	W1	W2	Н	H1	D	D1	D2	Weight (kg)
	A2004										
	A2007										
	A2015	1	150	130	143	255	241	140	62	-	3.5
	A2022										
	A2037										
	A2055										
	A2075	2	210	189	203	260	246	170	82	13.6	6
Three-phase 200 V	A2110										
	A2150										
	A2185	3	250	229	244	390	376	190	83	9.5	14
	A2220										
	A2300		310	265	-	540	510	195	-	-	20
	A2370	4	390	300	-	550	520	250	-	-	30
	A2450	4	590	500	-	550	520	250	-	-	50
	A2550		480	380	-	700	670	250	-	-	43
	A4004										
	A4007										
	A4015	1	150	130	143	255	241	140	62	-	3.5
	A4022										
	A4040										
	A4055										
	A4075	2	210	189	203	260	246	170	82	13.6	6
	A4110										
	A4150										
Three-phase 400 V	A4185	3	250	229	244	390	376	190	83	9.5	14
	A4220										
	A4300		310	265	-	540	510	195	-	-	22
	A4370	4									
	A4450	4	390	300	-	550	520	250	-	-	30
ľ	A4550										
ľ	B4750		200	200		700	(70	269			60
ľ	B4900	-	390	300	-	700	670	268	-	-	60
	B411K	5	480	380		740	710	270			80
	B413K		400	380	-	/40	/10	270	-	-	80

2.4 Installation environment clearance

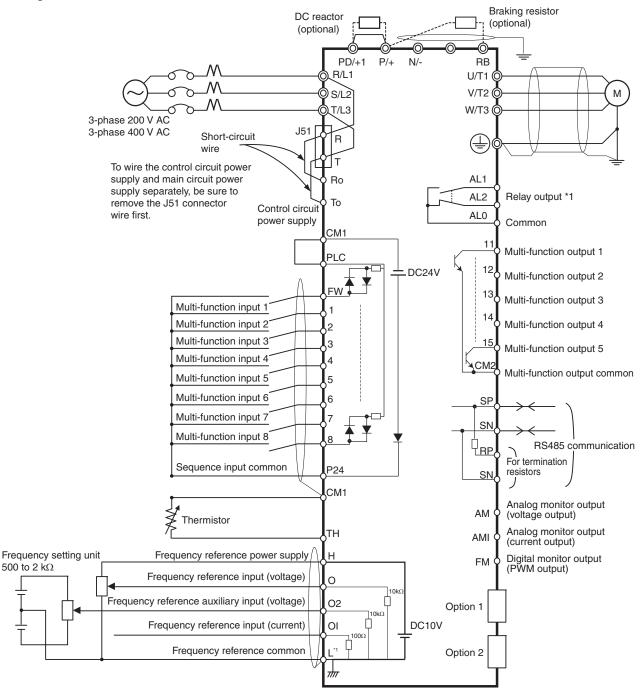


Increased ambient temperature will shorten the life of the inverter. Keep the inverter away from heating elements, if the inverter is installed in an enclosure, keep the temperature within the range of specifications taking dimensions and ventilation under consideration.

OMRON

RX Quick Start Guide

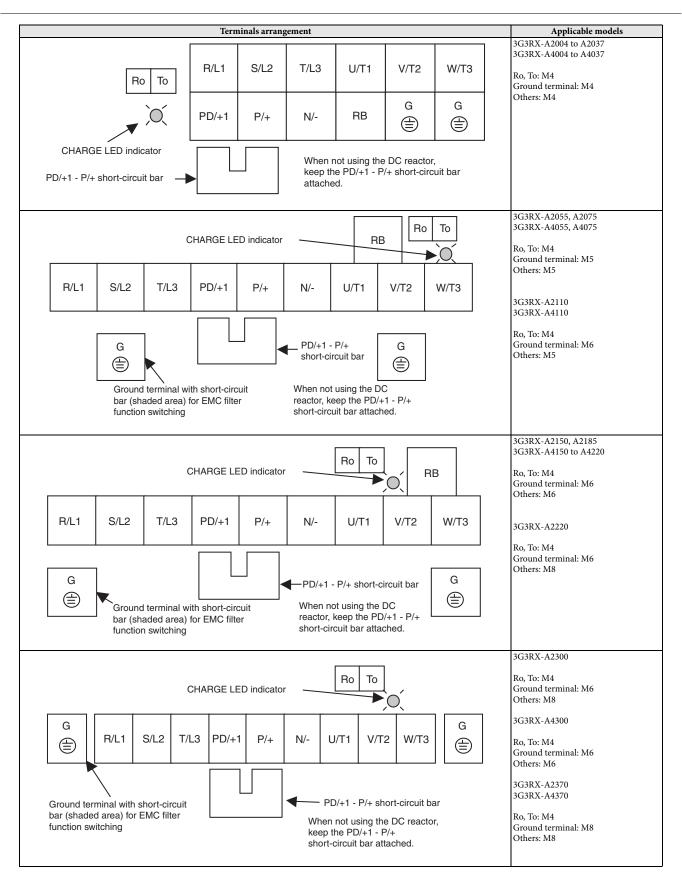
2.5 Wiring overview

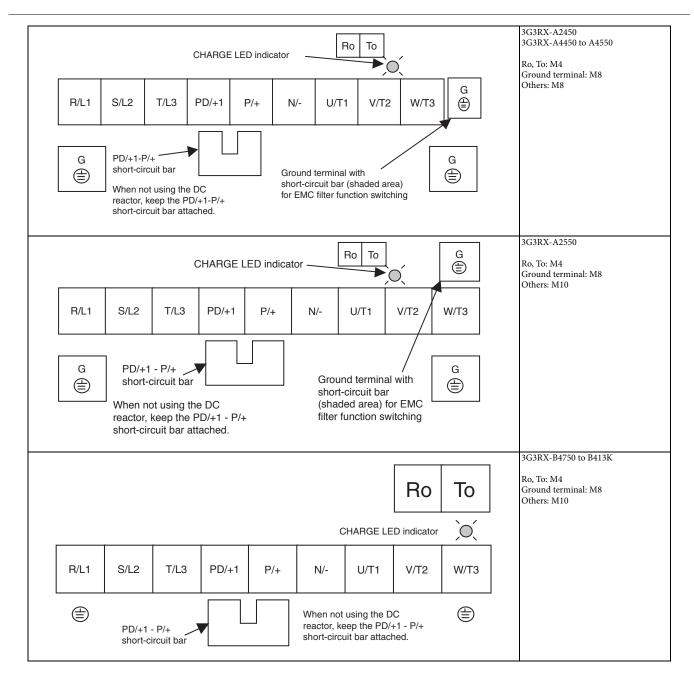


^{*1} L is the common reference for analog input and also for analog output.

2.6 Power wiring

Terminal name	Purpose	Details
R, S, T (L1, L2, L3)	Main power supply input terminals	Connect the input power supply
U, V, W (T1, T2, T3)	Inverter output terminals	Three phase motor connection
PD/+1, P/+	External DC reactor terminal	Remove the short-circuit bar between terminals "PD/+1" and "P/+", and connect the optional power factor improvement DC reactor.
P/+, RB	Braking resistor connection terminals	Connect optional external braking resistors. (The RB terminal is provided for the inverters with 22KW or lower capacity.)
P/+, N/-	Regenerative braking unit connection terminal	Connect optional regenerative braking units.
÷	Ground terminals	Inverter case ground terminal. Connect this terminal to the ground. Type-D (200V class), type-C (400V class)





2.7 Control wiring

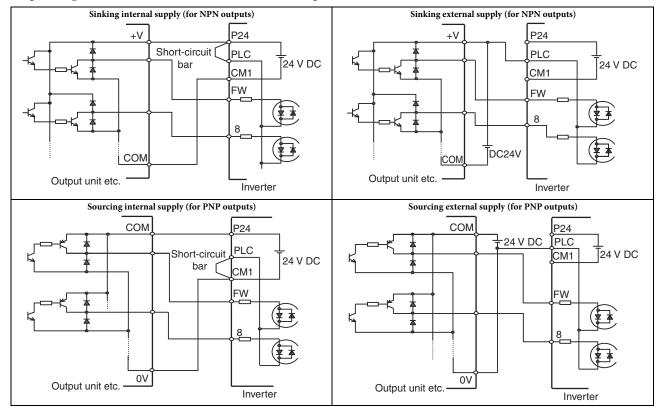
	Н	02	AM	FM	TH	FW	8	CM1	5	3	1	14	13	11	AL1
L	0	OI	AMI	P24	PLC	CM1	7	6	4	2	15	CM2	12	AL0	AL2

Terminal screw size M3 Tightening torque 0.7 N·m (0.8 max.)

Туре	No.	Signal name	Function	Signal level
input	Н	Frequency reference power supply	10 VDC 20 mA max	
e	0	Voltage frequency reference input	0 to 12 VDC (10 kΩ)	
referen	O2	Voltage auxiliary frequency reference	0 to +/- 12 VDC (10 kΩ)	
ıency	OI	Current frequency reference input	4 to 20 mA (100 Ω)	
Frequer	L	Frequency reference common	Common terminal for analog monitor (AM, AMI) terminals	
.	AM	Multi-function analog voltage output	Factory setting: Output frequency	2 mA max
Monitor Output	AMI	Multi-function analog current output	Factory setting: Output frequency	4 to 20 mA (max imp 250 Ω)
M 0	FM	PWM monitor output	Factory setting: Output frequency	0 to 10 VDC Max 3.6 kHz

	P24	Internal 24 VDC	Power supply for contact input signal	100 mA max
Power Supply		Internal 24 VDC		100 mA max
Po' Suj	CM1	Input common	Common terminal for P24, TH and FM digital monitor	
	FW	Forward rotation command terminal	Motor runs in forwards direction when FW is ON	27 VDC max Input imped 4.7 kΩ
	1	Multi-function input	Factory setting: Reverse (RV)	Max current 5.6 mA On: 18 VDC or more
	2		Factory setting: External trip (EXT)	
u	3		Factory setting: Reset (RS)	
electi	4		Factory setting: Multi-step speed reference 1 (CF1)	
Function Selection	5		Factory setting: Multi-step speed reference 2 (CF2)	
Funct	6		Factory setting: Jogging (JG)	
	7		Factory setting: Second control (SET)	
	8		Factory setting: No allocation (NO)	
	PLC	Multi-function input common	Sink logic: Short-circuiting P24 and PLC Source logic: Short-circuiting PLC and CM1 With external supply remove short-circuit bar	
	11	Multi-function output	Factory setting: During Run (RUN)	27 VDC max 50 mA max
L	12	-	Factory setting: 0 Hz signal (ZS)	
Facto	13		Factory setting: Overload warning (OL)	
Status/ Factor	14		Factory setting: Overtorque (OTQ)	
S	15		Factory setting: Constant speed arrival (FA1)	
	CM2	Multi-function output common	Common terminal for multi-function output terminals 11 to 15	
	AL1	Relay output (Normally close)	Factory setting: Alarm output (AL) Under normal operation	R load AL1-AL0
Relay output	AL2	Relay output (Normally open)	AL2-AL0 open AL1-AL0 close	250 VAC 2 A AL2-AL0
2 IO	AL0	Relay output common		250 VAC 1 A I load 250 VAC 0.2 A
Sensor	TH	External thermistor input terminal	SC terminal functions as the common terminal 100 mW minimum Impedance at temperature error: 3 kΩ	0 to 8 VDC
	SP	RS485 Modbus terminals	-	Differential input
smr	SN			
Comms	RP	RS485 terminating resistor terminals		
	SN	7		

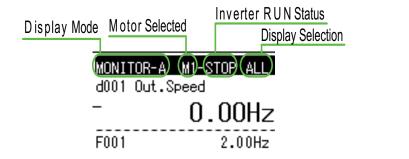
2.8 Digital inputs SINK/SOURCE (NPN/PNP) settings



3 PROGRAMMING RX

3.1 Digital operator

The display is used in programming the inverter's parameters, as well as monitoring specific parameter values during operation



Item	Content of Display	Content
Display Mode	MONITOR-A	Monitor-A mode
	MONITOR-B	Monitor-B mode
	FUNCTION	Function mode
	TRIP	Trip (error) mode
	WARNING	Warning mode (Alarm)
	OPTION	LCD Configuration Mode
Motor selected	M1	Motor 1 (SET multifunction = OFF)
	M2	Motor 2 (SET multifunction = ON)
Inverter RUN Status	STOP	Stopped
	FWD	Forward running
	REV	Reverse running
Display Selection (b037)	ALL	Display all
	UTL	Function individual display
	USR	User setting display
	СМР	Data compare display
	BAS	Basic display

PROGRAMMING RX

3.2 Navigation

LCD digital operator has four display modes which can be changed from one to another by pressing the 🔝 or 🚵 key at Navigation level. Moreover, there are 3 other models called Read mode, Write mode and Option mode. In any display mode, it moves to Read mode or Write mode via 🔤 key or 🔄 key, and moves to Option mode after pressing 🔝 , in and in at the same time. It returns to display modes via 🔄 key.

Each mode has its own layers, where contents and parameters settings cannot be changed at Navigation level. When pressing 🗾 key at Navigation level, a cursor will appear on below layer.

LCD Navigation levels

To move among the different Navigation levels press keys 🔝 or 🔝 . The outline of each mode is shown below.

Monitor Mode A

The "d" group inverter parameters and " $F \sim U$ " group inverter parameter are displayed on the same screen in this mode. The content of "d" group parameter is displayed with big font characters. The function code such as "F001" and contents of " $F \sim U$ " parameters are displayed, without the function name.

Monitor Mode B (Monitor x 4)

In this mode, four "d" group inverter parameters can be displayed at the same screen. The function codes of these parameters are not displayed.

Function Mode (setting)

In this mode, "F~U" group parameters can be displayed and set. Function code, function name, parameter content and parameter range are shown.

"d" group inverter parameter cannot be set and displayed in this mode.

Trip Mode

Trip information and warning information are displayed in this mode. With inverter trip or a warning happens, the trip screen will be displayed from any display modes. In Option Mode, Read Mode and Write Mode, the LED or WARNING LED will light up.

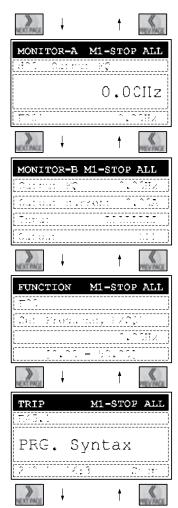
Pressing at the same time the up and down key in function code or data display will enable the single-digit edit mode that allows a faster navigation, refer to the manual for more details.

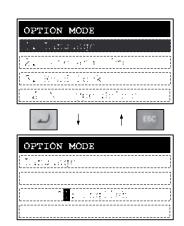
3.3 Language selection

To change the language is necessary to enter in OPTION MODE pressing \frown , \checkmark and \frown keys at the same time. The cursor will appear in the first row of the Option Mode menu. Use \frown or \checkmark key to move between the option Mode menu. To return to the navigator layer, press the \frown key.

Select the Language option and press the 🔜 key. The cursor will appear in the Language option value. Use the 💌 or 💓 key to select the value to set. Press the 🖃 key to store the new value.Press the 🔄 key to cancel the new value.

In the same way than the language is possible to set the date for the real time clock or use the read and write operation. For more details refer to RX or AX-OP05 user's manuals





OMRON

RX Quick Start Guide

3.4 Initialization

Initialize the parameters use the following procedure. Set parameter b084 to "2" and parameter b180 to "1".

Display example	Description		
FUNCTION M1-STOP ALL F001	Press the Prev. Page or Next Page key until function mode is displayed. And Press the Set key to enter function mode.	FUNCTION MI-STOP ALL 180 Initialize trigger 00:No action [00 - 01]	With the Prev. Page, Next Page, Up and Down keys select parameter b180 and press Set key to edit
FUNCTION M1-STOP ALL 084	With the Prev. Page, Next Page, Up and Down keys select parameter b084. Then press the Set key for parameter edition.	FUNCTION M1-STOP ALL b180 Initialize trigger 0 Initialize 00 Initialize	With the Up and Down keys put parameter b180 to 1.
FUNCTION MI-STOP ALL b084 Initialize Mode 02:Parameters [00 - 04]	With the Up and Down keys put the pa- rameter b084 to 2. Press the set key to store the change	Initial 01 IM-CT	Press the Set key and initialization process starts

3.5 Inverter modes

Display code	Function name	Setting range/content	Initial value	Remarks
A044	V/f characteristics	00: VC (Constant torque characteristics)	00	Use A244 for second motor
	selection	01: VP (Special reduced torque characteristics)		Use A344 for third motor (only
		02: Free V/F (characteristics)		option 0 and 1 available)
		03: SLV (Sensorless vector control)		option o and i avanable)
		04: 0SLV (0-Hz sensorless vector control)		
		05: V2 (Sensor vector control)		
b049	Dual rate selection	00: CT (Constant torque)	00	Some parameters default and
		150% overload during 60s		ranges depends off this setting. Refer to below table for details
		01: VT (Variable torque)		Refer to below table for details
		120% overload during 60s		
d060	Inverter mode	IM-CT (Induction motor constant torque)	-	
		IM-VT (Induction motor variable torque)	1	

Neither the A044 or the b049 needs a initialization to become effective but some parameters could be changed automatically when any of these parameters are modified.

This table shows the parameters that change when the dual rating selection is modified, remember that rated currents for heavy and normal duty are different.

Name	Func.	HD		ND	
Name	code				
V/f characteristics selection	A044	00: VC (Const. torque)	00: Const. torque	00: VC (Const. torque)	00: Const. torque
		01: VP (Reduced torque)		01: VP (Reduced torque)	
		02: Free V/F		02: Free V/F	
		03: SLV (Sensorless vector)			
		04: 0SLV (0-Hz sensorles)			
		05: V2 (Sensor vector)			
DC injection braking	A054	0 to 100(%) 0.4 to 55kW	50(%) 0.4-55kW	0 to 70(%) 0.4 to 55kW	50(%) 0.4 to 55kW
power		0 to 80(%) 75 to 132kW	40(%) 75-132kW	0 to 50(%) 75 to 132kW	40(%) 75 to 132kW
Startup DC injection	A057	0 to 100(%) 0.4 to 55kW	0(%)	0 to 70(%) 0.4 to 55kW	0(%)
braking power		0 to 80(%) 75 to 132kW		0 to 50(%) 75 to 132kW	
DC injection braking	A059	0.5 to 15.0(kHz) 0.4-55kW	5.0(kHz)0.4-55kW	0.0 to 12.0(kHz) 0.4-55kW	3.0(kHz)
carrier frequency		0.5 to 10.0(kHz) 75-132kW		0.5 to 8.0(kHz) 75 - 132kW	
Electronic thermal level	b012	(0.20 to 1.00) x Rated current	Rated current (A)	(0.20 to 1.00) x Rated current	Rated current (A)
Overload limit level	b022	(0.20 to 2.00) x Rated current	1.50 x Rated cur-	(0.20 to 1.50) x Rated current	1.20 x Rated cur-
Overload limit level 2	b025	(A) 04 to 55kW	rent (A)	(A)	rent (A)
		(0.20 to 1.80) x Rated current			
		(A) 75 to 132kW			

Name	Func. code	HD		ND	
Carrier frequency		0.5 to 15.0(kHz) 0.4-55kW 0.5 to 10.0(kHz) 75-132kW	· · ·	0.5 to 10.0(kHz) 0.4-55kW 0.5 to 8.0(kHz) 75 - 132kW	3.0(kHz)
Motor capacity selection	H003	0.2 to 160(kW)	Depends on type	0.4 to 160(kW)	1 size up than HD

3.6 Basic settings

After selecting the inverter mode follow next steps for a basic operation of the inverter

• Select frequency reference source on parameter A001

Parameter	Parameter Name	Details
A001	Frequency reference selection	00: VR (Digital Operator (FREQ adjuster)
		01: Terminal
		02: Digital operator (F001)
		03: RS485 (ModBus communication)
		04: Option 1
		05: Option 2
		06: Pulse train frequency
		07: EzSQ (Drive programming)
		10: (Math) Operation function result

• Select Run command source on parameter A002

Parameter	Parameter Name	Details
A002	Run command selection	01: Terminal
		02: Digital Operator (F001)
		03: RS485 (ModBus communication)
		04: Option 1
		05: Option 2

• Adjust the stopping method by b091 and the acceleration/deceleration ramps on parameters F002 and F003

Parameter	Parameter Name	Details
b091	Stop selection	00: Decel-Stop (Deceleration to stop)
		01: Free-RUN (Free run stop)
F002	Acceleration time 1	0.01 to 3600.00
F003	Deceleration time 1	0.01 to 3600.00

• Set the motor base frequency and AVR voltage of the motors in parameters A003 and A082

Parameter	Parameter Name	Details
A003	Base frequency	30.0 to maximum frequency [A004]
A082	AVR voltage selection	200-V class: 200 to 240V 400-V class: 380 to 480V

• Set the motor data: rated current (b012), rated power (H003) and number of poles (H004)

Parameter	Parameter Name	Details
b012	Electronic thermal level	0.20 x Rated current to 1.00 x Rated current
H003	Motor capacity selection	0.20 to 160.0 kW
H004	Motor pole number selection	2 to 10 poles
P011	Encoder pulses	128 to 65535 (Only for sensor vector control)

• When working in sensorless vector control, 0-Hz sensorless vector or sensor vector control always perform motor auto tuning by parameter H001 to achieve a good performance (see next section for details)

At this point the inverter is ready to run the motor for the first time, but first review this check-list:

- Verify the power LED is ON. If not, check the power connections.
- Make sure the motor is disconnected from any mechanical load.
- Make sure that you have a frequency reference checking the content of F001
- Now give the RUN command from the selected source. The RUN LED will turn ON.
- The motor should start turning.
- Remove the RUN command or press the STOP key to stop the motor rotation.

OMRON

RX Quick Start Guide

3.7 Auto tuning (vector control modes)

The RX inverter has auto-tuning function to get suitable motor control performance by measuring the motor constants automatically. Auto-tuning is effective only for vector control types (sensorless, 0-Hz or sensor type). Basically two modes are available the static and the rotative:

- Static is less accurate but it could be used in situations where motor rotation could damage the mechanics. For this type neither the I0 (no-load current) or the J (inertia) are calculated.
- Rotative auto-tuning moves the motor following a special operation pattern to find the motor characteristics. However, the torque during auto-tuning is not sufficient so is recommended to detach the mechanical system and should not be used with for example vertical loads.

The Auto-tuning mode is selected by parameter H001 but also is necessary to set H002 to use the parameters find during the autotuning process.

Parameter	Parameter Name	Description
H001	Auto-tuning selection	00: OFF (Disabled)
		01: ON (STOP)
		02: ON (Rotation)
H002	Motor parameter selection	00: Standard motor parameter
		01: Auto-tuning parameter
		02: Auto-tuning parameter (online auto-tuning enabled)

For a correct auto-tuning calculation please take into account following recommendations before starting:

- Use only a motor of the same size or one size lower than the inverter.
- Be sure to disable the DC braking setting (A051=00)
- Be sure to deactivate ATR digital input (52: Enable torque cmd. input)
- In rotary mode the motor rotates up to 80% of base frequency, check if it's a problem for the application.
- Motor should not be driven by any other external force.
- All the brakes should be released
- Be sure that physical limits of the machine will not be reach
- Even for none-rotative auto-tuning there is a risk that motor moves slightly

After checking the above points and setting parameter H001 proceed with the activation of the Run command from the source selected on A002 and the auto-tuning will start. Please check the diagram on next page for detailed information of all the steps.

After tuning the H001 returns to "00" status and the motor characteristics are transferred to those parameter, remember to set H002 to use them.

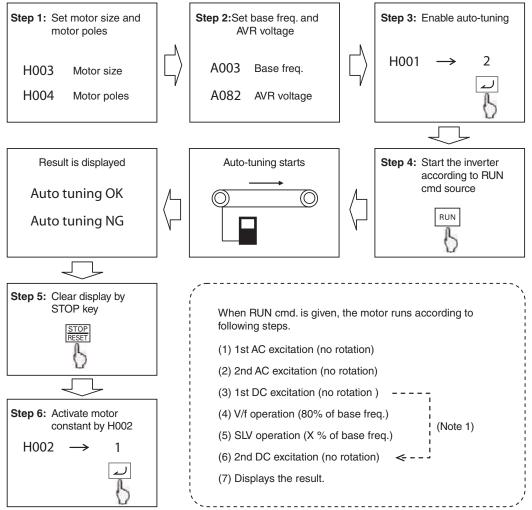
Parameter	Parameter Name	Description
H030	Motor parameter R1 (auto-tuning data)	0.001 to 65.535 Ω
H031	Motor parameter R2 0.001 to 65.535 Ω (auto-tuning data)	
H032	Motor parameter L (auto-tuning data)	0.01 to 655.35 mH
H033	Motor parameter Io (auto-tuning data)	0.01 to 655.35 A
H034	Motor parameter J (auto-tuning data)	0.001 to 9999.000 kgm2

In case rotary tuning is not possible or autotuning results in a very high No Load current (H033) (this is possible with small motors), please use this formula to calculate theoretical value:

H033 = Inom * sin (arccos(cos phi)).

PROGRAMMING RX

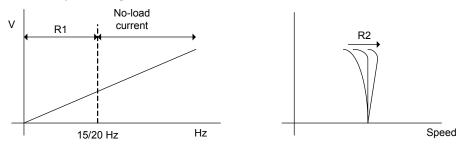
Next diagram shows the auto-tuning procedure with motor rotation



A fine tuning could be achieved setting parameter H005 that adjust the motor speed response. If the motor vibrates at constant speed then you should reduce the H005 setting, if on the contrary the response of the motor is not enough you could increase the value.

The H005 acts as a global gain response but also is possible to adjust the motor response at certain areas adjusting the motor parameters separately.

- The R1 parameter is adjusting the voltage applied at low speed, below 15-20Hz
- No load current I0 is used for adjusting the voltage above this 15-20Hz
- Finally R2 value is used to adjust the slip of the motor

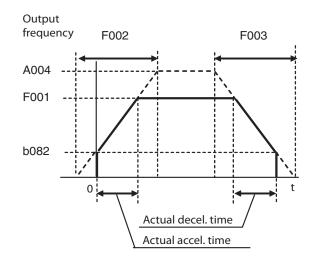


3.8 Ramps adjustment

The basic frequency (speed) profile is defined by parameters contained in the "F" Group as shown to the right. The set running frequency is in Hz, but acceleration and deceleration are specified in the time duration of the ramp (from zero to maximum frequency, or from maximum frequency to zero).

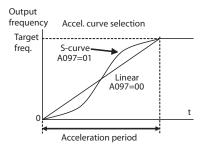
Acceleration 1 and Deceleration 1 are the standard default accel and decel values for the main profile. Accel and decel values for an alternative profile are specified by using parameters A092 through A093.

Acceleration and deceleration can be set via Drive programming as well via parameter P031



Parameter	Parameter Name	Description
A004	Maximum frequency	A003 to 400
b082	Starting frequency	0.10 to 9.99 Hz
F001	Output frequency setting/monitor	0.00 to 400.00 Hz
F002	Acceleration time 1	0.01 to 3600.00 s
F003	Deceleration time 1	0.01 to 3600.00 s
P031	Acceleration/Deceleration time input	00: OPE (Digital operator)
	type	01: Option 1
		02: Option 2
		03: EzSQ (Drive Programming)

Standard acceleration and deceleration is linear. The inverter CPU can also calculate an S-curve acceleration or deceleration curve as shown. These profiles are useful for favoring the load characteristics in particular applications, like for example the U-curve for deceleration of big inertial load. Even if the shape of the ramps change the time keeps being the same one set in F002/F003



Curve settings for acceleration and deceleration are independently selected. To enable the S-curve, use function **A097** (acceleration) and **A098** (deceleration).

Parameter	Parameter Name	Description
A097	Acceleration pattern selection	00: Line
		01: S-curve
A098	Deceleration pattern selection	02: U-curve
	_	03: Inverse U-curve
		04: EL-S curve
A131	Acceleration curve parameter	01 (small curve) to 10 (large curve)
A132	Deceleration curve parameter	01 (small curve) to 10 (large curve)
A150	EL-S-curve ratio 1 during acceleration	0 to 50%
A151	EL-S-curve ratio 2 during acceleration	0 to 50%
A152	EL-S-curve ratio 1 during deceleration	0 to 50%
A153	EL-S-curve ratio 2 during deceleration	0 to 50%

Setting	00	01	02	03	04
Curve	Line	S-curve	U-curve	Inverse U-curve	EL S-curve
A097 (Accel. pattern)	Freq.	Freq.	Freq.	Freq.	Freq.
A098 (Decel. pattern)	Output frequency	And the second s	Output frequency Lime	fime	Acuenbeut truthuo Time

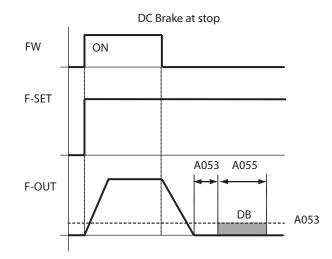
This table shows the different acceleration shapes

3.9 DC braking

The DC braking feature can provide additional stopping torque during deceleration or before acceleration and is particularly useful at low speeds when normal deceleration torque is minimal. This function injects a DC voltage into the motor windings which generates a DC current that force the motor to stop.

There are several modes available depending on the application requirements:

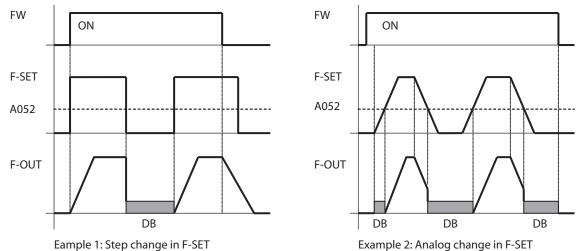
• Normal DC braking is used when A051 is set to "01" (Enable during stop) and the RUN command (FW/RV) is turned OFF, at the moment that deceleration stops the DC brake starts with a settable power (A054) and duration (A055). Additionally is possible to specify a wait time between the end of the ramp and the DC braking on parameter A053, during which the motor will free run. If free-run is selected as stopping method the DC braking will start just when the Run commands turns OFF.



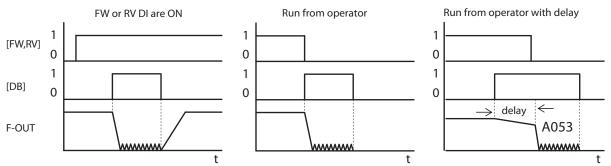
OMRON

RX Quick Start Guide

• DC braking by frequency detection can be selected setting A051 to "02" (Frequency detection). In this case DC braking operates when the output frequency comes down to the one you specified in A052 while the RUN command is still active. External DB and internal DC braking are invalid during the frequency detection mode.



- Γ ontion is to triager the DC injection by a digital input when the terminal (Γ
- Last option is to trigger the DC injection by a digital input when the terminal (DB) is turned ON. Set parameters A053 and A054 to setup this function. There are several cases depending on the motor rotation and Run command status.

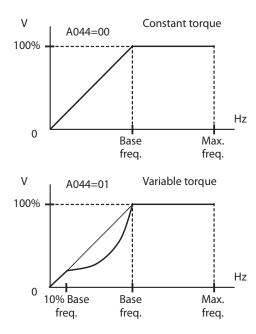


DC braking at startup is also possible by independent setup of parameters A057 and A058. This is useful in applications were load should be totally stopped before starting the movement.

Parameter	Parameter Name	Description
A051	DC injection braking selection	00: OFF (Disabled) 01: ON (Enabled) 02: ON (FQ) (Frequency control [A052 set value])
A052	DC injection braking frequency	0.00 to 400.00 Hz
A053	DC injection braking delay time	The delay from the end of controlled deceleration to start of DC braking (motor free runs until DC braking begins) 0.0 to 5.0 s
A054	DC injection braking power	0 to 100% (0.4 to 55 kW) 0 to 80% (75 to 132 kW)
A055	DC injection braking time	Sets the duration for DC braking 0.0 to 60.0 s
A056	DC injection braking method selec- tion	00: Edge operation 01: Level operation
A057	Startup DC injection braking power	0 to 100% (0.4 to 55 kW) 0 to 80% (75 to 132 kW)
A058	Startup DC injection braking time	Sets the duration for DC braking 0.0 to 60.0 s
A059	DC injection braking carrier fre- quency	Carrier frequency of DC braking performance 0.5 to 15.0 kHz (0.4 to 55 kW) 0.5 to 10.0 kHz (75 to 132 kW)

Be careful to avoid specifying too long braking time or too high carrier frequency that can cause motor overheating. If you use DC braking is recommended to use motors with a built-in thermistor and wire it to inverter's thermistor input.

3.10 V/F curve



The inverter generates the motor output according to the V/f algorithm selected on parameter A044. The factory default is Constant torque ("00"). Review following description to help you choose the best torque control algorithm for your application:.

• **Constant and Variable (Reduced) Torque** - Graph on the right shows the constant torque characteristic from 0 Hz to the base frequency **A003**. The voltage remains constant for output frequencies higher than the base frequency.

• Variable torque - Graph on the right shows the variable (reduced) torque curve, which has a constant torque characteristic from 0 Hz to 10% of the base frequency. This helps to achieve higher torque at low speed with reduced torque curve at higher speeds.

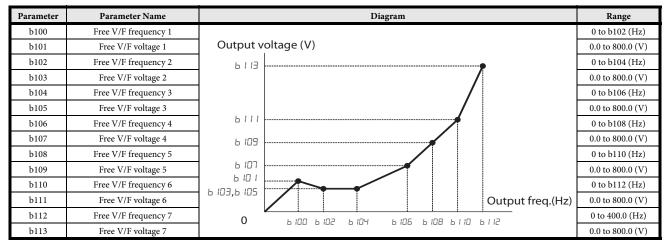
• Sensorless Vector Control - You can achieve high torque performance without motor speed feedback but a good tuning of the motor is necessary to do it. Please remember to perform auto-tuning for this control method. (A044="3")

•0-Hz sensorless vector control - Similar to sensorless but focus on a high starting torque around 0-Hz point. Remember to use an inverter one frame big-ger than the motor.

• Sensor vector control - Provides a full close vector control with an external encoder achieving high torque and speed precision in all the speed range.

• Free V/F Control - The free V/F setting function allows you to set an arbitrary V/F characteristics by specifying seven voltage and frequency points (b100~b113) on the V/F characteristic curve (A044="2")

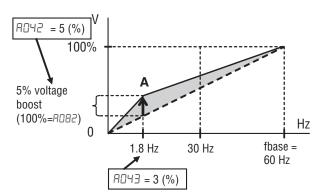
This table shows the details about the Free V/F control



3.11 Torque boost function

Manual torque boost - Constant and Variable torque algorithms feature and adjustable torque boost curve that could help during the startup of load with very big inertia or friction. On those cases it may be necessary to increase the low frequency starting torque characteristic by boosting the voltage above the normal V/F ratio. Basically it attempts to compensate for voltage drop in the motor primary winding in the low speed range.

Be aware that running the motor at a low speed for a long time can cause motor overheating and this happens more often when manual torque boost is activated and motor doesn't have force ventilation.



Automatic torque boost- Use the voltage compensation (A046) and slip compensation (A047) to obtain a better performance under automatic torque boost mode (A041=01) adjusting the output frequency and output voltage automatically depending on the load. The output voltage due automatic boost is added to the manual torque boost voltage so both should be adjusted.

Parameter	Parameter Name	Description
A041	Torque boost selection	00: Manual torque boost 01: Automatic torque boost
A042	Manual torque boost voltage	Can boost starting torque between 0 and 20% above normal V/f curve 0.0 to 20.0%
A043	Manual torque boost frequency	Sets the frequency of the V/f breakpoint for torque boost 0.0 to 50.0%
A044	V/f characteristics selection	00: VC (Constant torque characteristics) 01: VP (Special reduced torque characteristics) 02: Free V/F (characteristics)
A045	Output voltage gain	Sets voltage gain of the inverter 20 to 100%
A046	Automatic torque boost voltage com- pensation gain	Sets voltage compensation gain under automatic torque boost 0 to 255
A047	Automatic torque boost slip compen- sation gain	Sets slip compensation gain under automatic torque boost 0 to 255

3.12 Analog inputs

RX provides three analog inputs, the input terminal group includes the [L], [OI], [O],[O2] and [H] terminals on the control connector, which provide Voltage [O] (0 to 10V),[O2] (-10 to 10V) or Current [OI](4-20mA) input. All analog input signals must use the analog ground [L].

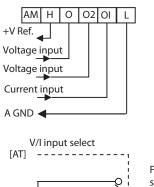
If you use either the voltage or current analog inputs, you must select one of them using the logic input terminal function [AT] analog type. Refer to next table for details about the combinations between A005 and [AT] terminal. Remember that you must also set A001=01 to select analog input as the frequency source.

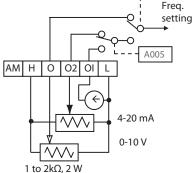
If [AT] function is not assigned to any digital input the inverter recognizes the [AT] as OFF and the used value depends on A005 parameter setting. Default setting use [O]+[OI] as analog input. In case either (O) or (OI) is to be referred, please ground the other.

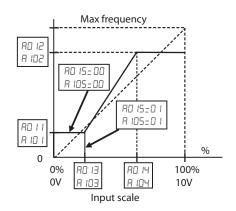
A005	[AT] Input	Analog Input Configuration
00	ON	[O]
	OFF	[OI]
01	ON	[O]
	OFF	[O2]
02	ON	[O]
	OFF	Integrated POT on external operator panel
03	ON	[OI]
	OFF	Integrated POT on external operator panel

For [O] input and using parameters A013 and A014 you could select the portion of the voltage input range. Parameters A011 and A012 select the start and end frequency of the converted output frequency range, respectively. When the line does not begin at the origin (A011 and A013 > 0), then A015 defines whether the

Parameter	Parameter name	Description
A011	O start frequency	0.00 to 400.00 Hz
A012	O end frequency	0.00 to 400.00 Hz
A013	O start ratio	0 to 100%
A014	O end ratio	0 to 100%
A015	O start selection	00: External start frequency (A011 set value) 01: 0 Hz
A101	OI start frequency	0.00 to 400.00 Hz
A102	OI end frequency	0.00 to 400.00 Hz
A103	OI start ratio	0% to OI end ratio
A104	OI end ratio	OI start ratio to 100%
A105	OI start selection	00: Start FQ (Use OI start frequency [A101]) 01: 0 Hz







Parameter	Parameter name	Description
A016	O, O2, OI sampling	1 to 30 31 (with 500ms filter ±0.1 Hz hysteresis)
A111	O2 start frequency	-400.00 to 400.00 Hz
A112	O2 end frequency	-400.00 to 400.00 Hz
A113	O2 start ratio	-100% to O2 end ratio
A114	O2 end ratio	O2 start ratio to 100%

3.13 Digital inputs

The function codes in the following table let you assign between a wide range of functions to any of the eight logic inputs for the RX inverter. The functions C001 through C008 configure the terminals [1] through [8] respectively, terminal [FW] could not be set and work always as Run forward or to start a Drive programing. The "value" of these particular parameters is not a scalar value, but it is a discrete number that selects one option from many available options.

Input Function Summary Table				
Option Code	Terminal Symbol	Function Name		Description
01	RV	Reverse run/stop	ON	Inverter is in Run Mode, motor runs reverse
			OFF	Inverter is in Stop Mode, motor stops
02	CF1	Multi-step speed setting binary 1	ON	Binary encoded speed selection bit 3 to bit 0
03	CF2	Multi-step speed setting binary 2		
04	CF3	Multi-step speed setting binary 3	OFF	
05	CF4	Multi-step speed setting binary 4		
06	JG	Jogging	ON	Inverter is in Run Mode, output to motor runs at jog parameter frequency
07	DB	External DC injection braking	ON	DC braking will be applied during deceleration
08	SET	Set (select) 2nd control	ON	The inverter uses 2nd motor parameters for generating frequency output to motor
			OFF	The inverter uses 1st (main) motor parameters for generating frequency output to motor
09	2CH	2-step acceleration/deceleration	ON	Frequency output uses 2nd-stage acceleration and deceleration values
			OFF	Frequency output uses standard acceleration and deceleration values
11	FRS	Free-run stop	ON	Causes output to turn OFF, allowing motor to free run (coast) to stop
12	EXT	External trip	ON	When assigned input transitions OFF to ON, inverter latches trip event and displays E 12
			OFF	No trip event for ON to OFF, any recorded trip events remain in history until reset
13	USP	USP function	ON	On power up, the inverter will not resume a Run command
			OFF	On power up, the inverter will resume a Run command that was active before power loss
14	CS	Commercial switch	ON	Motor can be driven by commercial power
			OFF	Motor is driven via the inverter
15	SFT	Soft lock	ON	The keypad and remote programming devices are prevented from changing parameters
			OFF	The parameters may be edited and stored
16	AT	Analog input switching	ON	Refer to Analog Input selection
			OFF	
17	SET3	Set (select) 3rd control	ON	The inverter uses 3rd motor parameters for generating frequency output to motor
18	RS	Reset inverter	ON	The trip condition is reset, the motor output is turned OFF, and powerup reset is asserted
			OFF	Normal power-ON operation
20	STA	Start (3-wire start)	ON	Starts the motor rotation
21	STP	Stop (3-wire stop)	ON	Stops the motor rotation
22	F/R	FWD, REV (3-wire forward/reverse)	ON	Selects the direction of motor rotation: ON = FWD. While the motor is rotating, a change of F/R will start a deceleration, followed by a change in direction
			OFF	Selects the direction of motor rotation: OFF = REV. While the motor is rotating, a change of F/R will start a deceleration, followed by a change in direction
23	PID	PID enabled/disabled	ON	Temporarily disables PID loop control. Inverter output turns OFF as long as PID Enable is active (A071=01) $$
			OFF	Has no effect on PID loop operation, operates normally if PID Enable is active (A071=01)
24	PIDC	PID integral reset	ON	Resets the PID loop controller. Main consequence is that integrator sum is forced to zero
26	CAS	Control gain switching	ON	Control gain switching function
27	UP	UP/DWN function accelerated	ON	Accelerates (increases output frequency) motor from current frequency
28	DWN	UP/DWN function decelerated	ON	Decelerates (decreases output frequency) motor from current frequency
29	UDC	UP/DWN function data clear	ON	Clears the UP/DWN frequency memory by forcing it to equal the set frequency parameter F001. Setting C101 must be set=00 to enable this function to work
31	OPE	Forced operator	ON	Forces the source of the output frequency setting A001 and the source of the Run command A002 to be from the digital operator
			OFF	Source of output frequency set by A001 and source of Run command set by A002 is used

Option Terminal (%) Franciso Name Description 30 SFI Multi-stop-paed setting bit 1 ON (%) Immediate the setting of the setting o	Input Function Summary Table				
31 ST1 Matic support extraining hit 1 ON Bit meaded quest wheet, Bit 1 to Bit 7 33 ST2 Matic support extraining hit 2 OFF Second and the support extraining hit 2 34 ST3 Matic support extraining hit 2 OFF Second and the support extraining hit 2 35 SF4 Matic support extraining hit 2 OFF Second and the support extraining hit 2 36 SF7 Matic support extraining hit 2 OFF Normal operation 38 SF7 Matic support extraining hit 2 OFF Normal operation 40 T1 Torget limit switching 1 ON Torget limit switching 1 ON 41 TRQ1 Torget limit switching 1 ON Torget limit switching 1 ON 42 TP1 wisking OFF Proportional acid ingrap least oxitor for exctor control OFF 43 P1 P1 wisking ON Static confirmation is gain arccircle OFF 44 DK Orientation OFF Torget normation signal received OFF 45 OFF <td< th=""><th></th><th></th><th>Function Name</th><th>1</th><th>•</th></td<>			Function Name	1	•
31 SF2 Multi-stop-pred string bit 3 33 SF4 Multi-stop-pred string bit 3 OFF 34 SF3 Multi-stop-pred string bit 3 OFF 35 SF4 Multi-stop-pred string bit 3 OFF 38 SF7 Multi-stop-pred string bit 3 OFF 38 SF7 Multi-stop-pred string bit 3 OFF 38 SF7 Multi-stop-pred string bit 3 OFF 39 OPF/Sol Multi-stop-pred string bit 3 OFF Normal operation 40 Trage-limit enabled ON String PMO is challed OFF 41 Trage-limit enabled OFF Mar. torget is finited with 20% Torque limit withching OFF 42 TRQ2 Torque-limit withching OFF Mar. torget is finited with 20% Torque-limit withching OFF 43 PFI PFIP oschring OFF Mar. torget is finited with 20% Torque-limit withching OFF 44 DOK Torque-limit withching OFF Mar. torget is finited with 20% OFF 45 OFT Oreristion OFF Mar. torget is control orevet cor		- /	Malti dan marikatika hidi	ON	nu and data data nu ta nu m
34 97 Multi step yeed string bit 3 35 SF4 Multi step yeed string bit 3 36 SF3 Multi step yeed string bit 3 37 SF8 Multi step yeed string bit 3 38 SF7 Multi step yeed string bit 3 39 OLR Overloal limit witching ON 40 TL Tooge limit enabled ON 41 TRQ1 Trouge limit enabled ON 42 TRQ2 Toroge limit enabled ON 43 TRQ2 Toroge limit enabled ON 44 TRQ1 Toroge limit enabled ON 45 TRQ2 Toroge limit enabled ON 46 TRQ2 Toroge limit enabled ON 47 TRQ2 Toroge limit enabled ON 48 DCK Back confirmation ON 49 TRQ2 Toroge limit enabled ON 40 TCL I Dranet ON 41 Toroge limit enabled ON 42 Toroge limit enabled ON 43 Toroge limit enabled ON 44 DCK Back confirmation signal not receired 45 L Arta inderena vertain a distring of a				ON	Bit encoded speed select, Bit I to Bit 7
35 SF4 Math step preed setting bit 4 OFF 36 SF5 Math step preed setting bit 5 OFF 37 SF6 Math step preed setting bit 7 38 SF7 Math step preed setting bit 7 39 OFF Normal operation 41 Tropse limit enabled OFF 42 TRQ3 Torque limit enabled OFF 43 PPI PDP protoching OFF 44 PDQ3 Torque limit enabled OFF 45 TRQ3 Torque limit enabled OFF 46 DCK Bock confirmation OFF 47 PPI PDP protoching OFF 48 STAT Policitation ON 49 DCK Policitation ON 40 DCK Contradison fault on the contrantion signal received 41 IDC IdA and the contrantion signal received 42 TRQ3 Contradison fault on the control or vector control 43 POT Orientation ON 44 BOK Reference DN 45 OKT Orientation ON 46 LAC IAD DN 47 PC1R			1 1 0		
36 975 Multi-step speed setting bit 5 37 376 Multi-step speed setting bit 6 38 577 Multi-step speed setting bit 6 38 577 Multi-step speed setting bit 7 39 OLR Oreshal limit sotiching ON 40 Tr. Torge limit and setting 2 OFF 41 TRQ1 Torge limit sotiching 1 ON Setting of bit 0 is nankid 42 TRQ2 Torge limit sotiching 2 OFF Forger limit related parameters of Noverco control 43 P1 VPI socialize OFF Forger limit relations of the set inputs 44 TRQ2 Torge limit sotiching 2 OFF OFF 45 P1 VPI socialize OFF OFF 46 LAC LAD cancel OF Brake confirmation signal otic receivel 47 PCLR Postion deviation clear OFF Accd and/or doci is according to the set ramp time set set is set interport set is maint site is according to the set ramp time set is according to the set ramp				OFF	-
37 SF6 Multi-step speed setting bit 6 38 SF7 Multi-step speed setting bit 6 39 OFF Narmal spectation 40 TL Torope limit existicing OFF Narmal spectation 41 Trouge limit existicing Trouge limit existicing ON Setting of Vol 3 example view of Vol 3 example combinations of Holes inputs. 42 TRQ21 Torope limit existicing Trouge limit existicing of Vol 3 example view view view of Vol 3 example view of Vol 3 example view				OFF	
38 SF7 Multi-step speed setting bit 7 39 OLR Overload limit switching requestion overload restriction OK Perform overload restriction 40 TL Torque limit enabled OF Normal operation 41 TKQ1 Torque limit evolching 2 OFF Max. torque is limit overload restriction 42 TWQ2 Torque limit switching 2 OFF Max. torque is limit on the operation of the operational speed control for vector control 43 PP1 P/P1 evictiching ON Evice confirmation signal received 44 BOK Brake confirmation ON State confirmation signal received 44 OT Orientation ON State confirmation signal received 45 OAR Orientation ON State confirmation signal received 46 LAC LAD canced ON Clear the position deviation data 47 PCLR Position deviation OFF Mark torin position deviation data 48 STAT Pulse train position command OFF Mark ton position deviation data					
39 OLR Overload limit switching OFF Normal operation Normal operation 40 TL Torque limit enabled OFF Normal operation Mat. torque inmited with 200% Mat. torque inmited with 200% OFF Mat. torque inmited with 200% Mat. torque inmited with 200% OFF 41 TRQ1 Torque limit switching 1 ON Secture limit switching 0 42 TRQ2 Torque limit switching 2 OFF Mat. torque inmited with 200% Combinations of there inputs. 43 PFT PRIse orightmassing ON Torque limit switching 1 44 BOK Thake confirmation of the confirmation signal received OFF 45 ORT Orientation ON Orientation function is performed 46 LAC LAD cancel ON Cler the position deviation data 47 PCIR Position deviation clear ON Cler the position deviation data 48 STAT Puble train position command input primission ON Clear the position contrain of upt or upt inmediately follows the freq. command input primission 50 ADD Forequercy addition ON No Positon deviation data					
Image: state of the s				ON	Deuform analogid motoistica
40 TL Torque limit enabled OF Mat torque is minde with 200% 41 TRQ1 Torque limit switching 1 ON Torque limit switching 1 43 TRQ2 Torque limit switching 2 OFF Factor parameters of Powering/regen, and FW/RV modes are selected by 1 combinational dues and integral speed control for vector control 44 BOK Brake confirmation ON Porportional speed control for vector control 44 BOK Brake confirmation signal received OFF Facks confirmation signal received 45 ORT Orientation ON Stramp times are ignored. Inverter output immediately follows the freq. command. 46 LAC LAD cancel ON ON Requires the position deviation data 47 PCLR Position deviation clear OFF Maintain the position deviation data 48 STAT Pilet trin position command ON Restring of the stramp times are ignored parameters of the output frequency 50 ADD Frequency addition OFF Maintain the position deviation data 51 F-TM Forced terminal blook OF Dore not add	39	OLK	Overload limit switching		
Image OFF Max. trage is hunited with 20%. 41 TRQ1 Torque limit soltching 1 OK Torque protects of Powering/regen, and PW/RV modes are selected by 1 42 TRQ2 Torque limit soltching 2 OFF Fouritations affine data protects of Powering/regen, and PW/RV modes are selected by 1 43 PPI PVI switching OK Proportional and incread paced control for vector control 44 BOK Brake confirmation OK Proportional and incread paced control for vector control 45 OKT Orientation ON Orientation function is performed 46 LAC LAD cancel ON Str rang times are ignored. Inverter output immediately follows the free_command. 47 PCLR Position deviation dear OFF Match and the position deviation data 48 STAT Pulse train position command ON Pulse train position command input protection deviation data 49 STAT Pulse train position command ON Porce inverter to us induce train position command source of Run command source of Ru	40	TI	Torque limit enabled		*
41 TRQ1 Torque limit solutioning 1 ON Foregular init valued parameters of Powering/regen, and PW/RV modes are selected by 1 42 TRQ2 Torque limit solutioning 2 OFF Proportional speed control for vector control 43 PPI PPI solutioning OR Proportional and integral speed control for vector control 44 BOK Brake confirmation ON Orderation and integral speed control for vector control 44 BOK Dreination ON Orderation function is performed 45 ORT Orienation ON Orderation function is performed 46 LAC LAD cancel ON Clear the position deviation data 47 PCLR Position deviation clear ON Clear the position deviation data 48 STAT Pulse train position coronand ON Accd and/or dect is according thou the output frequency 50 ADD Frequency addition ON Add the 145 (add frequency) value to the output frequency 51 F-TM Force terminal block OFF Does not add the At145 (add frequency) value to the output frequency	40	IL	Torque innit enabled		
42 TRQ2 Torque limit switching 2 OFF combinations of these inputs. 43 PPI P/T switching OK Proportional and integral speed control for vector control 44 BOK Brake confirmation signal received OFF Wate confirmation signal received 45 ORT Orientation ON Orientation is performed 46 LAC LAD cancel ON Set rany times are ignored. Inverter output immediately follows the freq. command. 47 PCLR Position deviation clear OFF Maintain the position deviation data 48 STAT Pubs train position command ON Pubs train position command 50 ADP Frequency addition ON Pore inverter to use input terminals for output frequency 51 F-TM Forced terminal block ON Fore inverter to use input terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequency and Run command set by A002 is use formed output terminals for output frequen	41	TPO1	Torque limit switching 1	-	
43 PPI P/PI svitching ON Proportional queed control for vector control 44 BOK Brake confirmation ON Proportional and integral speed control for vector control 44 BOK Brake confirmation signal net vector control ON Preduce contrustion signal net vector control 45 ORT Orientation ON Set any times registree contrustion signal net vector control 46 LAC LAD cancel ON Set any times registree contrustion to set any time 47 PCIR Position deviation clear ON Set are position deviation data 48 SYAY Pode train position command ON Pode train position command input enable 50 ADD Frequency addition ON Adds the A143 (add frequency) value to the output frequency 51 F.TM Forcel terminal block ON Force inverter to us input terminals for output frequency and Run command sources 52 ATR Torque command input permis- ON Clear vart-hour data 54 SON Servo ON ON Inverter cost in fore-run status (Run command vall not be accepted on this state) 55 FOC Preliminary excitation ON Supplex excitation current to the motor to establish magnetic flux 57 MI2 Drive					
Off Proportional and integral speed control for vector control 44 BOK Brake confirmation signal received 45 ORT Orientation ON Brake confirmation signal received 46 LAC LAD cancel ON Orientation function is part received 46 LAC LAD cancel ON Set ramp times are ignored. Inverter output immediately follows the freq. command. 47 PCLR Position deviation clear ON Clear the position deviation data 48 STAT Pulse train position command input enable. ON Adds the A145 (add frequency) value to the output frequency and Run command sources 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency and Run command sources 51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency and Run command sources 52 ATR angue command input permis- son ON Force inverter to use input terminals for output frequency and Run command sources 54 SFOC Preliminary excitation ON Force inverter to use input tinput enable 55			· · ·		Proportional speed control for vector control
44 BOK Brake confirmation ON Brake confirmation signal received 45 ORT Orientation function is performed 46 LAC LAD cancel ON Set ramp times are ignored. Inverter output immediately follows the freq. command. OFF 47 PCLR Position deviation clear ON Set ramp times are ignored. Inverter output immediately follows the freq. command. OFF 48 STAT Pulse train position command ON Past train position contained data 50 ADD Frequency addition ON Adds the A145 stude to the output frequency 51 F-TM Forced terminal block OFF Does not add the A145 stude to the output frequency 52 ATR Torque command input permission ON Clear watt-hour data 54 SON Serve ON ON Inverter enters in serve lock status 55 FOC Preliminary excitation ON Inverter goes into free-run status (Run command will not be accepted on this state) 56 MI1 Drive programming input 3 OFF Inverter goes into free-run status (Run command will not be accepted on this state) <tr< td=""><td>43</td><td>rr1</td><td>r/ri switching</td><td></td><td>Å Å</td></tr<>	43	rr1	r/ri switching		Å Å
def OFF Frake confirmation signal not received 45 ORT Orientation ON Orientation function is performed 46 LAC LAD cancel ON Set ramp times regineed. Inverter output immediately follows the freq. command. OFF 47 PCLR Position deviation clear ON Clear the position deviation data 48 STAT Pulse train position command input permission ON Clear the position deviation data 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency. 51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency and Run command set by A002 is used sion 52 ATR Torque command input permission ON Ever the out data 53 KHC Integrated power clear ON Inverter goes into free-run status (Run command will not be accepted on this state) 54 M1 Drive programming input 3 OFF Inverter goes input (1) to (8) under Drive programming 55 FOC Preliminary exclution ON General purpose input (1) to (8) under Drive programming </td <td>44</td> <td>BOK</td> <td>Brake confirmation</td> <td></td> <td></td>	44	BOK	Brake confirmation		
45 ORT Orientation ON Orientation function is performed 46 LAC LAD cacel ON Set ramp times are ignored. Inverter output immediately follows the freq. command. 47 PCLR Position deviation clear ON Set ramp times are ignored. Inverter output immediately follows the freq. command. 48 STAT Pulse train position command input permission ON Clear the position deviation data 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency and Run command sources 51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency and Run command sources 52 ATR Torgue command input permis- source of output frequency A001 and source of Run command set by A002 is used 53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo O OFF Inverter goes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation OFF Inverter goes into free-run status (Run command will not be accepted on this state) 56 M11 Drive programming input 3 OFF Inverter goes into	-11	DOK			
46 LAC LAD cancel ON Set ramp times are ignored. Inverter output immediately follows the freq. command. 47 PCLR Position deviation clear ON Clear the position deviation data 48 STAT Pulse train position command input temposition command input temposition deviation data 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency 51 F-TM Forcel terminal block ON Force inverter to use input terminals for output frequency 52 ATR Torque command input permis- son ON Force inverter to use input terminals for output frequency 53 KHC Integrated power clear ON Clear wath-hour data Inverter sons in servo lock status 54 SON Servo ON ON Inverter sons in fore- run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation OFF Inverter sons infore-run status (Run command will not be accepted on this state) 56 M11 Drive programming input 3 OFF Inverter sons infore-run status (Run command will not be accepted on this state) 57 M12 Drive programming input 3 OFF Inverter sons in	45	ORT	Orientation		
OFF Accel. ad/or decd. is according to the set ramp time 47 PCLR Position deviation clear OFF Maintain depaition data 48 STAT Pulse train position command input permission ON Clear the position deviation data 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency 51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency 51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency and Run command serby A002 is use 52 ATR Torque command input permits- sion ON Clear wath-hour data 54 SON Serve ON ON Inverter goes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation ON Supplies excitation current to the motor to estabilish magnetic flux 57 M12 Drive programming input 2 ON Supplies excitation current to the motor to estabilish magnetic flux 58 M13 Drive programming input 4 OFF Invereter goes into free-run status (Ru					A
47 PCLR Position deviation clear ON Clear the position deviation data 48 STAT Pulse train position command input permission ON Pale train position deviation data 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency 51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency 51 F-TM Force command input permission ON Force inverter to use input terminals for output frequency and source of Run command sources 52 ATR Torque command input permission ON Force inverter to use input terminals for output frequency at by A001 and source of Run command sources 53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo ON ON Inverter goes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation OFF Inverter goes into free-run status (Run command will not be accepted on this state) 56 M11 Drive programming input 1 ON Supplies excitation OFF 57 M12 Drive programming input 3 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 58 M13 Drive programming input	-10	LAC			
OFF Maintain the position deviation data 48 STAT Pulse train position command input permission ON Pulse train position command input enable 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency 51 F-TM Forced terminal block ON Force inverter to use input terminals for output frequency and Run command source of OFF Source of output frequency set by A001 and source of Run command set by A002 is used OFF 52 ATR Torque command input permission ON Clear watt-hour data 53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo ON OFF Inverter enters in servo lock status 54 POC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 M11 Drive programming input 2 OFF Inverter goes infor free-run status (Run command will not be accepted on this state) 57 M12 Drive programming input 3	47	PCIR	Position deviation clear	-	
48 STAT Pulse train position command input permission ON Pulse train position command input enable 50 ADD Frequency addition ON Adds the A145 (add frequency) value to the output frequency 51 F-TM Force d terminal block OFF Does not add the A145 value to the output frequency and Run command sources OFF 52 ATR Torque command input permiss- sion ON Clear watt-hour data 53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo ON ON Inverter goes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 MI1 Drive programming input 1 ON Gereal purpose input (1) to (8) under Drive programming 57 MI2 Drive programming input 2 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 56 MI1 Drive programming input 2 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 61 MI	1/	TCLK	r osition deviation clear		Å
imput permission Interpretation ON Adds the A145 (add frequency) value to the output frequency 50 ADD Frequency addition OFF Does not add the A145 value to the output frequency 51 F-TM Forced terminal block ON Force inverter to use input terminus for output frequency and Run command sources 52 ATR Torque command input permis- sion ON Torque control command input is enabled 53 KHC Integrated power clear ON Clear watt-hour data 54 POP Preliminary excitation ON Inverter ones into free-run status (Run command will not be accepted on this state) 55 POC Preliminary excitation OFF Inverter goes into free-run status (Run command will not be accepted on this state) 56 MI1 Drive programming input 2 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 57 MI2 Drive programming input 3 OFF Inverter opes into free-run status (Run command will not be accepted on this state) 60 MI5 Drive programming input 4 OFF Analog command is held 61 MI6	48	STAT	Pulse train position command		
OFF Does not add the A145 value to the output frequency 51 F-TM Forced terminal block OF Force inverter to use input terminals for output frequency and Run command sources 52 ATR Torque command input permis- sion ON Force inverter to use input terminals for output frequency and Run command sources 53 KRC Integrated power clear ON Clear watt-hour data 54 SON Servo ON ON Inverter enters in servo lock status 54 SON Servo ON ON Inverter goes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 M11 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 57 M12 Drive programming input 2 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 58 M14 Drive programming input 4 OFF Inverter goes into free-run status (Run command stend the state) 61 M16 Drive programming input 4 OFF	40	SIAI		ON	r use train position command input enable
51 F-TM Force terminal block ON Force inverter to use input terminals for output frequency and Run command sources 52 ATR Torque command input permission ON Torque control command input is enabled 53 KHC Integrated power clear ON Clear wat-hour data 54 SON Servo ON ON Inverter acts in servo lock status 54 SON Servo ON ON Inverter goes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 M11 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 57 M12 Drive programming input 4 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 58 M13 Drive programming input 4 OFF Inverter goes into free-run status (Run command stell 61 M16 Drive programming input 4 OFF Inverter goes into free-run status (Run command stell 63 M18 Drive programming input 4 </td <td>50</td> <td>ADD</td> <td>Frequency addition</td> <td>ON</td> <td>Adds the A145 (add frequency) value to the output frequency</td>	50	ADD	Frequency addition	ON	Adds the A145 (add frequency) value to the output frequency
OFF Source of output frequency set by A001 and source of Run command set by A002 is used sion 52 ATR Torque command input permission ON Torque control command input is enabled 53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo ON ON Inverter onters in servo lock status 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 M11 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 57 M12 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 60 M13 Drive programming input 4 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 61 M16 Drive programming input 4 OFF Inverter goes into free-run status (Parcence and Parcence				OFF	Does not add the A145 value to the output frequency
52 ATR Torque command input permission ON Torque control command input is enabled 53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo ON ON Inverter enters in servo lock status 54 SON Servo ON ON Inverter opes into free-run status (Run command will not be accepted on this state) 55 FOC Preliminary excitation OFF Inverter opes into free-run status (Run command will not be accepted on this state) 56 MI1 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 57 MI2 Drive programming input 2 OFF Inverter opes into free-run status (Run command will not be accepted on this state) 58 MI3 Drive programming input 4 ON General purpose input (1) to (8) under Drive programming 60 MI5 Drive programming input 7 OFF Analog command is held 64 MI6 Drive programming input 7 OFF Analog command is held 65 AHD Analog command selection 1 ON Multistage position commands are set according to the combination of these switches. 67	51	F-TM	Forced terminal block	ON	Force inverter to use input terminals for output frequency and Run command sources
sion low Integrated power clear ON Clear watt-hour data 53 KHC Integrated power clear ON Inverter onters in servo lock status 54 SON Servo ON OF Inverter onters in servo lock status 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 MI1 Drive programming input 1 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 56 MI12 Drive programming input 2 OFF Inverter goes into (1) to (8) under Drive programming 58 MI3 Drive programming input 4 OFF Inverter goes input (1) to (8) under Drive programming 61 MI6 Drive programming input 5 OFF General purpose input (1) to (8) under Drive programming 63 MI8 Drive programming input 5 OFF Analog command is held 64 MI7 Drive programming input 7 OFF Analog command is not held 65 AHD Analog command selection 1 ON Multistage position commands are set according to the combination of the				OFF	Source of output frequency set by A001 and source of Run command set by A002 is used
53 KHC Integrated power clear ON Clear watt-hour data 54 SON Servo ON ON Inverter enters in servo lock status 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 M11 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 57 M12 Drive programming input 2 Inverter goes into free-run status (Run command will not be accepted on this state) 58 M13 Drive programming input 3 General purpose input (1) to (8) under Drive programming 60 M15 Drive programming input 4 OPF 61 M16 Drive programming input 7 63 M18 Drive programming input 7 63 M19 Drive programming input 8 64 CP1 Position command selection 1 ON 65 AHD Analog command selection 2 OFF 68 CP3 Position command selection 3 ON 70 ORL Zero returu stratury signal ON	52	ATR		ON	Torque control command input is enabled
54 SON Servo ON ON Inverter enters in servo lock status 55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 MI1 Drive programming input 1 ON Supplies excitation current to the motor to establish magnetic flux 57 MI2 Drive programming input 2 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 58 MI3 Drive programming input 4 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 60 MI5 Drive programming input 4 OFF General purpose input (1) to (8) under Drive programming 61 MI6 Drive programming input 5 OFF General purpose input (1) to (8) under Drive programming 62 MI7 Drive programming input 5 OFF General purpose input (1) to (8) under Drive programming 63 MI8 Drive programming input 7 OFF Analog command is held 64 CP1 Position command selection 1 ON Analog command is not held 66 CP1 Position command selection 2 <td>52</td> <td>KIIC</td> <td></td> <td>ON</td> <td></td>	52	KIIC		ON	
Image: second					
55 FOC Preliminary excitation ON Supplies excitation current to the motor to establish magnetic flux 56 M11 Drive programming input 1 OFF Inverter goes into free-run status (Run command will not be accepted on this state) 56 M11 Drive programming input 2 ON General purpose input (1) to (8) under Drive programming 57 M12 Drive programming input 3 OFF General purpose input (1) to (8) under Drive programming 59 M14 Drive programming input 4 OFF General purpose input (1) to (8) under Drive programming 60 M05 Drive programming input 5 OFF General purpose input (1) to (8) under Drive programming 61 M16 Drive programming input 5 OFF General purpose input (1) to (8) under Drive programming 62 M17 Drive programming input 5 OFF Analog command is held 63 M18 Drive programming input 4 OFF Analog command is held 64 CP1 Position command selection 1 ON Multistage position commands are set according to the combination of these switches. 67 CP2 Position command selection 3 OFF Analog commandi is not held <td>54</td> <td>SON</td> <td>Servo ON</td> <td></td> <td></td>	54	SON	Servo ON		
OFFInverter goes into free-run status (Run command will not be accepted on this state)56MI1Drive programming input 1ON57MI2Drive programming input 2General purpose input (1) to (8) under Drive programming58MI3Drive programming input 359MI4Drive programming input 460MI5Drive programming input 561MI6Drive programming input 662MI7Drive programming input 763MI8Drive programming input 763MI8Drive programming input 764ONAnalog command is held65AHDAnalog command selection 166CP1Position command selection 167CP2Position command selection 168CP3Position command selection 369ORLZero return limit signal70ORGZero return startup signal71FOTForward driving stop72ROTReverse driving stop73Speed/position switching74PCNTPulse counter75PCCPulse counter74PCNTPulse counter75PCCPulse counter76PCRPulse counter76PCRPulse counter77PCRPulse counter78PRGPrive program start79PCRPulse counter74PCNTPulse counter75PCCPulse counter7	55	FOC	Droliminary orgitation		
56MI1Drive programming input 1ON57MI2Drive programming input 258MI3Drive programming input 359MI4Drive programming input 460MI5Drive programming input 561MI6Drive programming input 662MI7Drive programming input 763MI8Drive programming input 865AHDAnalog command held66CP1Position command selection 167CP2Position command selection 268CP3Position command selection 369ORLZero return limit signal70ORGZero return startu signal71FOTForward driving stop72ROFSpeed/position switching73SPSpeed/position switching74PCNTPulse counter74PCNTPulse counter74PCNTPulse counter75PCCPulse counter76ProverON77CPA78PRG79Drive program start70ON71PCNT72Pulse counter73Speed/position switching74PCNT74PCNT75PCC74PCNT74PCNT74Prive program start75Orive program start76Orive program start77Orive program start76	55	FUC	r teininary excitation		
57MI2Drive programming input 258MI3Drive programming input 359MI4Drive programming input 460MI5Drive programming input 561MI6Drive programming input 763MI8Drive programming input 865AHDAnalog command held66CP1Position command selection 167CP2Position command selection 268CP3Position command selection 369ORLZero return limit signal70ORGZero return limit signal71FOTForward driving stop71FOTForward driving stop72ROTReverse driving stop73SPDSpeed/position switching74PCNTPulse counter74PCNTPulse counter74PCNTPulse counter75PCCPulse counter (clear82PRGDrive program start82PRGDrive program start	56	MI1	Drive programming input 1		
58 MI3 Drive programming input 3 59 MI4 Drive programming input 4 60 MI5 Drive programming input 5 61 MI6 Drive programming input 7 63 MI8 Drive programming input 8 65 AHD Analog command held ON 66 CP1 Position command selection 1 ON 67 CP2 Position command selection 2 OFF 68 CP3 Position command selection 3 ON 69 ORL Zero return limit signal ON Multi signal of homing is ON 70 ORG Zero return limit signal ON Starts homing operation 71 FOT Forward driving stop ON Torque limit is set to 10% on the forward direction 72 ROT Reverse driving stop ON Speed control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 73 PCC Pulse counter clear ON Clears the total count value (d028) 75 PCC Pulse counter clear ON <			1 0 0 1	ON	General purpose input (1) to (6) under Drive programming
59MI4Drive programming input 460MI5Drive programming input 5OFF61MI6Drive programming input 6OFF62MI7Drive programming input 763MI8Drive programming input 865AHDAnalog command heldON66CP1Position command selection 1ON67CP2Position command selection 2OFF68CP3Position command selection 3ON69ORLZero return limit signalON70ORGZero return startup signalON71FOTForward driving stopON72ROTReverse driving stopON73SPDSpeed/position switchingON74PCNTPulse counter-74PCCPulse counter clearON75PCCPulse counter clearON82PRGDrive program startON			1 0 0 1	_	
60M15Drive programming input 5OFF61MI6Drive programming input 662M17Drive programming input 763M18Drive programming input 865AHDAnalog command heldON66CP1Position command selection 1ON67CP2Position command selection 2OFF68CP3Position command selection 3ON69ORLZero return limit signalON70ORGZero return limit signalON71FOTForward driving stopON72ROTReverse driving stopON73SPDSpeed/position switchingON74PCNTPulse counter-74PCNTPulse counter-75PCCPulse counterON82PRGDrive program startON				-	
61 MI6 Drive programming input 6 62 MI7 Drive programming input 7 63 MI8 Drive programming input 8 65 AHD Analog command held ON 66 CP1 Position command selection 1 ON 66 CP2 Position command selection 2 OFF 68 CP3 Position command selection 3 ON 69 ORL Zero return limit signal ON Starts homing operation 70 ORG Zero return startup signal ON Torque limit is set to 10% on the forward direction 71 FOT Forward driving stop ON Torque limit is set to 10% on the reverse direction 73 SPD Speed/position switching ON Speed control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Executing Drive program				OFF	4
62 MI7 Drive programming input 7 63 MI8 Drive programming input 8 65 AHD Analog command held ON Analog command is held 66 CP1 Position command selection 1 ON Multistage position commands are set according to the combination of these switches. 67 CP2 Position command selection 2 OFF Multistage position commands are set according to the combination of these switches. 68 CP3 Position command selection 3 OFF Limit signal of homing is ON 69 ORL Zero return limit signal ON Starts homing operation 70 ORG Zero return startup signal ON Torque limit is set to 10% on the forward direction 71 FOT Forward driving stop ON Torque limit is set to 10% on the reverse direction 73 SPD Speed/position switching OFF Position control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start					
63MI8Drive programming input 865AHDAnalog command heldONAnalog command is held66CP1Position command selection 1ONMultistage position commands are set according to the combination of these switches.67CP2Position command selection 2OFFMultistage position commands are set according to the combination of these switches.68CP3Position command selection 3OFF69ORLZero return limit signalONLimit signal of homing is ON70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONSpeed control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONExecuting Drive program82PRGDrive program startONExecuting Drive program				1	
65AHDAnalog command heldONAnalog command is held66CP1Position command selection 1ONMultistage position commands are set according to the combination of these switches.67CP2Position command selection 2OFF68CP3Position command selection 3ONLimit signal of homing is ON69ORLZero return limit signalONStarts homing operation70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONTorque limit is set to 10% on the reverse direction73SPDSpeed/position switchingOFFPosition control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONClears the total count value (d028)82PRGDrive program startONExecuting Drive program				1	
OFFAnalog command is not held66CP1Position command selection 1ONMultistage position commands are set according to the combination of these switches.67CP2Position command selection 2OFF68CP3Position command selection 3ONLimit signal of homing is ON69ORLZero return limit signalONLimit signal of homing operation70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONTorque limit is set to 10% on the reverse direction73SPDSpeed/position switchingONSpeed control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONExecuting Drive program82PRGDrive program startONExecuting Drive program				ON	Analog command is held
66CP1Position command selection 1ONMultistage position commands are set according to the combination of these switches.67CP2Position command selection 2OFF68CP3Position command selection 3ONLimit signal of homing is ON69ORLZero return limit signalONLimit signal of homing is ON70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONTorque limit is set to 10% on the reverse direction73SPDSpeed/position switchingONSpeed control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONClears the total count value (d028)82PRGDrive program startONExecuting Drive program	55				6
67CP2Position command selection 2OFF68CP3Position command selection 3OFF69ORLZero return limit signalONLimit signal of homing is ON70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONTorque limit is set to 10% on the reverse direction73SPDSpeed/position switchingONSpeed control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONExecuting Drive program82PRGDrive program startONExecuting Drive program	66	CP1	Position command selection 1		
68CP3Position command selection 369ORLZero return limit signalONLimit signal of homing is ON70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONTorque limit is set to 10% on the reverse direction73SPDSpeed/position switchingONSpeed control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONClears the total count value (d028)82PRGDrive program startONExecuting Drive program					
69ORLZero return limit signalONLimit signal of homing is ON70ORGZero return startup signalONStarts homing operation71FOTForward driving stopONTorque limit is set to 10% on the forward direction72ROTReverse driving stopONTorque limit is set to 10% on the reverse direction73SPDSpeed/position switchingONSpeed control mode74PCNTPulse counter-Input works as a counter which value could be check in monitor d028.75PCCPulse counter clearONClears the total count value (d028)82PRGDrive program startONExecuting Drive program					
70 ORG Zero return startup signal ON Starts homing operation 71 FOT Forward driving stop ON Torque limit is set to 10% on the forward direction 72 ROT Reverse driving stop ON Torque limit is set to 10% on the forward direction 73 SPD Speed/position switching ON Speed control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start ON Executing Drive program				ON	Limit signal of homing is ON
71 FOT Forward driving stop ON Torque limit is set to 10% on the forward direction 72 ROT Reverse driving stop ON Torque limit is set to 10% on the reverse direction 73 SPD Speed/position switching ON Speed control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start ON Executing Drive program			Ŭ		
72 ROT Reverse driving stop ON Torque limit is set to 10% on the reverse direction 73 SPD Speed/position switching ON Speed control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start ON Executing Drive program					
73 SPD Speed/position switching ON Speed control mode 74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start ON Executing Drive program					*
PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 74 PCNT Pulse counter clear ON Clears the total count value (d028) 75 PRG Drive program start ON Executing Drive program			0		
74 PCNT Pulse counter - Input works as a counter which value could be check in monitor d028. 75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start ON Executing Drive program			-1 · · · · · · · · · · · · · · · · · · ·		
75 PCC Pulse counter clear ON Clears the total count value (d028) 82 PRG Drive program start ON Executing Drive program	74	PCNT	Pulse counter	-	
82 PRG Drive program start ON Executing Drive program			1	ON	
LOFF I No execution	02	1 10	Drive program start	OFF	No execution
255 no No allocation - (input ignored)	255	no	No allocation		

Parameter	Parameter name	Description
C001	Multi-function input 1 selection	Select input terminal [1] function
C002	Multi-function input 2 selection	Select input terminal [2] function
C003	Multi-function input 3 selection	Select input terminal [3] function
C004	Multi-function input 4 selection	Select input terminal [4] function
C005	Multi-function input 5 selection	Select input terminal [5] function
C006	Multi-function input 6 selection	Select input terminal [6] function
C007	Multi-function input 7 selection	Select input terminal [7] function
C008	Multi-function input 8 selection	Select input terminal [8] function
C011	Multi-function input 1 operation selection	Select logic conversion:
C012	Multi-function input 2 operation selection	00: NO (normally open) 01: NC (normally closed)
C013	Multi-function input 3 operation selection	of. No (normany closed)
C014	Multi-function input 4 operation selection	
C015	Multi-function input 5 operation selection	
C016	Multi-function input 6 operation selection	
C017	Multi-function input 7 operation selection	
C018	Multi-function input 8 operation selection	
C019	FW terminal operation selection	
C160	Input terminal response time 1	Sets response time of each input terminal:
C161	Input terminal response time 2	0 to 200 (x 2 ms)
C162	Input terminal response time 3	
C163	Input terminal response time 4	
C164	Input terminal response time 5	
C165	Input terminal response time 6	
C166	Input terminal response time 7	
C167	Input terminal response time 8	
C168	FW terminal response time	
d005	Multi-function input monitor	MONITOR-A MI-STOP ALL d005 Input FR Input FR Input HL Input FR Input FR Input Input Input Input

All this functions could be assigned to any of the multi-function inputs on parameters C001 to C008, select if the input will be normally open or normally close and the response time of the input.

An input terminal configured for option code 18 ([RS] Reset command) cannot be configured for normally closed operation.

3.14 Digital outputs

Function codes in the following table let you assign different options into logical outputs (terminals [11] to [15] and [AL]) on parameter C021 to C026.

	Output Function Summary Table				
Option Code	Terminal Symbol	Function Name	Description		
00	RUN	Run signal	ON	When the inverter is in Run Mode	
01	FA1	Constant speed arrival signal	ON	When output to motor is at the set frequency	
			OFF	When output to motor is OFF, or in any acceleration or deceleration ramp	
02	FA2	Over set frequency arrival sig- nal	ON	When output to motor is at or above the set freq., even if in accel (C042) or decel (C043) ramps	
			OFF	When output to motor is OFF, or at a level below the set frequency	
03	OL	Overload warning	ON	When output current is more than the set threshold (C041) for the overload signal	
04	OD	Excessive PID deviation	ON	When PID error is more than the set threshold for the deviation signal	
05	AL	Alarm output	ON When an alarm signal has occurred and has not been cleared		
06	FA3	Set-frequency-only arrival sig- nal	ON	When output to motor is at the set frequency, during accel (C042) and decel (C043).	
07	OTQ	Overtorque	ON	Estimated motor torque exceeds the specified level	
08	IP	Signal during momentary power interruption	ON	Momentary power interruption/undervoltage	
09	UV	Signal during undervoltage	ON	Inverter is in undervoltage	
10	TRQ	Torque limit	ON	Torque limit function is executing	
11	RNT	RUN time over	ON	Total running time of the inverter exceeds the specified value	
12	ONT	Power ON time over	ON	Total power ON time of the inverter exceeds the specified value	
13	THM	Thermal warning	ON	Accumulated thermal count exceeds the C061 set value	
19	BRK	Brake release	ON	Output for brake release	

Output Function Summary Table Option Terminal Function Name Description Code Symbol 20 BER Brake error ON Brake error has occurred 21 zs 0 Hz signal ON Output frequency falls below the threshold specified in C063 22 DSE Excessive speed deviation ON Deviation of speed command and actual speed exceeds the specified value P027. POK 23 Position ready ON Positioning is completed ON 24 FA4 Set frequency exceeded 2 When output to motor is at or above the set freq., even if in accel (C045) or decel (C046) ramps 25 FA5 Set frequency only 2 ON When output to motor is at the set frequency, during accel (C045) and decel (C046). 26 OL2 Overload warning 2 ON When output current is more than the set threshold (C111) for the overload signal 27 ODc Analog O disconnection detec-ON When the [O] input value < B070 setting (signal loss detected) tion OIDc Analog OI disconnection detection ON 28 When the [OI] input value < B071 setting (signal loss detected) ON 29 O2Dc Analog O2 disconnection When the [O2] input value < B072 setting (signal loss detected) detection Transitions to ON when the inverter is in RUN Mode and the PID Process Variable (PV) is less than the Feedback Low Limit (C053) ON 31 FBV PID FB status output Transitions to OFF when the PID Process Variable (PV) exceeds the PID High Limit (C052), and transitions to OFF when the inverter goes from Run Mode to Stop Mode OFF 32 NDc ON When communications watchdog timer (period specified by C077) has time out Network error LOG1 33 Logic operation output 1 ON When the Boolean operation specified by C144 has a logical "1" result 34 LOG2 Logic operation output 2 ON When the Boolean operation specified by C147 has a logical "1" result 35 LOG3 Logic operation output 3 ON When the Boolean operation specified by C150 has a logical "1" result 36 LOG4 Logic operation output 4 ON When the Boolean operation specified by C153 has a logical "1" result 37 LOG5 ON When the Boolean operation specified by C156 has a logical "1" result Logic operation output 5 38 LOG6 ON When the Boolean operation specified by C159 has a logical "1" result Logic operation output 6 WAC ON 39 Capacitor life warning signal Lifetime of internal capacitor has expired. WAF ON 40 Cooling fan life warning signal Lifetime of cooling fan has expired 41 FR Starting contact signal ON Either FW or RV command is given to the inverter OFF No FW or RV command is given to the inverter, or both are given to the inverter OHF ON 42 Fin overheat warning Temperature of the heat sink exceeds a specified value (C064) ON 43 LOC Light load detection signa Motor current is less than the specified value (C039) 44 MO1 Drive programming output 1 ON General output 1 is ON (Used by Drive programing) 45 MO2 ON General output 2 is ON (Used by Drive programing) Drive programming output 2 46 МОЗ ON General output 3 is ON (Used by Drive programing) Drive programming output 3 ON 47 MO4 Drive programming output 4 General output 4 is ON (Used by Drive programing) ON 48 MO5 Drive programming output 5 General output 5 is ON (Used by Drive programing) 49 MO6 Drive programming output 6 ON General output 6 is ON (Used by Drive programing) 50 IRDY Operation ready signal ON Inverter can receive a run command 51 FWR Forward run signal ON Inverter is driving the motor in forward direction 52 RVR ON Reverse run signal Inverter is driving the motor in reverse direction 53 MJA Fatal fault signal ON Inverter is tripping with major failure 54 wco Window comparator O ON Analog voltage input value is inside of the window comparator (b060 to b062) 55 WCOI Window comparator OI ON Analog current input value is inside of the window comparator (b063 to b065) 56 WCO2 ON Window comparator O2 Analog voltage input value is inside of the window comparator (b066 to b068) OPO ON (output terminal for option card) 63 Option board output 255 ON no Not used

In the same way of that the digital inputs is possible to choose between normally close and normally open and even is possible to use some On and Off delay for each of the outputs.

Parameter	Parameter name	Description
C021	Multi-function output terminal 11 selection	Programmable functions available for logic
C022	Multi-function output terminal 12 selection	(discrete) outputs transistor type
C023	Multi-function output terminal 13 selection	
C024	Multi-function output terminal 14 selection	
C025	Multi-function output terminal 15 selection	
C026	Relay output (AL2, AL1) function selection	Programmable functions available for logic (discrete) outputs relay type
C031	Multi-function output terminal 11 contact selection	Select logic conversion:
C032	Multi-function output terminal 12 contact selection	00: NO contact at AL2; NC contact at AL1 01: NC contact at AL2; NO contact at AL1
C033	Multi-function output terminal 13 contact selection	of. Ive contact at file, ive contact at file
C034	Multi-function output terminal 14 contact selection	
C035	Multi-function output terminal 15 contact selection	
C036	Relay output (AL2, AL1) contact selection	

Parameter	Parameter name	Description
C130	Output 11 ON delay	0.0 to 100.0 s
C131	Output 11 OFF delay	
C132	Output 12 ON delay	0.0 to 100.0 s
C133	Output 12 OFF delay	
C134	Output 13 ON delay	0.0 to 100.0 s
C135	Output 13 OFF delay	
C136	Output 14 ON delay	0.0 to 100.0 s
C137	Output 14 OFF delay	
C138	Output 15 ON delay	0.0 to 100.0 s
C139	Output 15 OFF delay	
C140	Relay output on delay	0.0 to 100.0 s
C141	Relay output off delay	
d006	Multi-function output monitor	MONITOR-A MI-STOP ALL d006 Output Multi-function output terminals 12, 11: ON Relay output terminal AL2, Multi-function output terminals 15, 14, 13: OFF H001 00: OFF

3.15 Analogue outputs

Several monitors are available through the analogue outputs [AM], [AMI] or the PWM output [FM].

Parameter	Parameter name	Description
C027	FM selection	00: Output FQ (Output frequency) 01: OI (Output current) 02: Output TRQ (Output torque) 03: Pulse FQ (Digital output frequency) 04: Output V (Output voltage) 05: Power 06: Thermal (Thermal load rate) 07: LAD-FQ (LAD frequency) 08: Pulse I (Digital current monitor) 09: Motor tmp (Motor temperature) 10: Heat sink tmp (Fin temperature) 12: YA0 (Drive programming) 19: OP1 (Option board 1) 20: OP2 (Option board 2)
C028	AM selection	00: Output FQ (Output frequency) 01: OI (Output rant) 02: Output TRQ (Output torque) 04: Output TRQ (Output torque) 04: Output V (Output voltage) 05: Power 06: Thermal (Thermal load rate) 07: LAD-FQ (LAD frequency) 08: Pulse I (Digital current monitor) 09: Motor tmp (Motor temperature) 10: Heat sink tmp (Fin temperature) 10: Heat sink tmp (Fin temperature) 11: Out TRQ sign (Output torque < signed>) 13: YA1 (Drive programming) 19: OP1 (Option board 1) 20: OP2 (Option board 2)
C029	AMI selection	00: Output FQ (Output frequency) 01: OI (Output current) 02: Output TRQ (Output torque) 04: Output V (Output voltage) 05: Power 06: Thermal (Thermal load rate) 07: LAD-FQ (LAD frequency) 09: Motor tmp (Motor temperature) 10: Heat sink tmp (Fin temperature) 14: YA2 (Drive programming)
C030	Digital current monitor reference value	Current with digital current monitor output at 1,440Hz 0.20 x Rated current to 2.00 x Rated current

When inverter is in sensor vector control the real motor speed from encoder (d008) is used instead of the output frequency.

For the pulse train output there are two types of outputs, code "03" and "08" outputs a pulse train with a 50% duty cycle while the PWM has a fixed frequency of 156.25Hz were the duty cycle is changed depending on the output.

When the monitor displays the value set in digital current monitor reference (C030), 1440Hz is output.

OMRON

RX Quick Start Guide

3.16 Torque limit

Torque limit function allows you to limit the motor output when sensorless vector control "03", 0-Hz sensorless vector control "04" or sensor vector control "05" is selected in A044. In open loop vector function has limited accuracy and repeatability, performance is much better when encoder feedback is used. You can choose between different options using parameter b040.

• Quadrant specific setting mode (b040=00) in which individual torque limit values are applied on the four quadrants (forward powering, reverse regeneration...) by torque limits 1 to 4 (b041 to b044)

	Torc	lue					
Reverse r	(+) Regeneration (60년간) otation	Powering (占미니 I) Forward re	otation	Digita TRQ2 OFF OFF	TRQ1 0FF 0N		rque limit lection b041 b042
	Powering (占립식글)	Regeneration (占입덕덕)		ON ON	OFF ON	\rightarrow	b043 b044
	Torc (-)	que					
	(-)						

• Terminal-switching mode (b040=01) where the torque limit values set in torque limits 1 to 4 (b041 to b044) are switched depending on the combination of the states of the torque limit switch terminals 1 and 2 (TRQ1 and TRQ2) assigned to digital inputs.

• Analog voltage input mode (b040=02) where the torque limit value is set by a voltage applied to the terminal O. Range 0 to 10V corresponds with torque limit range between 0 and 200% that is valid for all operating states.

• Option 1 and 2 allows to give the torque limit value from a communication option board installed on the inverter.

If "TL" torque limit enable functions has been assigned to any of the multi-function inputs the setting of parameter b040 only is valid when this input is ON. No torque limitation will be applied when the input is OFF.

Parameter	Parameter name	Description
b040	Torque limit selection	00: 4-quadrant (Four-quadrant separate setting) 01: TRQ input (Terminal switch) 02: [O] input (Analog input) 03: Option 1 04: Option 2
b041	Torque limit 1 (fwd/power)	0 to 200% (0.4 to 55 kW) 0 to 180% (75 to 132 kW) no (torque limit disabled)
b022	Torque limit 2 (rev/regen.)	0 to 200% (0.4 to 55 kW) 0 to 180% (75 to 132 kW) no (torque limit disabled)
b043	Torque limit 3 (rev/power)	0 to 200% (0.4 to 55 kW) 0 to 180% (75 to 132 kW) no (torque limit disabled)
b044	Torque limit 4 (fwd/regen.)	0 to 200% (0.4 to 55 kW) 0 to 180% (75 to 132 kW) no (torque limit disabled)
b045	Torque LADSTOP selection	00: OFF (Disabled) 01: ON (Enabled)

100% torque is referred to inverter rated current, absolute torque value is up the motor to be combined. Range for inverters from 75 to 132KW is limited to 180% instead of 200%.

3.17 Torque control

Torque control is only available in sensor vector control A044="05" and it requires to setup following parameters. 100% torque is referred to inverter rated current but absolute torque value depends on the motor connected.

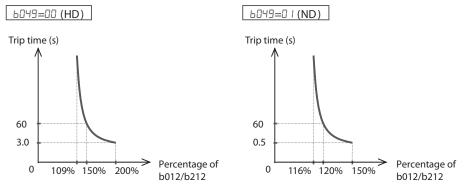
Parameter	Parameter name	Description
P033	Torque reference input selection	00: O (Terminal O) 01: OI (Terminal OI) 02: O2 (Terminal O2) 03: OPE (Digital operator) 06: Option 1 07: Option 2
P034	Torque reference setting	0 to 200% (0.4 to 55 kW) 0 to 180% (75 to 132 kW)
P035	Polarity selection at torque reference via O2	00: Sign (Signed) 01: Direction (Depends on the RUN direction)
P036	Torque bias mode	00: OFF (None) 01: OPE (Digital operator) 02: O2 (Terminal O2) 06: Option 1 07: Option 2
P037	Torque bias value	-200 to 200% (0.4 to 55 kW) -180 to 180% (75 to 132 kW)
P038	Torque bias polarity selection	00: Sign (Signed) 01: Direction (Depends on the RUN direction)
P039	Speed limit value in torque control (forward)	0.00 to Maximum frequency
P040	Speed limit value in torque control (reverse)	0.00 to Maximum frequency

To enable the torque control is necessary to assign the "ATR" (Enable torque command input) to one of the multi-function inputs and set it to ON. When the input is OFF the inverter will work in speed mode.

When speed limit is reached the inverter changes between torque and speed proportional control so is possible that inverter runs at higher speeds than the one set in P039 or P040 parameters.

3.18 Electronic thermal overload

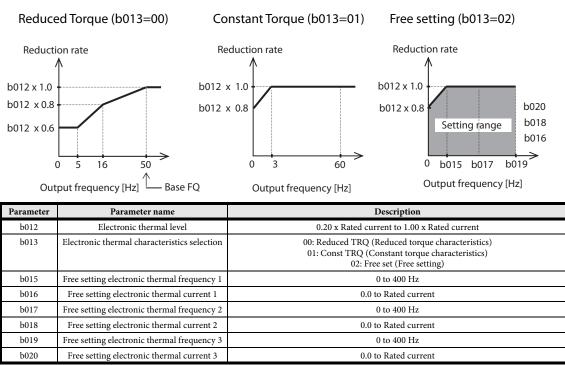
The thermal overload detection protects the inverter and motor from overheating due to an excessive load using a current inverse time curve to determine the trip point. The characteristic curve depends on dual rate setting in b049 and is unique for both inverter and motor but reduction rate depending on the frequency could be selected in parameter b013



OMRON

RX Quick Start Guide

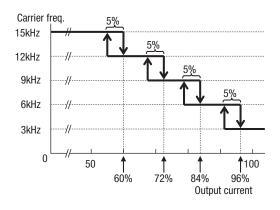
b013 could be used to match the torque characteristic with the load. Output current on the winding is used for this calculation as is proportional to the torque generated by the motor. That's why the current level has to be set in parameter b012 with a range that goes from 20 to 100% of the inverter rated current.



3.19 Carrier frequency (PWM)

The internal switching frequency of the inverter circuitry (also called chopper frequency) defines the IGBT commutation speed that is used to generated the output frequency. Is adjustable from 2.0 to 15KHz (depending on the inverter size) where the audible noise decrease at higher frequencies while the RFI noise and leakage current increase.

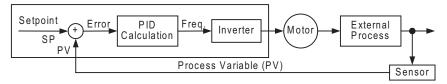
The carrier frequency is adjusted by parameter b083 but the activation of the automatic carrier frequency reduction on parameter b089 could reduce the selected value when the output current increase. On this way is possible to have a high carrier frequency with light loads and avoid the current derating when the load increase. The upper limit is defined by b083 while the lower one is 3KHz with 2KHz per second reduction rate. When the output current falls below -5% of each level, the function will be reset.



Parameter	Parameter name	Description
b083	Carrier frequency	0.5 to 15.0 kHz (0.4 to 55 kW) 0.5 to 10.0 kHz (75 to 132 kW)
b089	Automatic carrier reduction	00: OFF (Disabled) 01: ON (Enabled)

3.20 PID function

When enabled, the built-in PID loop calculates an ideal inverter output value that cause the loop feedback process variable (PV) to move closer to the set point value (SP). The frequency command is used as SP and the PID loop algorithm will read the analog input for the process variable and calculate the proper inverter output to reach it



PROGRAMMING RX

In standard operation, inverter uses a reference source selected by A001 for the output frequency which may be a fixed or variable value. To enable PID operation is necessary to set A071 to "01" and this will cause the inverter to calculate the target frequency or set point. This presents some advantages like potential energy saving and direct control over the process variable instead of the motor speed.

Parameter	Parameter name	Description
A071	PID selection	00: OFF (Disabled) 01: ON (+) (Enabled) 02: ON (+/-) (Reverse output enabled)
A072	PID P gain	0.2 to 5.0
A073	PID I gain	0.0 to 3600.0 s
A074	PID D gain	0.00 to 100.00 s
A075	PID scale	0.01 to 99.99
A076	PID feedback selection	00: OI 01: O 02: Modbus (RS485 communication) 03: Pulse (Pulse train frequency) 10: Math (Operation function output)
A077	Reverse PID function	00: OFF (Deviation = Target value - Feedback value) 01: ON (Deviation = Feedback value - Target value)
A078	PID output limit function	0.0 to 100.0%
A079	PID feed forward selection	00: Disabled 01: O 02: OI 03: O2
C044	PID deviation excessive level	0.0 to 100.0%
C052	PID FB upper limit	0.0 to 100.0%
C053	PID FB lower limit	0.0 to 100.0%

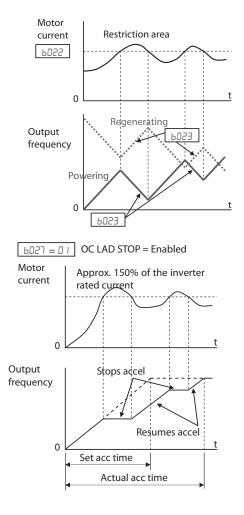
3.21 Current limitation functions

Overload Restriction reduce the output frequency while motoring or increase it during regeneration to restrict the overload when the output current exceeds a certain limit. You can adjust the inverter to apply overload restriction only during constant speed allowing higher currents for acceleration.

Additionally two separate sets of parameters are available and is possible to choose between them by intelligent input terminal "39: OLR"

Over-current Trip Suppression function monitors the motor current and actively changes the output frequency profile to keep the motor current below 150% of the motor rated current. Basically the acceleration ramp is stopped above this current and only restarts when the current goes below the set value. It avoids the trip but the total acceleration time could be longer when this function is enable.

Please consider that this function doesn't operate keeping a constant motor current so is still possible to have an over-current trip during extreme acceleration.

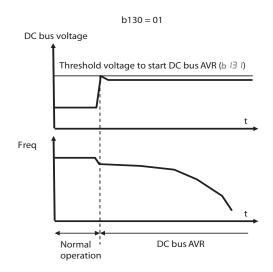


Parameter	Parameter name	Description
b021	Overload limit selection	00: OFF (Disabled) 01: ON-Acc/Cnst (Enabled in acceleration/constant speed operation) 02: ON-Cnst (Enabled in constant speed operation) 03: ON-A/C(R) (Enabled in acceleration/constant speed operation (Accelerates during regeneration))
b022	Overload limit level	0.20 x Rated current to 2.00 x Rated current (0.4 to 55 kW) 0.20 x Rated current to 1.80 x Rated current (75 to 132 kW)
b023	Overload limit parameter	0.10 to 30.00 s
b024	Overload limit selection 2	00: OFF (Disabled) 01: ON-Acc/Cnst (Enabled in acceleration/constant speed operation) 02: ON-Cnst (Enabled in constant speed operation) 03: ON-A/C(R) (Enabled in acceleration/constant speed operation (Accelerates during regeneration))
b025	Overload limit level 2	0.20 x Rated current to 2.00 x Rated current (0.4 to 55 kW) 0.20 x Rated current to 1.80 x Rated current (75 to 132 kW)
b026	Overload limit parameter 2	0.10 to 30.00 s
b027	Overcurrent suppression function	00: OFF (Disabled) 01: ON (Enabled)

3.22 Overvoltage protection

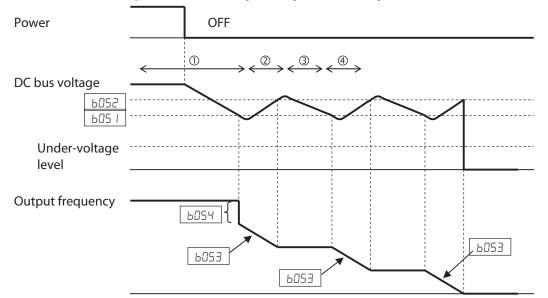
DC Bus AVR (Automatic Voltage regulation) helps to avoid an overvoltage trip when the DC bus voltage increase due regeneration during deceleration. The function keeps the DC bus voltage stable at certain level regulating the deceleration ramp by a PI function. Please that the actual deceleration time can be longer in this case.

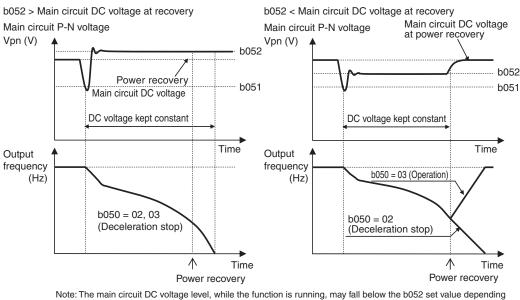
Parameter	Parameter name	Description
b130	Overvoltage protection function selection during deceleration	00: OFF (Disabled) 01: V-const (DC voltage kept constant) 02: Accel (Acceleration enabled)
b131	Overvoltage protection level during deceleration	200-V class: 330 to 390 400-V class: 660 to 780
b132	Overvoltage protection parameter	0.10 to 30.00 s
b133	Overvoltage protection proportional gain setting	0.00 to 2.55
b134	Overvoltage protection integral time setting	0.000 to 65.535 s



3.23 Controlled stop at power loss

This function is intended to achieve a controlled stop and avoid free-running of the motor when power is lost during run mode. Inverter controls the internal DC bus voltage while decelerating the motor using the regenerative energy to keep the DC bus at a level that allows to reduce the motor speed and avoid a long coasting time. Next diagram shows how the function works





lote: The main circuit DC voltage level, while the function is running, may fall below the b052 set value dependin on the proportional gain and integral time settings.

To use this function remove the J51 connector cable connected between terminals Ro and To, and connect the cable from main terminal P to Ro and from N to To. The cable size should be 0.75mm² or larger.

When the DC voltage of the inverter goes down to b051 level, inverter decrease the output frequency by a amount set in b054 to force the motor to regenerate energy that is used to increase the DC bus value. Then deceleration continues at the rate set in b053 until the upper limit b052 is reach where the deceleration ramp stops until the DC bus drops again. This operation is repeated until the motor is totally stopped or there is not enough regeneration from the motor so DC bus goes below the undervoltage level.

Parameter	Parameter name	Description
b050	Selection of non-stop function at momentary power interruption	00: OFF (Disabled) 01: V-Cnst (STOP) (Enabled (deceleration stop)) 02: NS1 (Enabled (without recovery)) 03: NS2 (Enabled (with recovery))
b051	Starting voltage of non-stop function at momentary power interruption	0.0 to 1000.0 V
b052	Stop deceleration level of non-stop function at momentary power interruption	0.0 to 1000.0 V
b053	Deceleration time of non-stop function at momentary power interruption	0.01 to 3600.00 s
b054	Deceleration starting width of non-stop function at momentary power interruption	0.00 to 10.00 Hz

4 PARAMETER LIST

The PDU (Process Data Unit) register number are addressed starting at zero. Therefore register numbered "0012h" addressed as "0011h". Register address value (transmitted on Modbus line) is 1 less than the Register number of the table

4.1 Parameter group D: Monitors

Function code	Function name	Monitoring and setting items	Units	Modbus
				Register No.
d001 (high)	Output frequency monitor	0.00 to 400.00	Hz	1001h
d001 (low)				1002h
d002	Output current monitor	0.0 to 9999.0	А	1003h
d003	Rotation direction monitor	FWD: Forward	-	1004h
		STOP: Stop		
		REV: Reverse		
d004 (high)	PID feedback value monitor	0.00 to 999000.00	-	1005h
d004 (low)				1006h

Function code	Function name	Monitoring and setting items	Units	Modbus Register N
d005	Multi-function input monitor	MONITOR-A MI-STOP ALL Example d005 Input FW, Multi-function input terminals HILL HILL HILL HOOL 00:OFF		1007h
d006	Multi-function output monitor	MONITOR-A M1-STOP ALL d006 Output Multi-function output terminal AL2, I AL2 15 14 13 12 11 H001 00: OFF	Multi-function	1008h
d007 (high)	Output frequency monitor (after conversion)	0.00 to 39960.00	-	1009h
d007 (low)	D 10	(Output frequency x Conversion factor of b086)		100Ah
d008 (high) d008 (low)	Real frequency monitor	-400.00 to 400.00	Hz	100Bh 100Ch
d008 (10W) d009	Torque reference monitor	-200 to +200	%	100Ch 100Dh
d010	Torque bias monitor	-200 to +200	%	100Dh
d012	Output torque monitor	-200 to +200	%	1002h
d013	Output voltage monitor	0.0 to 600.0	V	1011h
d014	Input power monitor	0.0 to 999.9	W	1012h
d015 (high)	Power ON time monitor	0.0 to 999999.9	-	1013h
d015 (low)				1014h
d016 (high)	Total RUN time	0 to 999999	h	1015h
d016 (low)				1016h
d017	Power ON time monitor	0 to 999999	h	1017h
104.0				1018h
d018 d019	Fin temperature monitor Motor temperature monitor	-020. to 200.0 -020. to 200.0	•C	1019h 101Ah
		2: Cooling fan rpm reduct		
d023	Program counter	0 to 1024		
d024		0 10 1024	-	101Eh
	Program number	0 to 9999	-	101Fh
d025 (high)	Program number Drive programming monitor (UM0)			
d025 (high) d025 (low) d026 (high)		0 to 9999		101Fh 102Eh 102Fh 1030h
d025 (high) d025 (low) d026 (high) d026 (low)	Drive programming monitor (UM0)	0 to 9999 -2147483647 to 2147483647		101Fh 102Eh 102Fh
d025 (high) d025 (low) d026 (high) d026 (low) d027(high)	Drive programming monitor (UM0) Drive programming monitor (UM1)	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647		101Fh 102Eh 102Fh 1030h 1031h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (high) d027 (low) d028 (high)	Drive programming monitor (UM0) Drive programming monitor (UM1)	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647		101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low)	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647	- - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low) d029 (high)	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2)	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected		101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1036h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low) d029 (low) d029 (low)	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected	- - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1036h 1037h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low) d029 (low) d029 (low) d030 (high)	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected	- - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1035h 1035h 1036h 1037h 1038h
d025 (high) d025 (low) d026 (high) d026 (low) d026 (low) d027 (high) d027 (high) d028 (low) d028 (low) d029 (low) d029 (low) d030 (high) d030 (low)	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 -2147483647 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day)	- - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1036h 1037h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low) d029 (low) d029 (low) d030 (low) d031	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected	- - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1035h 1035h 1036h 1037h 1038h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low) d029 (low) d029 (low) d030 (low) d031	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 -2147483647 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day)	- - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1034h 1035h 1036h 1037h 1038h 1039h -
1025 (high) 1025 (low) 1026 (high) 1026 (low) 1027 (low) 1028 (high) 1028 (low) 1029 (low) 1029 (low) 1030 (low) 1031 160 180	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected -2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 61 0 to 65535 Error code (condition of occurrence)	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1035h 1035h 1036h 1037h 1038h 1039h - 1057h
d025 (high) d025 (low) d026 (high) d026 (low) d026 (low) d027 (high) d027 (high) d028 (low) d029 (high) d029 (low) d030 (high) d030 (low) d031 d60 d80 d081	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected -2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A]	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1033h 1033h 1035h 1036h 1037h 1038h 1039h - 1057h 0011h 0012h to
d025 (high) d025 (low) d026 (high) d026 (low) d027 (low) d027 (low) d028 (high) d028 (low) d029 (low) d030 (high) d030 (low) d031 d60 d80 d081	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest)	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V] RUN time [h]	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1033h 1035h 1036h 1037h 1038h 1039h - 1057h 0011h 0012h to 0012h to 0012h to 0012h to 0012h to 0012h to 0025h 0026h to
d025 (high) d025 (low) d026 (high) d026 (low) d027 (high) d027 (high) d028 (low) d029 (low) d029 (low) d029 (low) d030 (high) d031 d60 d80 d081	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest) Fault monitor 2	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected -2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V]	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1036h 1037h 1038h 1039h - 1057h 0011h 0012h to 001Ch to 0025h
d025 (high) d025 (low) d026 (high) d026 (low) d027 (high) d027 (low) d028 (high) d029 (high) d029 (high) d029 (high) d029 (high) d029 (low) d030 (high) d031 d60 d80 d081 d082 d083	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest) Fault monitor 3	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V] RUN time [h]	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1036h 1037h 1038h 1039h - 1057h 0011h 0012h to 0012h to 0025h 0026h to 0030h to 0033h to
d025 (high) d025 (low) d026 (high) d026 (low) d027 (high) d027 (low) d028 (high) d028 (low) d029 (high) d029 (high) d030 (high) d030 (low) d031 d60 d80 d081 d082 d083 d084	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest) Fault monitor 3 Fault monitor 4	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V] RUN time [h]	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1035h 1036h 1037h 1038h 1037h 1038h 1037h 0017h 0011h 0012h to 0025h 0026h to 0026h to 0039h
1025 (high) 1025 (low) 1026 (high) 1026 (low) 1027 (high) 1027 (low) 1028 (high) 1028 (high) 1029 (low) 1029 (low) 1029 (low) 1030 (high) 1030 (low) 1031 1600 180 1081 1082 1083 1084 1086	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest) Fault monitor 3 Fault monitor 4 Fault monitor 5	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V] RUN time [h] ON time [h] Warning code	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1033h 1035h 1036h 1037h 1038h 1037h 1038h 1037h 0017h 0012h to 0012h to 0025h 0026h to 0030h to 0034h to 0044h to
d025 (high) d025 (low) d026 (high) d026 (low) d027 (high) d027 (low) d028 (high) d029 (low) d030 (high) d030 (high) d030 (low) d031 d60 d88 d084 d085 d086	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest) Fault monitor 3 Fault monitor 4 Fault monitor 5 Fault monitor 6	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V] RUN time [h] ON time [h]	- - - - - - - - - - - - - - - - - - -	101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1035h 1036h 1037h 1038h 1037h 1037h 0017h 0012h to 0012h to 0025h 0030h to 0034h to 0044h to 0044h to
d025 (high) d025 (low) d026 (low) d027 (high) d027 (low) d027 (low) d028 (low) d029 (high) d029 (low) d029 (low) d029 (low) d030 (high) d031 d60 d80 d081 d082 d083 d084 d085 d086 d090 d102 d103	Drive programming monitor (UM0) Drive programming monitor (UM1) Drive programming monitor (UM2) Pulse counter monitor Position command monitor Current position monitor Clock Inverter mode Fault frequency monitor Fault monitor 1 (Latest) Fault monitor 3 Fault monitor 5 Fault monitor 5 Fault monitor 6 Warning monitor	0 to 9999 -2147483647 to 2147483647 -2147483647 to 2147483647 -2147483647 to 2147483647 0 to 2147483647 0 to 2147483647 -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected -1073741823 to 1073741823 when HAPR is selected -268435456 to 268435456 when APR2 is selected 2000/1/1 to 2099/12/31 (Increments of 1 day) 00:00 to 23:59 (Increments of 1 min) 00 to 01 0 to 65535 Error code (condition of occurrence) Output frequency [Hz] Output current [A] Internal DC voltage [V] RUN time [h] ON time [h] Warning code 0 to 385		101Fh 102Eh 102Fh 1030h 1031h 1032h 1033h 1034h 1035h 1036h 1037h 1038h 1039h - 1057h 0011h 0012h to 0025h 0026h to 0039h 0030h to 0043h 0044h to 004Eh

4.2 Parameter group A

Addit Progency reference selection Ob. VE (Capital operator (VCO) or (VCO) CO (VCO) - F 120h 01 Addit On (VCO) CO (VCO) Construction (VCO) -	Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register Nº	Default
Bit Section Bit Section	A001	Frequency reference selection	č	-			01
Big Big <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Biological constraints requestly in the sequence of the seque							
Image: state interpanding in the train requestly in the train requestly in the train requestly in the train interpanding interpanding in the train interpanding inte			*				
Amound Constrained integration function readed First of the sector readed First			*				
Moli2 Run command election 01 (Translaf (2) (Epd equetor (P(0))) (8) (ESKS (Modes) communication) (6) Option 1 (7) (Soption 1 (7) (Soption 2 (7)							
abs: abs: abs: bit:							
Add Base frequency Graph of the constraint frequency [A081] Hz F. 1.2004 5.2004 Add Made share frequency 30 to 2 dm maximum frequency [A081] HZ K 1.2004 5.2004 Add Maximum frequency 4.00 to 3 dm facturant frequency [A081] HZ K 3.2004 5.2004 <td>A002</td> <td>Run command selection</td> <td>02: Digital operator (F001)</td> <td>-</td> <td>×</td> <td>1202h</td> <td>01</td>	A002	Run command selection	02: Digital operator (F001)	-	×	1202h	01
λ003 Date frequency 90 homains may requency [A001] Hz * 120h 90 A030 Date Hase frequency 90 b 2d maximum frequency [A301] Hz * 320h 90 A040 Maximum frequency A00 b 3d maximum frequency [A301] Hz * 320h 50 A041 Admaximum frequency A03 b 400 Hz * 320h 50 A040 Admaximum frequency A03 b 400 Hz * 220h 50 A005 Off maximum frequency A03 b 400 Hz * 120h 50 A005 Off maximum frequency A03 b 400 Coll coll crain the			04: Option 1				
Ab30 Ab4 solution frequency (A20) Hz * 200. 90 Ab30 Add take frequency 30 to 300 minimum frequency (A20) Hz * 1200. 500. Ab30 Add take frequency A03 to 400 Hz * 1200. 500. Ab40 Indiminum frequency A03 to 400 Hz * 3200. 500. Ab40 Soft maximum frequency A03 to 400 Hz * 3200. 500. Ab40 Soft maximum frequency A03 to 400 Hz * 3200. 500. Ab40 Soft maximum frequency A03 to 400. Hz * 3200. 500. Ab40 Soft maximum frequency A05. Soft Micha between O/D/EREG alpater to torminal AT Soft Micha between O/D/EREG alpater to torminal AT 500. 1200. <td>A003</td> <td>Base frequency</td> <td></td> <td>Hz</td> <td>×</td> <td>1203h</td> <td>50</td>	A003	Base frequency		Hz	×	1203h	50
A004 Maximum frequency A035 to 400 Hz * 120h 50 A304 3d maximum frequency A035 to 400 Hz * 320h 50 A005 OOI selection 60 [0/10] selection between O/02 terminal AT * 320h 50 A006 OOI selection 60 [0/10] selection between O/02 terminal AT * 1205h 00 01: [0/102] workshe between O/02 terminal AT * 1205h 00 0 02: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00 02: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00 04: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00 04: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00 04: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00 04: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00 04: [0/17 workshe between O/27ERQ adjuster via terminal AT * 1208h 00	A203	1 1	* * *	Hz	×	2203h	50
Ab0430d maximum frequencyA030 to 400Hz*200h.50A005O/OI selection 00 ; [0]/(OI) soltchs between O/OI terminal AT 01 ; [0]/(X switchs between O/OI terminal AT 01 ; [0]/(C)-II assiltary tracemetry terminal AT 00 ; [0]/(C)-II assiltary tracemetry terminal AT 01 ; [0]/(C)-II assiltary tracemetry tere re- 01 ; [0]/(C)-II assiltary tracemetry reference (new results) 01 ; [0]/(C)-II assiltary tracemetry (A011 set value)Hz*120h 1000A010O start ratio 0 to 10000 to 40.00K*121h 100A013O start ratio 0 co 10000 to 100%*121h 100A014O end ratio 0 co 10000 to 100%*121h 100A015O start ratio 0 co 10000 to 100%* <td></td> <td>3rd set base frequency</td> <td>30 to 3rd maximum frequency [A304]</td> <td>Hz</td> <td>×</td> <td>3203h</td> <td>50</td>		3rd set base frequency	30 to 3rd maximum frequency [A304]	Hz	×	3203h	50
AD943rd maximum frequencyAD01 to 400 $1/7$ r 300 A005OOI selection 00 : [O/[70] switchs between OVErmanial AT 1200 is clubely between OVER and allow in an analysis of the initial AT (enabled) only when SGAX-OVP1 is used) r $1208h$ 00 00 : [O/[70] switchs between OVER adjuster via terminal AT (enabled) only when SGAX-OVP1 is used) r r $1200h$ 00^{-1} 0006 02 selection 00 : [O/[70] switchs between O2/ERD adjuster via terminal AT (enabled) only when SGAX-OVP1 is used) r $1200h$ 00^{-1} 0000 00 : [OO] only 01 : [OO/P1 auxiliary frequency reference (net reversible) r $1200h$ 00^{-1} 0010 00000 Hz r $1200h$ 00^{-1} 0100 00000 Hz r $1200h$ 00^{-1} 0100 00000 Hz r $1200h$ 000^{-1} 0100 0000^{-1} h h $1200h$ 000^{-1} 0100 h h $1200h$ 000^{-1} h h 0100 h h $1200h$ 000^{-1} h h 0100 h h $1200h$ 000^{-1} h h $1200h$ 0100 0000 h h h $1200h$ $000^{$		1 7					
A005 O/OI selection 06 (O)(701 selects between O/OI terminal AT 0 (C)(701 selects between O/OI terminal AT (C)(701 selects between O/OI terminal AT (C)(7001 selects between O/OI terminal AT (C)(701 selects		1 /					
bi: bi: <td></td> <td>1 7</td> <td></td> <td>Hz</td> <td></td> <td></td> <td></td>		1 7		Hz			
A006 A006C selectionIminal AT (realished only when SQAX-OPD is used)Image: C selectionImage: C sele	A003		01: [O]/[O2] switches between O/O2 terminal AT 02: [O]/VR switches between O/FREQ adjuster via ter- minal AT (enabled only when 3G3AX-OP01 is used) 03: [OI]/VR switches between OI/FREQ adjuster via ter- minal AT (enabled only when 3G3AX-OP01 is used)	_		12031	00
bit is observe in the intervention of the interventinterventintervention of the intervention of the in			minal AT (enabled only when 3G3AX-OP01 is used)				
Image: constraint of the sector of the se	A006	O2 selection	01: [O/OI-P] auxiliary frequency reference (not revers- ible)	-	×	1206h	03
A012O end frequency0.00 to 400.00HzIIIIIA013O start ratio0 to 100% o*120 Fb0.00120 Fb0.00A014O end ratio0 to 100% o*120 Fb0.00100 Fb100%*120 Fb0.00A015O start selection00: External start frequency (A011 set value) 01: 01 tz-**121 Fb0.00A016O, O2, OI sampling10: 30 31 (with 500 ms filter ±0.1 Hz hysteresis)-**121 Fb0.00A017Drive programming (EsSQ) selection00: Disable 01: [REG) start selection with 4 terminals 01: [REG) start selection with 4 terminals 01: [REG) start selection with 4 terminals 10: [REG) start selection with 4			03: [OFF] O2 disabled				
Ad13 A013 A014O tart ratio0 to 100% 100 700A014 A015O cal ratio0 to 100%×120 h10A015 A015O start selection00: External start frequency (A011 set value) 01: 0 Hz-×121 h01A016O, O2, OI sampling 31 (with 500 m filter ±0.1 Hz hysteresis)-×121 h01A017Drive programming (EzSQ) selection 01: Disable 01: ERS selection with 4 terminals 02: Abrays ON-×121 h00A019Multi-step speed selection 12: Multi-step speed reference 00.00 to max frequency [A004] 11: Bits - Step selection with 7 terminals-×121 h00A2202nd multi-step speed reference 00.00 to max frequency [A004] 11: Bits - Step selection with 7 terminals-121 h6.00A2202nd multi-step speed reference 00.00 to max frequency [A004]Hz $-$ 121 h6.00A2202nd multi-step speed reference 00.00 to max frequency [A004]Hz $-$ 121 h6.00A220Multi-step speed reference 00.00 to max frequency [A004]Hz $-$ 121 h100A220Multi-step speed reference 00.00 to max frequency [A004]Hz $-$ 121 h100A221Multi-step speed reference 00.00 to max frequency [A004]Hz $-$ 121 h100A220Multi-step speed reference 00.00/starting frequency to max frequencyHz $-$ 121 h100A221 <t< td=""><td>A011</td><td>O start frequency</td><td>0.00 to 400.00</td><td>Hz</td><td>×</td><td></td><td>0.00</td></t<>	A011	O start frequency	0.00 to 400.00	Hz	×		0.00
A014O end ratio0 to 100%×121h100A015O start selection00: External start frequency (A011 set value)-*121h01A016O, O2, O1 sampling1 to 3031 (with 500 ms filter ± 0.1 Hz hysteresis)-*121h01A017Drive programming (EzSQ) selection00: Diable-*121h0000A017Drive programming (EzSQ) selection00: Diable-*121h00A019Multi-step speed selection00: Binary: 16-step selection with 4 terminals 01: Bit-step selection hy terminals 01: Bit-step selection hy terminals 02: Always ON-*121h00A020Multi-step speed reference 00.00 to max frequency [A004]Hz-121h6.00A2202nd multi-step speed reference 00.00 to max frequency [A304]Hz \checkmark 121h0.00A3203rd multi-step speed reference 00.00 to max frequency [A304]Hz \checkmark 121h0.00A021Multi-step speed reference 10.00/starting frequency to max frequencyHz \checkmark 121h0.00A023Multi-step speed reference 30.00/starting frequency to max frequencyHz \checkmark 121h0.00A024Multi-step speed reference 40.00/starting frequency to max frequencyHz \checkmark 121h0.00A025Multi-step speed reference 50.00/starting frequency to max frequencyHz \checkmark 121h0.00A026Multi-step sp	A012	O end frequency	0.00 to 400.00	Hz	×		0.00
A015O start selection00: External start frequency (A011 set value) 01: 0 Hz-*1211h01A016O, O2, O1 sampling1 to 30 31 (with 500 m filter ± 0.1 Hz hysteresis)-*1212h31A017Drive programming (EzSQ) selection 01: [PKG] start 02: Abrays ON00: Disable 01: [PKG] start 02: Abrays ON-*1213h00A019Multi-step speed selection 01: Bit: 8-step selection with 2 terminals 01: Bit: 8-step selection with 7 terminals 01: Bit: 8-step selection with 7 terminals 01: Dist: 8-step selection 01: Dist: 8-step selection 01: Dist: 8-step selection with 7 terminals 01: Dist: 8-step selection 01: Dist: 8-step selection with 7 terminals 01: Dist: 8-step selection 01: Dist: 8-step selection 01: Dist: 8-step selection 01: Dist: 8-step selection-*1215h 006.00A2202nd multi-step speed reference 0 2017h0.00 to max frequency [A304]Hz \checkmark 1216h 1217h6.00A021Multi-step speed reference 1 1218h0.00/starting frequency to max frequency 1218hHz \checkmark 1212h 1218h0.00A022Multi-step speed reference 3 20.00/starting frequency to max frequencyHz \checkmark 1212h 1212h0.00A023Multi-step speed reference 4 20.00/starting frequency to max frequencyHz \checkmark 1212h <td>A013</td> <td>O start ratio</td> <td>0 to 100</td> <td>%</td> <td>×</td> <td>120Fh</td> <td>0</td>	A013	O start ratio	0 to 100	%	×	120Fh	0
Image: constraint of the section with section				%			
Index of the second space of	A015	O start selection		-	×	1211h	01
$\begin{array}{ c c c c c c c } \hline 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1$	A016	O, O2, OI sampling	31 (with 500 ms filter ± 0.1 Hz hysteresis)	-	×	1212h	31
Index01: Bit: 8 step selection with 7 terminalsIndexInde	A017	Drive programming (EzSQ) selection	01: [PRG] start	-	×	1213h	00
A020Multi-step speed reference 00.00 to max frequency [A004]Hz $\overline{42}$ $\overline{1216h}$ 6.00A2202nd multi-step speed reference 00.00 to max frequency [A204]Hz $\overline{42}$ $\overline{1217h}$ $\overline{1217h}$ A3203rd multi-step speed reference 00.00 to max frequency [A304]Hz $\overline{42}$ $\overline{3217h}$ $\overline{1218h}$ <td>A019</td> <td>Multi-step speed selection</td> <td>7 1</td> <td>-</td> <td>×</td> <td>1215h</td> <td>00</td>	A019	Multi-step speed selection	7 1	-	×	1215h	00
A2202nd multi-step speed reference 00.00 to max frequency [A204]Hz \checkmark $\frac{2216h}{2217h}$ 6.00A3203rd multi-step speed reference 00.00 to max frequency [A304]Hz \checkmark $\frac{3217h}{3217h}$ 6.00 A021Multi-step speed reference 10.00/starting frequency to max frequencyHz \checkmark $\frac{1218h}{1219h}$ 0.00 A022Multi-step speed reference 20.00/starting frequency to max frequencyHz \checkmark $\frac{1218h}{1219h}$ 0.00 A023Multi-step speed reference 30.00/starting frequency to max frequencyHz \checkmark $\frac{121Ch}{1210h}$ 0.00 A024Multi-step speed reference 50.00/starting frequency to max frequencyHz \checkmark $\frac{1212bh}{1210h}$ 0.00 A025Multi-step speed reference 60.00/starting frequency to max frequencyHz \checkmark $\frac{1220h}{1211h}$ 0.00 A026Multi-step speed reference 70.00/starting frequency to max frequencyHz \checkmark $\frac{1222h}{1211h}$ 0.00 A027Multi-step speed reference 80.00/starting frequency to max frequencyHz \checkmark $\frac{1222h}{1223h}$ 0.00 A028Multi-step speed reference 90.00/starting frequency to max frequencyHz \checkmark $\frac{1222h}{1223h}$ 0.00 A030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark $\frac{1222h}{1223h}$ 0.00 A030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark $\frac{1228h}{1223h}$ 0.0	A020	Multi-step speed reference 0		Hz	~		6.00
A3203rd multi-step speed reference 00.00 to max frequency [A304]Hz $\cdot \cdot \cdot \frac{3216h}{3217h}$ 6.00A021Multi-step speed reference 10.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \cdot \frac{1218h}{1219h}$ 0.00A022Multi-step speed reference 20.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \cdot \frac{1218h}{121Bh}$ 0.00A023Multi-step speed reference 30.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \cdot \frac{1212h}{121Bh}$ 0.00A024Multi-step speed reference 40.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \frac{1212h}{121Bh}$ 0.00A025Multi-step speed reference 50.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \frac{122h}{1221Fh}$ 0.00A026Multi-step speed reference 60.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \frac{122h}{1221Fh}$ 0.00A027Multi-step speed reference 70.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \frac{122h}{1223h}$ 0.00A028Multi-step speed reference 80.00/starting frequency to max frequencyHz $\cdot \cdot \cdot \frac{1222h}{1223h}$ 0.00A029Multi-step speed reference 90.00/starting frequency to max frequencyHz $\cdot \cdot \frac{1228h}{1223h}$ 0.00A030Multi-step speed reference 100.00/starting frequency to max frequencyHz $\cdot \cdot \frac{1228h}{1223h}$ 0.00A030Multi-step speed reference 100.00/starting frequency to max frequencyHz $\cdot \cdot \frac{1228h}{1223h}$ 0.00	A220	2nd multi-step speed reference 0	0.00 to max frequency [A204]	Hz	~	2216h	6.00
A021Multi-step speed reference 10.00/starting frequency to max frequencyHz	A320	3rd multi-step speed reference 0	0.00 to max frequency [A304]	Hz	~	3216h	6.00
A022Multi-step speed reference 20.00/starting frequency to max frequencyHz	A021	Multi-step speed reference 1	0.00/starting frequency to max frequency	Hz	~	1218h	0.00
A023Multi-step speed reference 30.00/starting frequency to max frequencyHz \checkmark 121Ch0.00A024Multi-step speed reference 40.00/starting frequency to max frequencyHz \checkmark 121Eh0.00A025Multi-step speed reference 50.00/starting frequency to max frequencyHz \checkmark 1220h0.00A026Multi-step speed reference 60.00/starting frequency to max frequencyHz \checkmark 1220h0.00A026Multi-step speed reference 60.00/starting frequency to max frequencyHz \checkmark 1220h0.00A027Multi-step speed reference 70.00/starting frequency to max frequencyHz \checkmark 1224h0.00A028Multi-step speed reference 80.00/starting frequency to max frequencyHz \checkmark 122h0.00A029Multi-step speed reference 90.00/starting frequency to max frequencyHz \checkmark 122h0.00A030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark 122h0.00A030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark 122h0.00A030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark 122h0.00A030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark 122h122hA030Multi-step speed reference 100.00/starting frequency to max frequencyHz \checkmark 122h <td< td=""><td>A022</td><td>Multi-step speed reference 2</td><td>0.00/starting frequency to max frequency</td><td>Hz</td><td></td><td>121Ah</td><td>0.00</td></td<>	A022	Multi-step speed reference 2	0.00/starting frequency to max frequency	Hz		121Ah	0.00
A024Multi-step speed reference 40.00/starting frequency to max frequencyHz	A023	Multi-step speed reference 3	0.00/starting frequency to max frequency	Hz	~	121Ch	0.00
A025Multi-step speed reference 50.00/starting frequency to max frequencyHz	A024	Multi-step speed reference 4	0.00/starting frequency to max frequency	Hz	~	121Eh	0.00
A026Multi-step speed reference 60.00/starting frequency to max frequencyHz	A025	Multi-step speed reference 5	0.00/starting frequency to max frequency	Hz	~	1220h	0.00
A027Multi-step speed reference 70.00/starting frequency to max frequencyHz	A026	Multi-step speed reference 6	0.00/starting frequency to max frequency	Hz	~	1222h	0.00
A028 Multi-step speed reference 8 0.00/starting frequency to max frequency Hz	A027	Multi-step speed reference 7	0.00/starting frequency to max frequency	Hz	~	1224h	0.00
A029 Multi-step speed reference 9 0.00/starting frequency to max frequency Hz	A028	Multi-step speed reference 8	0.00/starting frequency to max frequency	Hz	~	1226h	0.00
A030 Multi-step speed reference 10 $0.00/starting frequency to max frequency Hz + I22Ah 122Ah 122Bh 0.00$	A029	Multi-step speed reference 9	0.00/starting frequency to max frequency	Hz		1228h	0.00
	A030	Multi-step speed reference 10	0.00/starting frequency to max frequency	Hz	~	122Ah	0.00
122Dh	A031	Multi-step speed reference 11	0.00/starting frequency to max frequency	Hz	✓	122Ch	0.00

Mails Mails step speed reference 11 Odd/Maring frequency to max frequency Fac 2276 (120) A033 Mails step speed reference 11 0.0004tring frequency to max frequency Fa 200 A034 Main-step speed reference 11 0.0004tring frequency to max frequency Fa 2 A035 Mails-step speed reference 11 0.0004tring frequency to max frequency Fa 2 A035 Mails-step speed reference 11 0.0004tring frequency to max frequency Fa 2000 A035 Mails-step speed reference 11 0.0004tring frequency to 90 Fa 2 2000 A036 Mails-step speed reference 11 0.0004tring frequency to 90 Fa 2 2000 A037 Mains-step speed reference 11 0.0004tring frequency to 90 Fa 2 2000 A040 Fa Descention 0.0004tring frequency to 90 0.000 2 2 2000 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register Nº	Default
Abbs Multi-step-speed reference 13 1000/arting frequency Ha r 12200. AB94 Multi-step-speed reference 15 0.000 tarting frequency H4 r 12210. AB95 Multi-step-speed reference 15 0.000 tarting frequency H4 r 12210. AB98 Fogging frequency 0.000 tarting frequency to 359 H4 r 12230. AB99 Fogging frequency 0.000 tarting frequency to 359 H4 r 12390. AB99 Fogging step selection 10.010 tarting frequency to 359 H4 r 12390. AB91 Fogging step selection 10.010 tarting frequency to 350. r 12390. AB11 Forge boost selection 0.010 tarting frequency to 350. r 12230. A211 2nd torque boost selection 0.010 tarting frequency - * 12390. A221 Annual torque boost selection 0.010 tarting frequency - * 12320. A221 Annual torque boost selection 0.010 tarting frequency 0.010 tarting frequency -	A032	Multi-step speed reference 12	0.00/starting frequency to max frequency	Hz	\checkmark	122Eh	0.00
Abile Multi-step speed reference 14 6.00/catring frequency 11b. 12b. 12b. <th< td=""><td>A033</td><td>Multi-step speed reference 13</td><td>0.00/starting frequency to max frequency</td><td>Hz</td><td>~</td><td>1230h</td><td>0.00</td></th<>	A033	Multi-step speed reference 13	0.00/starting frequency to max frequency	Hz	~	1230h	0.00
ADD5 Mulki etap speed reference 15 0.000/starting frequency to 9.29 He r 1230. ADD8 legging frequency 0.000/starting frequency 0.29 He r 1230. ADD8 legging speed reference 0.000 starting frequency 0.29 He r 1230. ADD8 legging speed reference 0.000 starting frequency 0.29 He r 1230. ADD8 legging speed reference 0.000 starting frequency 0.000 speed speed reference r r r 1230. ADD8 frequency 0.000 starting frequency 0.000 speed speed reference - r r 1230. ADD1 Torque boost stelerion 0.000 starting frequency 0.000 speed speed reference - r 2211. AD24 Adramal torque boost velocating 0.00 s200 % r 2220. A221 2ad namael torque boost velocating 0.00 s200 % r 2220. A232 2ad namael torque boost velocating 0.00 s200 % r 2220. A333 Mamael torque boost velocating 0.00 s200 % r 2220. A334 Mamael torque boost velocating 0.00 s200 % r 2230. A334 Mamael torque boost velocating </td <td>A034</td> <td>Multi-step speed reference 14</td> <td>0.00/starting frequency to max frequency</td> <td>Hz</td> <td>~</td> <td>1232h</td> <td>0.00</td>	A034	Multi-step speed reference 14	0.00/starting frequency to max frequency	Hz	~	1232h	0.00
A089 logging frequency 0.0014trung frequency to 9.9 H. r 238 A039 logging stop selection 00F RE (remaining in jogging top/disabled in operation) iii find iiii find iii find iii find	A035	Multi-step speed reference 15	0.00/starting frequency to max frequency	Hz	~	1234h	0.00
Los of L tools of L <thtools l<="" of="" th=""> <thtools l<="" of="" th=""> tools of L<</thtools></thtools>	A038	Jogging frequency	0.00/starting frequency to 9.99	Hz	✓	1238h	6.00
1 1 Automatic forque boost - I 2 A041 2nd orque boost voltage 0.0 to 20.0 % I 123C. A042 Manual torque boost voltage 0.0 to 20.0 % I 223C. A342 2nd manual torque boost frequency 0.0 to 20.0 % I 223C. A043 Manual torque boost frequency 0.0 to 50.0 % I 223C. A043 Manual torque boost frequency 0.0 to 50.0 % I 223C. A13 2nd manual torque boost frequency 0.0 to 50.0 % I 223C. A143 2nd manual torque boost frequency 0.0 to 50.0 % I 232B. A244 VF characteristics selection 0.0 to 50.0 % I 232B. A244 2nd V/F characteristics selection 0.0 to Closmatu torque characteristics) I S23E. I I X 232B. A244 2nd V/F characteristics selection 0.0 to Closmatu torque characteristics) I I I <td>A039</td> <td>Jogging stop selection</td> <td> tion) tion be a piece of a relation of the piece of a relation of the piece of a relation of the piece o</td> <td>-</td> <td>×</td> <td>1239h</td> <td>04</td>	A039	Jogging stop selection	 tion) tion be a piece of a relation of the piece of a relation of the piece of a relation of the piece o	-	×	1239h	04
India drogene boost voltage01: Automatic forque boostVIZACAd423rd manual torque boost voltage01: 0 20.0%223ChA3423rd manual torque boost frequency01: 0 20.0%223ChAd433rd manual torque boost frequency01: 0 50.0%223ChA3432nd manual torque boost frequency01: 0 50.0%223ChA3433rd manual torque boost frequency00: 0 50.0%223ChA3443rd manual torque boost frequency00: 0 50.0%232DhA044V/F characteristics selection00: VC (Constant torque characteristics) 0: EVF (Characteristics) 0: EVF (Constant torque characteristics) 0: EVF (Constant torque characteristics) 0: EVF (Constant torque characteristics) 0: EVF (Constant torque characteristics) 0: EVF (Constant torque boot voltage 0: VC (Constant torque characteristics) 0: EVF (Constant torque boot voltage 0: VC (Constant torque boot voltage 	A041	Torque boost selection		-	×	123Bh	00
0.422 1nd manual torque boost voltage 0.0 to 20.0 % ✓ 232.05 A42 3rd manual torque boost requency 0.0 to 50.0 % ✓ 1232.05 A43 3rd manual torque boost requency 0.0 to 50.0 % ✓ 1232.05 A43 3rd manual torque boost frequency 0.0 to 50.0 % ✓ 1232.05 A644 V/F characteristics selection 00 to 50.0 % ✓ 123.05 A044 V/F characteristics selection 00 VC (Constant torque characteristics) - × 123.86 0.2 Free V/F (characteristics) 0.2 Free V/F (characteristics) - × 123.86 0.4 SU (V/F characteristics selection 00 VC (Constant torque characteristics) - × 323.06 0.4 SU (V/F characteristics selection 00 VC (Constant torque characteristics) - × 323.06 0.4 SU (Sensor vector control) 04 SU (Sensor vector control) - × 32.06 0.4 SU (Sensor vector control) 04 SE (Sensor vector control) - × 1240.6	A241	2nd torque boost selection		-	×	223Bh	00
A422 2nd manual torque boost voltage 0.0 to 20.0 % ✓ 232Ch A423 3rd manual torque boost frequency 0.0 to 50.0 % ✓ 1232Dh A433 3nd manual torque boost frequency 0.0 to 50.0 % ✓ 232Dh A343 3nd manual torque boost frequency 0.0 to 50.0 % ✓ 232Dh A044 V/F characteristics boost frequency 0.0 to 50.0 % ✓ 232Dh A044 V/F characteristics selection 0.0 V/C (Constant torque characteristics) - × 132Eh 0.1 VP (Special reduced torque characteristics) 0.2 Prev (V/F (characteristics) - × 232Eh 0.2 Prev (V/F (characteristics) 0.2 Prev (V/F (characteristics) - × 232Eh 0.4 SU (Sensord sector control) 0.5 SU (Sensord sector control) - × 232Eh 0.4 SU (Sensord sector control) 0.5 SU (Sensord sector control) - × 232Eh 0.4 SU (Sensord sector control) 0.6 SU (Sensord sector control) - - 242Eh A045 Output voltage gain 0.6 SU (Sensord sector control) - - 1240h A046 Automatic torque boost allp compensation gain 0.6 SU (Sensord sector control) -	A042	Manual torque boost voltage	1	%	✓	123Ch	1.0
And State Manual torque boost frequency 0.0 to 500 % ✓ 1232b A33 2nd manual torque boost frequency 0.0 to 500 % ✓ 1232b A044 V/F characteristics selection 0.0 to 500 % ✓ 123bb A044 V/F characteristics selection 0.0 to 500 % ✓ 132bb A044 V/F characteristics selection 0.0 to 500 % ✓ 132bb A244 2nd V/F characteristics selection 0.0 to 500 - × 132bb A244 2nd V/F characteristics selection 0.0 to 500 - × 232bb A244 3rd V/F characteristics selection 0.0 to 500 - × 232bb A344 3rd V/F characteristics selection 0.0 to 25c - × 332bb A344 3rd V/F characteristics selection 0.0 to 25c - ✓ 1240bb A344 3rd V/F characteristics selection 0.0 to 25c - ✓ 1240bb A345 2nd automatic torque boost voltage compensation gain 0 to 25c - ✓ 1240bb A345 2nd automatic torque boost dip compensation gain 0 to 25c - ✓ 1240bb A047	A242		0.0 to 20.0	%	_ ✓	223Ch	1.0
A243 2nd manual torque boot frequency 0.0 is 50.0 % ✓ 2320h A343 3rd manual torque boot frequency 0.0 is 50.0 % ✓ 2320h A944 V/F characteristics of the process of th	A342	3rd manual torque boost voltage	0.0 to 20.0	%		323Ch	1.0
A443 3rd manual lorque hoost frequency 0.0 to 50.0 % ✓ 3232h A044 V/F characteristics selection 00 VC (Constant forque characteristics) - * 123Eh 01: VP (Special reduced forque characteristics) 02: Free VF ((characteristics) - * 123Eh 04: 6SL V (Sensorles vector control) 04: 6SL V (Gonstant forque characteristics) - * 223Eh 05: V2 (Sensorvector control) 00: VC (Constant forque characteristics) - * 223Eh 04: 6SL V/F characteristics 03: SL V (Sensorles vector control) - * 323Eh 04: SL V(F characteristics) 03: SL V (Sensorles vector control) - * 323Eh 04: SL V/F characteristics 00: VC (Constant forque characteristics) - * 323Eh 04: SL V/F characteristics 00: VC (Constant forque characteristics) - * 323Eh A444 3rd V/F characteristics selection 00: 0255 - <	A043	1 1 1	0.0 to 50.0	%		123Dh	5.0
A044 V/P characteristics selection 00: VC (Constant torque characteristics) 01: VP (Special reduced torque characteristics) 03: SLV (Gensores vector control) 05: V2 (Gensor torque characteristics) 03: SLV (Gensores vector control) 05: V2 (Gensor torque characteristics) 01: VP (Special reduced torque characteristics) 02: SV (Gensore vector control) 05: V2 (Gensor torque characteristics) 01: VP (Special reduced torque characteristics) 02: SLV (Gensore vector control) 04: SLV (Gensore vector control) 05: V2 (Gensor vector control) 05: V2 (Gensore vector control) 06: V2 (Gensore vector control) 06: V2 (Gensore vector control) 06: V2 (Gensore vector control) 06: V2 (Gensore vector control) 07: V2 (Special reduced torque characteristics) 01: VP (Special reduced torque characteristics) 01: VP (Special reduced torque characteristics) 01: V2 (Special reduced torque characteristics) 02: OX (Fn) 04: 02: OX (Fn) 04: 02: OX (Fn) 04: 02: OX (Fn) 04: 00: 05: 02: 02: 02: 02: 02: 02: 02: 02: 02: 02			0.0 to 50.0				5.0
absolution 01: VP (Special reduced torque characteristics) 03: SU (Sensorless vector control) 04: 0SU (0: Hz sensorless vector control) 05: V2 (Sensor vector control) 06: V2 (Sensorless vector control) 06: V2 (Sensorless vector control) 06: V2 (Sensorless vector control) 06: V2 (Sensorless vector control) 02: Free VF (characteristics) 02: V2 (Sensorless vector control) 04: 0SU (0: Hz sensorless vector control) 05: 0Z (Sensorless vector control) 05: 0Z (Sensorless vector control) 05: 0Z (Sensorless vector control) 05: 0Z (Sensorless vector) 05: 0Z (Sensorless vector control) 05: 0Z (Sensorless vector control) 05: 0Z (Sensorless vector control) 05: 0Z (Sensorless vector) 00: 0D (D	A343		0.0 to 50.0	%	✓	323Dh	5.0
and automatic selection 0: PP (Special reduced torque characteristics) 02: Free V/F (characteristics) 03: SLV (Sensides vector control) 04: 0SLV (0:Hz sensorless vector control) 05: V2 (Constant torque characteristics) - * 3232h A344 3rd V/F characteristics selection 00: VC (Constant torque characteristics) - * 3232h A045 Output voltage gain 20 to 100 % - 123fh A046 Automatic torque boost voltage compensation gain 0 to 255 - - 2240h A246 2nd automatic torque boost voltage compensation gain 0 to 255 - 2240h A247 2nd automatic torque boost slip compensation gain 0 to 255 - 2241h A247 2nd automatic torque boost slip compensation gain 0 to 255 - 2 124h A051 DC injection braking frequency 0.00 to 40.00 Hz * 124sh A052 DC injection braking frequency 0.00 to 40.00 s * 124bh A053 DC injection braking gover 0 to 100 (0.4 to 55 kW) % * 124bh A054 DC injection braking gover			 01: VP (Special reduced torque characteristics) 02: Free V/F (characteristics) 03: SLV (Sensorless vector control) 04: 0SLV (0-Hz sensorless vector control) 05: V2 (Sensor vector control) 	_			00
$ \begin{array}{ c c c c c } \hline \begin matrix 1 & \begin mat$			 01: VP (Special reduced torque characteristics) 02: Free V/F (characteristics) 03: SLV (Sensorless vector control) 04: 0SLV (0-Hz sensorless vector control) 			220111	
Add6Automatic torque boost voltage compensation gain gain0 to 255- \checkmark 1240hA2462nd automatic torque boost voltage compensation gain0 to 255- \checkmark 1240hA047Automatic torque boost slip compensation gain 0 to 2550 to 255- \checkmark 1241hA2472nd automatic torque boost slip compensation gain 0 to 2550 to 255- \checkmark 1241hA051DC injection braking selection0 to 255- \checkmark 1245hA052DC injection braking frequency0.00 to 400.00Hz*1245hA053DC injection braking delay time0.0 to 50.0s*1247hA054DC injection braking method selection0.0 to 60.0s*1248hA055DC injection braking method selection0.0 to 60.0s*1248hA056DC injection braking method selection0.0 to 60.0s*1248hA057Startup DC injection braking nower0.0 to 60.0s*1248hA058Startup DC injection braking method selection0.0 to 60.0s*1248hA059DC injection braking carrier frequency0.00 to 60.0s*1242hA061Frequency lower limit0.00/frequency lower limit to max frequencyHz*1242hA051Dc injection braking carrier frequency0.00/starting frequency upper limitHz*1242hA061Frequency lower limit0.00/starting frequency upper limit <t< td=""><td>A344</td><td>3rd V/F characteristics selection</td><td></td><td>-</td><td>×</td><td>323Eh</td><td>00</td></t<>	A344	3rd V/F characteristics selection		-	×	323Eh	00
A246 2nd automatic torque boost voltage compensation gain 0 to 255 - 2 240h A047 Automatic torque boost slip compensation gain 0 to 255 - 2 241h A247 2nd automatic torque boost slip compensation gain 0 to 255 - 2 241h A051 DC injection braking selection 00: OFF (Disabled) - 2 1245h A052 DC injection braking frequency 0.00 to 400.00 s 2 1245h A053 DC injection braking delay time 0.01 to 50. s × 1248h A054 DC injection braking power 0 to 100 (0.4 to 55 kW) % × 1248h A055 DC injection braking power 0.0 to 400.00 s × 124h A056 DC injection braking power 0.0 to 60.0 s × 124h A057 Startup DC injection braking time 0.0 to 60.0 s × 124h A059 DC injection braking time 0.0 to 60.0 s ×	A045	Output voltage gain	20 to 100	%	√	123Fh	100
A047Automatic torque boost longe on pensation gain0 to 25- \checkmark 1211hA047Automatic torque boost slip compensation gain0 to 255- \checkmark 2241hA051DC injection braking selection00: OFF (Disabled) 01: ON (Enabled) 01: ON (Enabled) 02: ON (FQ) (Frequency control [A052 set value])- \checkmark 1245hA052DC injection braking frequency0.00 to 40.00Hz \star 1246hA053DC injection braking delay time0.0 to 5.0s \star 1247hA054DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 100 (0.4 to 55 kW)% \star 1248hA055DC injection braking time0.0 to 60.0s \star 124AhA056DC injection braking power0 to 100 (0.4 to 55 kW) 0.1 Ever loperation \sim 124AhA057Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0.0 to 60.0 \star 124AhA058Startup DC injection braking time0.0 to 65 kW) 0.0 to 60.0 \star 124AhA059DC injection braking carrier frequency 0.0 to 60.0 0.5 to 1.32 kW) \star 124AhA051Erequency upper limit0.00 to 60.0 \star \star 124AhA052Startup DC injection braking time0.0 to 60.0 \star \star 124AhA058Startup DC injection braking time0.0 to 60.0 \star \star 124AhA059DC injection braking carrier frequency 0.5 to 1.0.0 (75 to 132 kW) \star 124AhA061Frequency up	A046	Automatic torque boost voltage compensation gain	0 to 255	-	✓	1240h	100
A2472nd automatic torque boost slip compensation gain0 to 255 \checkmark 2241hA051DC injection braking selection00: OFF (Disabled) 01: ON (Enabled) 02: ON (FQ) (Frequency control [A052 set value])- \star 1245hA052DC injection braking frequency0.00 to 400.00Hz \star 1246hA053DC injection braking delay time0.0 to 5.0s \star 1247hA054DC injection braking power0 to 100 (0.4 to 55 kW)% \star 1248hA055DC injection braking time0.0 to 60.0s \star 1248hA056DC injection braking method selection00: Edge operation 01: Level operation- \star 1248hA057Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%*1248hA058Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%*1248hA059DC injection braking time0.0 to 60.0s \star 124BhA061Frequency upper limit0.00/requency lower limit to max frequencyHz \star 124BhA061Frequency lower limit0.00/requency lower limit to 2nd max frequencyHz \star 124FhA2612nd frequency lower limit0.00/starting frequency to frequency upper limitHz \star 124FhA063Jump frequency 10.00 to 400.0Hz \star 124FhA2622nd frequency lower limit0.00 to 400.0Hz \star <t< td=""><td></td><td>gain</td><td></td><td>-</td><td></td><td></td><td>100</td></t<>		gain		-			100
A051 DC injection braking selection 00: OFF (Disabled) 01: ON (Enabled) 02: ON (FQ) (Frequency control [A052 set value]) - * 1245h A052 DC injection braking frequency 0.00 to 400.00 Hz * 1246h A053 DC injection braking frequency 0.00 to 400.00 s * 1247h A054 DC injection braking power 0 to 100 (0.4 to 55 kW) % * 1248h A055 DC injection braking time 0.0 to 60.0 s * 1248h A056 DC injection braking power 0.0 to 60.0 s * 1248h A057 Startup DC injection braking power 0.0 to 60.0 s * 1248h A058 Startup DC injection braking time 0.0 to 60.0 s * 124Bh A059 DC injection braking arrier frequency 0.5 to 1.0 (2.4 to 55 kW) kHz * 124Bh A061 Frequency upper limit 0.00/frequency lower limit to 2nd max frequency Hz * 124Fh A062 Frequency lower limit 0.00/starting frequency to requency upper limit Hz * 124Fh 1250h				-			100
A052DC injection braking frequency0.00 to 400.00HzHz×1246hA053DC injection braking delay time0.0 to 5.0s×1247hA054DC injection braking power0 to 100 (0.4 to 55 kW)%×1248hA055DC injection braking time0.0 to 60.0s×1249hA056DC injection braking method selection00: Edge operation-×124AhA057Startup DC injection braking power0 to 100 (0.4 to 55 kW)%×124BhA058Startup DC injection braking time0.0 to 60.0s×124BhA059DC injection braking carrier frequency0.5 to 13.0 (0.4 to 55 kW)%×124ChA059DC injection braking carrier frequency0.5 to 10.0 (75 to 132 kW)kHz×124ChA061Frequency upper limit0.00/starting frequency lower limit to max frequencyHz×124FhA062Prequency lower limit0.00/starting frequency to frequency upper limitHz×224FhA063Jump frequency lower limit0.00 to 400.0Hz×1251hA064Jump frequency width 10.00 to 400.00Hz×1253hA065Jump frequency 20.0 to 400.00Hz×125hA065Jump frequency 20.0 to 400.00Hz×125hA065Jump frequency 20.0 to 400.00Hz×125h		· · · · ·	00: OFF (Disabled) 01: ON (Enabled)	-			100 01
A053 DC injection braking delay time 0.0 to 5.0 s × 1247h A054 DC injection braking power 0 to 100 (0.4 to 55 kW) % × 1248h A055 DC injection braking time 0.0 to 60.0 s × 1249h A056 DC injection braking method selection 00: Edge operation - × 1249h A057 Startup DC injection braking power 0 to 100 (0.4 to 55 kW) % × 1249h A058 Startup DC injection braking time 0.0 to 60.0 s × 1249h A058 Startup DC injection braking time 0.0 to 60.0 s × 124Dh A059 DC injection braking carrier frequency 0.5 to 15.0 (0.4 to 55 kW) % × 124Dh A051 Frequency upper limit 0.00/frequency lower limit to max frequency Hz × 124Dh A061 Frequency lower limit 0.00/starting frequency upper limit Hz × 124Ph A062 Prequency lower limit 0.00/starting frequency to 2nd frequency upper limit 1251h A063 Jump frequency 1 0.0 to 400.0 <t< td=""><td>A052</td><td>DC injection braking frequency</td><td></td><td>Hz</td><td>×</td><td>1246h</td><td>0.50</td></t<>	A052	DC injection braking frequency		Hz	×	1246h	0.50
A054DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%*1248hA055DC injection braking time0.0 to 60.0s*1249hA056DC injection braking method selection00: Edge operation 01: Level operation-*124AhA057Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%*124BhA058Startup DC injection braking time0.0 to 60.0s*124BhA059DC injection braking carrier frequency0.0 to 60.0s*124ChA059DC injection braking carrier frequency0.0 to 55 kW) 0.5 to 15.0 (0.4 to 55 kW) 0.5 to 10.0 (75 to 132 kW)kHz*124DhA061Frequency upper limit0.00/frequency lower limit to max frequency 0.00/frequency lower limit to 2nd max frequency 0.00/starting frequency upper limitHz*224Fh 2250hA062Frequency lower limit0.00/starting frequency to frequency upper limit 2252hHz*2251h 2252hA063Jump frequency 10.0 to 400.0Hz*2251h 2254hA064Jump frequency width 10.0 to 10.00Hz*1258hA065Jump frequency 20.0 to 400.00Hz*1258h							0.0
A055DC injection braking time0.0 to 60.0s×1249hA056DC injection braking method selection00: Edge operation 01: Level operation-×124AhA057Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%×124BhA058Startup DC injection braking time0.0 to 60.0s×124BhA059DC injection braking carrier frequency0.5 to 15.0 (0.4 to 55 kW) 0.5 to 15.0 (0.4 to 55 kW)kHz×124DhA061Frequency upper limit0.00/frequency lower limit to max frequency 0.5 to 10.0 (75 to 132 kW)Hz×124FhA061Frequency upper limit0.00/frequency lower limit to 2nd max frequency 0.00/frequency lower limit to 2nd max frequencyHz×124FhA062Prequency lower limit0.00/starting frequency to frequency upper limit 1252h×124FhA063Jump frequency lower limit0.00 to 400.0Hz×1251hA064Jump frequency width 10.0 to 10.00Hz×1254hA065Jump frequency 20.0 to 400.00Hz×1254hA065Jump frequency 20.0 to 400.00Hz×1254hA065Jump frequency 20.0 to 400.00Hz×1256h			0 to 100 (0.4 to 55 kW)		×		50
A056DC injection braking method selection00: Edge operation 01: Level operation-×124AhA057Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%×124BhA058Startup DC injection braking time0.0 to 60.0s×124ChA059DC injection braking carrier frequency 0.5 to 10.0 (75 to 132 kW)kHz×124ChA061Frequency upper limit0.00/frequency lower limit to max frequency 0.5 to 10.0 (75 to 132 kW)kHz×124FhA061Prequency upper limit0.00/frequency lower limit to max frequency 0.5 to 10.0 (75 to 132 kW)Hz×124FhA061Prequency upper limit0.00/starting frequency lower limit to 2nd max frequency 0.5 to 10.0 (75 to 132 kW)Hz×124FhA062Frequency lower limit0.00/starting frequency to frequency upper limit 1252hHz×1251hA2622nd frequency lower limit0.00/starting frequency to 2nd frequency upper limit 2252hHz×1253hA063Jump frequency 10.0 to 400.0Hz×1253hA064Jump frequency width 10.0 to 10.00Hz×1255hA065Jump frequency 20.0 to 400.00Hz×1255h			0 to 80 (75 to 132 kW)				40
A057Startup DC injection braking power0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW)%*124BhA058Startup DC injection braking time0.0 to 60.0s*124ChA059DC injection braking carrier frequency 0.5 to 15.0 (0.4 to 55 kW) 0.5 to 10.0 (75 to 132 kW)kHz*124DhA061Frequency upper limit0.00/frequency lower limit to max frequency 0.00/frequency lower limit to 2nd max frequencyHz*124FhA061Frequency upper limit0.00/2nd frequency lower limit to 2nd max frequency 0.00/starting frequency to frequency upper limitHz*124FhA062Frequency lower limit0.00/starting frequency to frequency upper limit 0.00/starting frequency to 2nd frequency upper limitHz*1251hA2622nd frequency limit0.00 to 400.0Hz*1251hA063Jump frequency 10.0 to 400.0Hz*1253hA064Jump frequency width 10.0 to 10.00Hz*1253hA065Jump frequency 20.0 to 400.00Hz*1255hA065Jump frequency 20.0 to 400.00Hz*1255hA065Jump frequency 20.0 to 400.00Hz*1255hA065Jump frequency 20.0 to 400.00Hz*1255hA065Jump frequency 20.0 to 400.00Hz*1255h	A055	DC injection braking time	0.0 to 60.0	S	×	1249h	0.5
A057 Startup DC injection braking power 0 to 100 (0.4 to 55 kW) 0 to 80 (75 to 132 kW) % × 124Bh A058 Startup DC injection braking time 0.0 to 60.0 s × 124Ch A059 DC injection braking carrier frequency 0.5 to 15.0 (0.4 to 55 kW) kHz × 124Dh A059 DC injection braking carrier frequency 0.5 to 10.0 (75 to 132 kW) kHz × 124Dh A061 Frequency upper limit 0.00/frequency lower limit to max frequency Hz × 124Fh A061 Prequency upper limit 0.00/frequency lower limit to max frequency Hz × 124Fh A062 Prequency lower limit 0.00/starting frequency to requency upper limit Hz × 124Fh A062 Infequency lower limit 0.00/starting frequency to 2nd frequency upper limit Hz × 124Fh A062 Infequency lower limit 0.00/starting frequency to 2nd frequency upper limit Hz × 1251h A063 Jump frequency width 1 0.0 to 400.0 0.0 to 400.0 Hz × 1253h	A056	DC injection braking method selection		-	×	124Ah	01
A059DC injection braking carrier frequency0.5 to 15.0 (0.4 to 55 kW)kHzkHzx124DhA061Frequency upper limit0.00/frequency lower limit to max frequencyHzx124FhA2612nd frequency upper limit0.00/2nd frequency lower limit to 2nd max frequencyHzx224FhA062Frequency lower limit0.00/starting frequency to frequency upper limitHzx224FhA2622nd frequency lower limit0.00/starting frequency to 2nd frequency upper limitHzx1251hA2622nd frequency lower limit0.00/starting frequency to 2nd frequency upper limitHzx1251hA263Jump frequency 10.0 to 400.0Hzx1253hA064Jump frequency width 10.0 to 10.00Hzx1255hA065Jump frequency 20.0 to 400.00Hzx1255h	A057	Startup DC injection braking power	0 to 100 (0.4 to 55 kW)	%	×	124Bh	0
A059DC injection braking carrier frequency $0.5 \text{ to } 15.0 (0.4 \text{ to } 55 \text{ kW})$ kHzkHzx124DhA061Frequency upper limit $0.00/\text{frequency lower limit to max frequency}$ Hz $\frac{124Fh}{1250h}$ A2612nd frequency upper limit $0.00/2nd$ frequency lower limit to 2nd max frequencyHz $\frac{224Fh}{2250h}$ A062Frequency lower limit $0.00/\text{starting frequency to frequency upper limit}$ Hz $\frac{224Fh}{2250h}$ A2622nd frequency lower limit $0.00/\text{starting frequency to 2nd frequency upper limit}$ Hz $\frac{2252h}{2252h}$ A263Jump frequency 1 $0.0 \text{ to } 400.0$ Hz $\frac{1253h}{1254h}$ A064Jump frequency width 1 $0.0 \text{ to } 10.00$ Hz $\frac{1255h}{1256h}$ A065Jump frequency 2 $0.0 \text{ to } 400.00$ Hz $\frac{1255h}{1256h}$	A058	Startup DC injection braking time		s	×	124Ch	0.0
A061Frequency upper limit0.5 to 10.0 (75 to 132 kW)HzX124FhA2612nd frequency upper limit0.00/frequency lower limit to 2nd max frequencyHzX224FhA062Frequency lower limit0.00/starting frequency to frequency upper limitHzX224FhA062Frequency lower limit0.00/starting frequency to frequency upper limitHzX224FhA2622nd frequency lower limit0.00/starting frequency to 2nd frequency upper limitHzX1251hA2622nd frequency lower limit0.00 to 400.0HzX1253hA063Jump frequency 10.0 to 10.00HzX1253hA064Jump frequency width 10.0 to 10.00HzX1255hA065Jump frequency 20.0 to 400.00HzX1255h		* , 0			×		5.0
ActionIntermediationIntermediationIntermediationIntermediationA2612nd frequency upper limit $0.00/2nd$ frequency lower limit to 2nd max frequencyHz×224FhA062Frequency lower limit $0.00/starting frequency to frequency upper limitHz×1251hA2622nd frequency lower limit0.00/starting frequency to 2nd frequency upper limitHz×1251hA2622nd frequency lower limit0.00/starting frequency to 2nd frequency upper limitHz×2251hA263Jump frequency 10.0 to 400.0Hz×1253hA064Jump frequency width 10.0 to 10.00Hz×1255hA065Jump frequency 20.0 to 400.00Hz×1256h$	4061		0.5 to 10.0 (75 to 132 kW)	Ha	*	124Eb	3.0 0.00
$ \begin{array}{ c c c c } \hline \begin{tabular}{ c c c c } \hline \end{tabular} & \end{tabular} &$						1250h	
A262 2nd frequency lower limit 0.00/starting frequency to 2nd frequency upper limit Hz × 2251h A063 Jump frequency 1 0.0 to 400.0 Hz × 1253h A064 Jump frequency 2 0.0 to 10.00 Hz × 1253h A065 Jump frequency 2 0.0 to 400.00 Hz × 1255h				Hz			0.00
A063 Jump frequency 1 0.0 to 400.0 Hz × 1253h A064 Jump frequency width 1 0.0 to 10.00 Hz × 1255h A065 Jump frequency 2 0.0 to 400.00 Hz × 1255h	A062	Frequency lower limit	0.00/starting frequency to frequency upper limit	Hz	×		0.00
A063 Jump frequency 1 0.0 to 400.0 Hz × 1253h A064 Jump frequency width 1 0.0 to 10.00 Hz × 1255h A065 Jump frequency 2 0.0 to 400.00 Hz × 1255h	A262	2nd frequency lower limit	0.00/starting frequency to 2nd frequency upper limit	Hz	×		0.00
A064 Jump frequency width 1 0.0 to 10.00 Hz × 1255h A065 Jump frequency 2 0.0 to 400.00 Hz × 1256h	A063	Jump frequency 1	0.0 to 400.0	Hz	×	1253h	0.00
A065 Jump frequency 2 0.0 to 400.00 Hz × 1256h	A064	Jump frequency width 1	0.0 to 10.00	Hz	×		0.50
						1256h	0.00
A066 Jump frequency width 2 0.0 to 10.00 Hz × 1257h	1000	Lung for some state of	0.04-10.00	11.	+		0.50

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register Nº	Default
A067	Jump frequency 3	0.0 to 400.00	Hz	×	1259h 125Ah	0.00
A068	Jump frequency width 3	0.0 to 10.00	Hz	×	125Bh	0.50
A069	Acceleration stop frequency	0.0 to 400.00	Hz	×	125Ch 125Dh	0.00
A070	Acceleration stop time	0.0 to 60.0	s	×	125Eh	0.0
A071	PID selection	00: OFF (Disabled)	-	×	125Fh	00
		01: ON (+) (Enabled)				
4.072		02: ON (+/-) (Reverse output enabled) 0.2 to 5.0	_	~	12(0)	1.0
A072 A073	PID P gain PID I gain	0.2 to 5.0 0.0 to 3600.0	- s	✓ ✓	1260h 1261h	1.0
A073	PID D gain	0.00 to 100.00	s	· ✓	1261h	0.00
A075	PID scale	0.01 to 99.99	Time	×	1263h	1.00
A076	PID feedback selection	00: OI 01: O 02: Modbus (R\$485 communication)	-	×	1264h	00
		03: Pulse (Pulse train frequency) 10: Math (Operation function result)				
A077	Reverse PID function	00: OFF (Deviation = Target value - Feedback value) 01: ON (Deviation = Feedback value - Target value)	-	×	1265h	00
A078	PID output limit function	0.0 to 100.0	%	×	1266h	0.0
A079	PID feed forward selection	00: Disabled 01: O 02: OI 03: O2	-	×	1267h	00
A081	AVR selection	00: Always ON 01: Always OFF 02: OFF during deceleration	-	×	1269h	02
A082	AVR voltage selection	200-V class: 200/215/220/230/240 400-V class: 380/400/415/440/460/480	V	×	126Ah	-
A085	RUN mode selection	00: Normal operation 01: Energy-saving operation 02: Automatic operation	-	×	126Dh	00
A086	Energy-saving response/accuracy adjustment	0.0 to 100.0	-	~	126Eh	50.0
A092	Acceleration time 2	0.01 to 3600.00	s	~	1274h	10.00
A292	2nd acceleration time 2	0.01 to 3600.00	s	~	1275h 226Fh	10.00
				~	2270h	
A392	3rd acceleration time 2	0.01 to 3600.00	s		326Dh 326Eh	10.00
A093	Deceleration time 2	0.01 to 3600.00	s	~	1276h 1277h	10.00
A293	2nd deceleration time 2	0.01 to 3600.00	s	~	2271h 2272h	10.00
A393	3rd deceleration time 2	0.01 to 3600.00	s	~	326Fh 3270h	10.00
A094	2-step acceleration/deceleration selection	00: 2CH-terminal (Switched via multi-function input 09) 01: Preset FQ (Switched by setting) 02: FWD-REV (Enabled only when switching forward/ reverse)	-	×	1278h	00
A294	2nd 2-step acceleration/deceleration selection	00: 2CH-terminal (Switched via multi-function input 09) 01: Preset FQ (Switched by setting) 02: FWD-REV (Enabled only when switching forward/	-	×	2273h	00
A095	2-step acceleration frequency	reverse) 0.00 to 400.00	Hz	×	1279h 127Ah	0.00
A295	2nd 2-step acceleration frequency	0.00 to 400.00	Hz	×	2274h 2275h	0.00
A096	2-step deceleration frequency	0.00 to 400.00	Hz	×	127Bh 127Ch	0.00
A296	2nd 2-step deceleration frequency	0.00 to 400.00	Hz	×	2276h 2277h	0.00
A097	Acceleration pattern selection	00: Line 01: S-curve 02: U-curve	-	×	127Dh	01
A098	Deceleration pattern setting	03: Inv. U curve 04: EL-S curve 00: Line	_	×	127Eh	01
		01: S-curve 02: U-curve 03: Inv. U curve				01
A101	OI start frequency	04: EL-S curve 0.00 to 400.00	Hz	×	1281h	0.00
A102	OI end frequency	0.00 to 400.00	Hz	×	1282h 1283h 1284h	0.00
A103	OI start ratio	0 to OI end ratio	%	×	1284h 1285h	20
A104	OI end ratio	OI start ratio to 100	%	×	1286h	100

RX Quick Start Guide

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register Nº	Default
A105	OI start selection	00: Start FQ (Use OI start frequency [A101]) 01: 0 Hz	-	×	1287h	00
A111	O2 start frequency	-400.00 to 400.00	Hz	×	128Dh	0.00
	of our mequancy				128Eh	0.00
A112	O2 end frequency	-400.00 to 400.00	Hz	×	128Fh	0.00
					1290h	
A113	O2 start ratio	-100 to O2 end ratio	%	×	1291h	-100
A114	O2 end ratio	O2 start ratio to 100	%	×	1292h	100
A131	Acceleration curve parameter	01 (small curve) to 10 (large curve)	-	×	12A5h	02
A132	Deceleration curve parameter	01 (small curve) to 10 (large curve)	-	×	12A6h	02
A141	Operation frequency input A setting	00: Operator (Digital operator (F001))	-	×	12AFh	02
		01: VR (Digital operator (FREQ adjuster)) (Enabled when 3G3AX-OP01 is used)				
		02: O (Input O)				
		03: OI (Input OI)				
		04: Modbus (RS485 communication)				1
		05: Option 1				
		06: Option 2				
		07: Pulse (Pulse train frequency)				
A142	Operation frequency input B setting	00: Operator (Digital operator (F001))	-	×	12B0h	03
		01: VR (Digital operator (FREQ adjuster)) (Enabled when 3G3AX-OP01 is used)				
		02: O (Input O)				
		03: OI (Input OI)				
		04: Modbus (RS485 communication)				
		05: Option 1				
		06: Option 2				
		07: Pulse (Pulse train frequency)				
A143	Operator selection	00: ADD (Addition (A + B))	-	×	12B1h	00
		01: SUB (Substraction (A - B))				
		03: MUL (Multiplication (A x B))				
A145	Frequency addition amount	0.00 to 400.00	Hz	×	12B3h 12B4h	0.00
A146	Frequency addition direction	00: ADD (Add A145 value to output frequency)	-	×	12B III 12B5h	00
		01: SUB (Subtract A145 value from output frequency)			120011	
A150	EL-S-curve ratio 1 during acceleration	0 to 50	%	×	12B9h	10
A151	EL-S-curve ratio 2 during acceleration	0 to 50	%	×	12BAh	10
A152	EL-S-curve ratio 1 during deceleration	0 to 50	%	×	12BIth 12BBh	10
	EL-S-curve ratio 2 during deceleration	0 to 50	%	×	12BDh 12BCh	10

4.3 Parameter group B

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
b001	Retry selection	00: TRIP (Alarm)	-	×	1301h	00
		01: 0 Hz start				
		02: f-match (Frequency matching start)				
		03: f-match trip (Trip after frequency matching deceleration stop)				
		04: Actv. f-match (Active frequency matching restart)				
b002	Allowable momentary power interruption time	0.3 to 25.0	s	×	1302h	1.0
b003	Retry wait time	0.3 to 100.0	s	×	1303h	1.0
b004	Momentary power interruption/undervoltage trip	00: OFF (Disabled)	-	×	1304h	00
	during stop selection	01: ON (Enabled)				
		02: Decel-OFF (Disabled during stop and deceleration stop)				
b005	Momentary power interruption retry time selection	00: 16 times	-	×	1305h	00
		01: No limit				
b006	Input phase loss protection selection	00: OFF (Disabled)	-	×	1306h	00
		01: ON (Enabled)				
b007	Frequency matching lower limit frequency setting	0.00 to 400.00	Hz	×	1307h	0.00
					1308h	
b008	Trip retry selection	00: TRIP (Alarm)	-	×	1309h	00
		01: 0 Hz start				
		02: f-match (Frequency matching start)				
		03: f-match trip (Trip after frequency matching decelera- tion stop)				
		04: Actv. f-match (Active frequency matching restart)				
b009	Undervoltage retry time selection	00: 16 times	-	×	130Ah	00
		01: No limit				
b010	Overvoltage/overcurrent retry time selection	1 to 3	Time	×	130Bh	3
b011	Trip retry wait time	0.3 to 100.0	s	×	130Ch	1.0
b012	Electronic thermal level	0.20 x Rated current to 1.00 x Rated current	А	×	130Dh	-
b212	2nd electronic thermal level	0.20 x Rated current to 1.00 x Rated current	А	×	230Ch	-
b312	3rd electronic thermal level	0.20 x Rated current to 1.00 x Rated current	А	×	330Ch	-
b013	Electronic thermal characteristics selection	00: Reduced TRQ (Reduced torque characteristics)	-	×	130Eh	00
		01: Const TRQ (Constant torque characteristics)				
		02: Free set (Free setting)				

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
b213	2nd electronic thermal characteristics selection	00: Reduced TRQ (Reduced torque characteristics) 01: Const TRQ (Constant torque characteristics) 02: Free set (Free setting)	-	×	230Dh	00
b313	3rd electronic thermal characteristics selection	00: Reduced TRQ (Reduced torque characteristics) 01: Const TRQ (Constant torque characteristics) 02: Free set (Free setting)	-	×	330Dh	00
b015	Free setting, electronic thermal frequency 1	0.00 to 400.00	Hz	×	1310h	0.00
b016	Free setting, electronic thermal current 1	0.0 to Rated current	А	×	1311h	0.00
b017	Free setting, electronic thermal frequency 2	0.00 to 400.00	Hz	×	1312h	0.00
b018	Free setting, electronic thermal current 2	0.0 to Rated current	А	×	1313h	0.00
b019	Free setting, electronic thermal frequency 3	0.00 to 400.00	Hz	×	1314h	0.00
b020	Free setting, electronic thermal current 3	0.0 to Rated current	A	×	1315h	0.00
b021	Overload limit selection	00: OFF (Disabled) 01: ON-Acc/Cnst (Enabled in acceleration/constant speed operation) 02: ON-Cnst (Enabled in constant speed operation) 03: ON-A/C(R) (Enabled in acceleration/constant speed operation) (Accelerates during regeneration))	-	×	1316h	01
b022	Overload limit level	0.20 x Rat current to 2.00 x Rat current (0.4 to 55 kW) 0.20 x Rat current to 1.80 x Rat current (75 to 132 kW)	А	×	1317h	-
b023	Overload limit parameter	0.10 to 30.00	s	×	1318h	1.00
b024	Overload limit selection 2	00: OFF (Disabled) 01: ON-Acc/Cnst (Enabled in acceleration/constant speed operation) 02: ON-Cnst (Enabled in constant speed operation) 03: ON-A/C(R) (Enabled in acceleration/constant speed operation (Accelerates during regeneration))	-	×	1319h	01
b025	Overload limit level 2	0.20 x Rat current to 2.00 x Rat current (0.4 to 55 kW) 0.20 x Rat current to 1.80 x Rat current (75 to 132 kW)	А	×	131Ah	-
b026	Overload limit parameter 2	0.10 to 30.00	s	×	131Bh	1.00
b027	Overcurrent suppression function	00: OFF (Disabled) 01: ON (Enabled)	-	×	131Ch	00
b028	Active frequency matching restart level	0.20 x Rat current to 2.00 x Rat current (0.4 to 55 kW) 0.20 x Rat current to 1.80 x Rat current (75 to 132 kW)	А	×	131Dh	-
b029	Active frequency matching restart parameter	0.10 to 30.00	s	×	131Eh	0.50
b030	Starting frequency at active frequency matching restart	00: Off FQ (Frequency at interruption) 01: Max.FQ (Max. frequency) 02: Set FQ (Set frequency)	-	×	131Fh	00
		when terminal SFT is ON) 01: Only FQ (SFT) (Data other than b031 and the speci- fied frequency parameter cannot be changed when ter- minal SFT is ON) 02: Lock (Data other than b031 cannot be changed) 03: Only FQ (Data other than b031 and the specified fre- quency parameter cannot be changed) 10: RUN chg mode (Data other than parameters change-				
b034	RUN time/Power ON time setting	able during operation cannot be changed) 0 to 65535	h	×	1323h	0
b035	Rotation direction limit selection	00: FREE (Forward and reverse are enabled) 01: FWD (Only forward is enabled)	-	×	1324h 1325h	00
b036	Reduced voltage startup selection	02: REV (Only reverse is enabled) 0 (reduced voltage startup time: small) to 255 (reduced	-	×	1326h	6
b037	Display selection	voltage startup time: large) 00: All (Complete display) 01: Utilized (Individual display of functions) 02: User (User setting) 03: Compare (Data comparison display) 04: Basic (Basic display)	-	*	1327h	00
b038	Initial screen selection	000 to 202	-	×	1328h	001
b039	User parameter automatic setting function selection	00: OFF (Disabled) 01: ON (Enabled)	-	×	1329h	00
b040	Torque limit selection	00: 4-quadrant (Four-quadrant separate setting) 01: TRQ input (Terminal switch) 02: [O] input (Analogue input) 03: Option 1 04: Option 2	-	×	132Ah	00
b041	Torque limit 1 (fwd-power in 4-quadrant mode)	0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW)	%	×	132Bh	150
b042	Torque limit 2 (rev/regen. in 4-quadrant mode)	no (Torque limit disabled) 0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW) (75 to 132 kW)	%	×	132Ch	150
b043	Torque limit 3 (rev/power in 4-quadrant mode)	no (Torque limit disabled) 0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW)	%	×	132Dh	150
b044	Torque limit 4 (fwd/regen. in 4-quadrant mode)	no (Torque limit disabled) 0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW) 0 (Torque limit disabled)	%	×	132Eh	150
b045	Torque LADSTOP selection	no (Torque limit disabled) 00: OFF (Disabled) 01: ON (Enabled)	-	×	132Fh	00

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
b046	Reverse rotation prevention selection	00: OFF (Disabled)	-	×	1330h	00
		01: ON (Enabled)				
b049	Dual rate selection	00: CT (Constant torque) 01: VT (Variable torque)	-	×	1333h	00
b050	Selection of non-stop function at momentary power interruption	00: OFF (Disabled) 01: V-Cnst (STOP) (Enabled (deceleration stop)) 02: NS1 (Enabled (without recovery))	-	×	1334h	00
b051	Starting voltage of non-stop function at momentary	03: NS2 (Enabled (with recovery)) 0.0 to 1000.0	V	×	1335h	220/400
	power interruption					
b052 b053	Stop deceleration level of non-stop function at momentary power interruption Deceleration time of non-stop function at momen-	0.0 to 1000.0 0.01 to 360.00	V s	× ×	1336h 1337h	360/720
	tary power interruption		-		1338h	
b054	Deceleration starting width of non-stop function at momentary power interruption	0.00 to 10.00	Hz	×	1339h	0.00
b055	Proportional gain setting of non-stop function at momentary power interruption	0.00 to 2.55	-	~	133Ah	0.20
b056	Integral time setting of non-stop function at momen- tary power interruption	0.000 to 65.535	s	~	133Bh	0.100
b060	Window comparator O upper limit level	0 to 100	%	 ✓ 	133Fh	100
b061	Window comparator O lower limit level	0 to 100	%	 ✓ 	1340h	0
b062 b063	Window comparator O hysteresis width	0 to 10 0 to 100	%	✓ ✓	1341h 133Fh	0 100
b063	Window comparator OI upper limit level Window comparator OI lower limit level	0 to 100	%	✓ ✓	133Fh 1340h	0
b065	Window comparator OI hower mint level	0 to 10	%	· ·	1340h 1341h	0
b065	Window comparator O2 upper limit level	-100 to 100	%	· ✓	1345h	100
b067	Window comparator O2 lower limit level	-100 to 100	%	~	1346h	-100
b068	Window comparator O2 hysteresis width	0 to 10	%	√	1347h	0
b070	Analog operation level at O disconnection	0 to 100 no: Ignored	%	×	1349h	no
b071	Analog operation level at OI disconnection	0 to 100 no: Ignored	%	×	134Ah	no
b072	Analog operation level at O2 disconnection	0 to 100 no: Ignored	%	×	134Bh	no
b078	Integrated power clear	Cleared with the Enter key after changing to 01	-	~	1351h	00
b079	Integrated power display gain	1 to 1000	-	~	1352h	1
b082	Starting frequency	0.10 to 9.99	Hz	×	1355h	0.50
b083	Carrier frequency	0.5 to 15.0 (0.4 to 55 kW) 0.5 to 10.0 (75 to 132 kW)	kHz	×	1356h	5.0 3.0
b084	Initialization selection	00: no (Clears the trip monitor) 01: Trip data (Initializes data) 02: Parameters (Clears the trip monitor and initializes data) 03: Trip+Param (Clears the trip monitor and parame- ters) 04: Trip+Prm+EzSQ (Clears the trip monitor, parame- ters and Drive Program)	_	×	1357h	00
b085	Initialization parameter selection	01 (Do not change)	-	×	1358h	01
b086	Frequency conversion coefficient	0.1 to 99.9	-	√	1359h	1.0
Ь087	STOP key selection	00: ON (Enabled) 01: OFF (Disabled) 02: Only RESET (Disabled only during stop)	-	×	135Ah	00
b088	Free-run stop selection	00: 0 Hz start 01: f-match (Frequency matching start) 02: Actv. f-match (Active frequency matching restart)	-	×	135Bh	00
b089	Automatic carrier reduction	00: OFF (Disabled) 01: ON (Enabled)	-	×	135Ch	00
b090	Usage of regenerative braking function	0.0 to 100.0	%	×	135Dh	0.0
b091	Stop selection	00: Decel-Stop 01: Free-RUN	-	×	135Eh	00
b092	Cooling fan control	00: Alws-ON (Always ON) 01: ON in RUN (ON during RUN)	-	×	135Fh	01
b095	Regenerative braking function operation selection	00: OFF (Disabled) 01: RUN-ON (Enabled (Disabled during stop)) 02: Alws-ON (Enabled (Enabled during stio))	-	×	1362h	00
b096	Regenerative braking function ON level	330 to 380 660 to 760	V	×	1363h	360/720
b098	Thermistor selection	00: Disabled 01: PTC enabled 02: NTC enabled	-	×	1365h	00
b099	Thermistor error level	0 to 9999	Ω	×	1366h	3000
b100	Free V/F frequency 1	0 to free V/F frequency 2	Hz	×	1367h	0
b101	Free V/F voltage 1	0.0 to 800.0	V	×	1368h	0.0
b102	Free V/F frequency 2	0 to free V/F frequency 3	Hz	×	1369h	0
b103 b104	Free V/F voltage 2 Free V/F frequency 3	0.0 to 800.0 0 to free V/F frequency 4	V Hz	× ×	136Ah 136Bh	0.0
b104 b105	Free V/F requency 5 Free V/F voltage 3	0.0 to 800.0	Hz V	×	136Bh 136Ch	0.0
b105	Free V/F frequency 4	0 to free V/F frequency 5	v Hz	×	136Ch 136Dh	0.0
b107	Free V/F voltage 4	0.0 to 800.0	V	×	136Eh	0.0
b108	Free V/F frequency 5	0 to free V/F frequency 6	Hz	×	136Fh	0
	Free V/F voltage 5	0.0 to 800.0	V	×	1370h	0.0

PARAMETER LIST

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
b110	Free V/F frequency 6	0 to free V/F frequency 7	Hz	×	1371h	0
b111	Free V/F voltage 6	0.0 to 800.0	V	×	1372h	0.0
b112	Free V/F frequency 7	0 to 400	Hz	×	1373h	0
b113	Free V/F voltage 7	0.0 to 800.0	V	×	1374h	0.0
b120	Brake control selection	00: OFF (Disabled) 01: ON (Enabled)	-	×	137Bh	00
b121	Brake wait time for release	0.00 to 5.00	S	×	137Ch	0.00
b122	Brake wait time for acceleration	0.00 to 5.00	s	×	137Dh	0.00
b123	Brake wait time for stopping	0.00 to 5.00	S	×	137Eh	0.00
b124	Brake wait time for confirmation	0.00 to 5.00	s	×	137Fh	0.00
b125	Brake release frequency	0.00 to -400.00	Hz	×	1380h	0.00
b126	Brake release current	0.0 to 2.00 x Rated current (0.4 to 55 kW) 0.0 to 1.80 x Rated current (75 to 132 kW)	-	×	1381h	-
b127	Brake input frequency	0.00 to 400.00	Hz	×	1382h	0.00
b130	Overvoltage protection function selection during deceleration	00: OFF (Disabled) 01: V-const (DC voltage kept constant) 02: Accel (Acceleration enabled)	-	×	1385h	01
b131	Overvoltage protection level during deceleration	200-V class: 330 to 390 400-V class: 660 to 780	V	×	1386h	380/760
b132	Overvoltage protection parameter	0.10 to 30.00	s	×	1387h	1.00
b133	Overvoltage protection proportional gain	0.00 to 2.55	-	✓	1388h	0.50
b134	Overvoltage protection integral time setting	0.000 to 65.535	S	✓	1389h	0.060
b164	Auto return initial display	00: OFF 01: ON	-	×	13A7h	00
b166	Data read/write selection	00: R/W OK (Read/Write OK) 01: R/W protected (Read/Write protected)	-	×	13A9h	00
b180	Initialize trigger	00: No action 01: Initialize	-	×	13B7h	00

4.4 Parameter group C

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
C001	Multi-function input 1 selection	Check Digital inputs on page 23	-	×	1401h	01
C002	Multi-function input 2 selection		-	×	1402h	12
C003	Multi-function input 3 selection		-	×	1403h	18
C004	Multi-function input 4 selection		-	×	1404h	02
C005	Multi-function input 5 selection]	-	×	1405h	03
C006	Multi-function input 6 selection		-	×	1406h	06
C007	Multi-function input 7 selection	1	-	×	1407h	08
C008	Multi-function input 8 selection		-	×	1408h	no
C011	Multi-function input 1 operation selection	00: NO 01: NC	-	×	140Bh	00
C012	Multi-function input 2 operation selection	00: NO	-	×	140Ch	00
0010		01: NC			1.0001	
C013	Multi-function input 3 operation selection	00: NO	-	×	140Dh	00
0014		01: NC		×	1.4011	
C014	Multi-function input 4 operation selection	00: NO	-	×	140Eh	00
0015		01: NC			1 10 12	
C015	Multi-function input 5 operation selection	00: NO	-	×	140Fh	00
0017		01: NC			1 41 01	
C016	Multi-function input 6 operation selection	00: NO 01: NC	-	×	1410h	00
C017	Multi-function input 7 operation selection	00: NO	-	×	1411h	00
C010	Malt for the investor and a structure of the	01: NC 00: NO		×	14121	00
C018	Multi-function input 8 operation selection	00: NO 01: NC	-	[^]	1412h	00
C019	FW terminal operation selection	00: NO 01: NC	-	×	1413h	00
C021	Multi-function output terminal 11 selection	Check Digital inputs on page 25	-	×	1415h	00
C022	Multi-function output terminal 12 selection	1	-	×	1416h	21
C023	Multi-function output terminal 13 selection		-	×	1417h	03
C024	Multi-function output terminal 14 selection	1	-	×	1418h	07
C025	Multi-function output terminal 15 selection		-	×	1419h	01
C026	Relay output (AL2, AL1) function selection	1	-	×	141Ah	05
C027	FM selection	Check Analogue outputs on page 27	-	×	141Bh	00
C028	AM selection	Check Analogue outputs on page 27	-	×	141Ch	00
C029	AMI selection	Check Analogue outputs on page 27	-	×	141Dh	00
C030	Digital current monitor reference value	0.20 x Rated current to 2.00 x Rated current	-	√	141Eh	-
C031	Multi-function output terminal 11 contact selection	00: NO 01: NC	-	×	141Fh	00
C032	Multi-function output terminal 12 contact selection	00: NO 01: NC	-	×	1420h	00
C033	Multi-function output terminal 13 contact selection	00: NO 01: NC	-	×	1421h	00
C034	Multi-function output terminal 14 contact selection	00: NO 01: NC	-	×	1422h	00

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
C035	Multi-function output terminal 15 contact selection	00: NO	-	×	1423h	00
-		01: NC				
C036	Relay output (AL2, AL1) contact selection	00: NO contact at AL2; NC contact at AL1 01: NC contact at AL2; NO contact at AL1	-	×	1424h	01
C038	Light load signal output mode	00: ACC/DEC/CST (Enabled during acceleration/decel- eration/constant speed) 01: Const (Enabled only during constant speed)	-	×	1426h	01
C039	Light load detection level	0.00 to 2.00 x Rated current (0.4 to 55 kW) 0.00 to 1.80 x Rated current (75 to 132 kW)	А	×	1427h	-
C040	Overload warning signal output mode	00: ACC/DEC/CST (Enabled during acceleration/decel- eration/constant speed) 01: Const (Enabled only during constant speed)	-	×	1428h	01
C041	Overload warning level	0.0: Does not operate 0.10 x Rated current to 2.00 x Rated current (0.4 to 55 kW) 0.10 x Rated current to 1.80 x Rated current (75 to 132 kW)	A	×	1429h	-
C042 (high) C042 (low)	Arrival frequency during acceleration	0.00 to 400.00	Hz	×	142Ah 142Bh	0.00
C042 (low) C043 (high) C043 (low)	Arrival frequency during deceleration	0.00 to 400.00	Hz	×	142Dh 142Dh	0.00
C044	PID deviation excessive level	0.0 to 100.0	%	×	142Eh	3.0
C045 (high) C045 (low)	Arrival frequency during acceleration 2	0.00 to 400.00	Hz	×	142Fh 1430h	0.00
C046 (high) C046 (low)	Arrival frequency during deceleration 2	0.00 to 400.00	Hz	×	1430h 1431h 1432h	0.00
C052	PID FB upper limit	0.0 to 100.0	%	×	1432h 1438h	100.0
C053	PID FB lower limit	0.0 to 100.0	%	×	1439h	0.0
C055	Overtorque level (Forward power running)	0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW)	%	×	143Bh	200
C056	Overtorque level (Reverse regeneration)	0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW)	%	×	143Ch	200
C057	Overtorque level (Reverse power running)	0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW)	%	×	143Dh	200
C058	Overtorque level (Forward regeneration)	0 to 200 (0.4 to 55 kW) 0 to 180 (75 to 132 kW)	%	×	143Eh	200
C061	Thermal warning level	0 to 100	%	×	1441h	80
C062	Alarm code selection	00: OFF 01: 3-bit 02: 4-bit	-	×	1442h	00
C063	0 Hz detection level	0.00 to 100.00	Hz	×	1443h	0.00
C064	Fin overheat warning level	0 to 200	°C	×	1444h	120
C071	Communication speed selection (Baud rate selection)	02: Loop-back test 03: 2400 bps 04: 4800 bps 05: 9600 bps 06: 19200 bps	-	×	144Bh	05
C072	Communication station No. selection	1 to 247	-	×	144Ch	1
C073	Communication bit length selection	7: 7-bit 8: 8-bit	-	×	144Dh	8
C074	Communication parity selection	00: No parity 01: Even 02: Odd	-	×	144Eh	00
C075	Communication stop bit selection	1: 1-bit 2: 2-bit	-	×	144Fh	1
C076	Communication error selection	00: Trip 01: Decel-Trip (Trip after deceleration stop) 02: Ignore 03: Free-RUN (Free-run stop) 04: Decel-Stop (Deceleration Stop)	-	×	1450h	02
C077	Communication error timeout	0.00 to 99.99	s	×	1451h	0.00
C078 C079	Communication wait time Communication method selection	0 to 1000 00: ASCII	ms -	×	1452h 1453h	0 01
C081	O adjustment	01: Modbus-RTU 0 to 65535	-	~	1455h	Factory
C082	OI adjustment	0 to 65535	-	~	1456h	default Factory default
C083	O2 adjustment	0 to 65535	-	~	1457h	Factory default
C085	Thermistor adjustment	0.0 to 1000.0	-	~	1459h	Factory default
C091	Debug mode selection	Use "00". Do not change.	-	×	145Fh	00
C101	UP/DWN selection	00: Not save (Do not store the frequency data) 01: Save (Store the frequency data)	-	×	1469h	00
C102	Reset selection	00: ON-RESET (Trip reset at power-on) 01: OFF-RESET (Trip reset when the power is OFF) 02: On in Trip (Enabled only during trip (Reset when the power is ON)) 03: Trip RESET (Trip reset only)	-	~	146Ah	00

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
C103	Reset frequency matching selection	00: 0 Hz start	-	×	146Bh	00
		01: f-match (Frequency matching start) 02: Actv. f-match (Active frequency matching restart)				
C105	FM gain setting	50 to 200	%	✓	146Dh	100
C106	AM gain setting	50 to 200	%	✓	146Eh	100
C107	AMI gain setting	50 to 200	%	✓	146Fh	100
C109	AM bias setting	0 to 100	%	√	1471h	0
C110	AMI bias setting	0 to 100	%	√	1472h	20
C111	Overload warning level 2	0.0 to 2.00 x Rated current (0.4 to 55 kW)	A	×	1473h	-
C121	O zero adjustment	0.0 to 1.80 x Rated current (75 to 132 kW) 0 to 65535		✓	147Dh	Eastowy
						Factory default
C122	OI zero adjustment	0 to 65535	-	~	147Eh	Factory default
C123	O2 zero adjustment	0 to 65535	-	~	147Fh	Factory default
C130	Output 11 ON delay	0.0 to 100.0	s	×	1486h	0.0
C131	Output 11 OFF delay	0.0 to 100.0	s	×	1487h	0.0
C132	Output 12 ON delay	0.0 to 100.0	8	×	1488h	0.0
C133	Output 12 OFF delay	0.0 to 100.0	s	×	1489h	0.0
C134	Output 13 ON delay	0.0 to 100.0	8	×	148Ah	0.0
C135	Output 13 OFF delay	0.0 to 100.0	s	×	148Bh	0.0
C136	Output 14 ON delay	0.0 to 100.0	s	×	148Ch	0.0
C137	Output 14 OFF delay	0.0 to 100.0	s	×	148Dh	0.0
C138	Output 15 ON delay	0.0 to 100.0	s	×	148Eh	0.0
C139	Output 15 OFF delay	0.0 to 100.0	s	×	148Fh	0.0
C140	Relay output ON delay	0.0 to 100.0	s	×	1490h	0.0
C140	Relay output OFF delay	0.0 to 100.0	s	×	1490h	0.0
					-	
C142	Logic output signal 1 selection 1	Same as options for C021 to C026 (excluding LOG1 to LOG6)	-	×	1492h	00
C143	Logic output signal 1 selection 2	Same as options for C021 to C026 (excluding LOG1 to LOG6)	-	×	1493h	00
C144	Logic output signal 1 operator selection	00: AND	-	×	1494h	00
		01: OR 02: XOR				
C145	Logic output signal 2 selection 1	Same as options for C021 to C026 (excluding LOG1 to LOG6)	-	×	1495h	00
C146	Logic output signal 2 selection 2	Same as options for C021 to C026	-	×	1496h	00
0145		(excluding LOG1 to LOG6)		×	1.4051	
C147	Logical output signal 2 operator selection	00: AND 01: OR	-	×	1497h	00
		02: XOR				
C148	Logic output signal 3 selection 1	Same as options for C021 to C026 (excluding LOG1 to LOG6)	-	×	1498h	00
C149	Logic output signal 3 selection 2	Same as options for C021 to C026	-	×	1499h	00
C150	Logical output signal 3 operator selection	(excluding LOG1 to LOG6) 00: AND	-	×	149Ah	00
		01: OR 02: XOR				
C151	Logic output signal 4 selection 1	Same as options for C021 to C026	-	×	149Bh	00
C152	Logic output signal 4 selection 2	(excluding LOG1 to LOG6) Same as options for C021 to C026	-	×	149Ch	00
		(excluding LOG1 to LOG6)				
C153	Logical output signal 4 operator selection	00: AND 01: OR	-	×	149Dh	00
		02: XOR				
C154	Logic output signal 5 selection 1	Same as options for C021 to C026 (excluding LOG1 to LOG6)	-	×	149Eh	00
C155	Logic output signal 5 selection 2	Same as options for C021 to C026	-	×	149Fh	00
C156	Logical output signal 5 operator selection	(excluding LOG1 to LOG6) 00: AND	-	×	14A0h	00
	· · · · · · · · · · · · · · · · · · ·	01: OR				
C157	Logic output signal 6 selection 1	02: XOR Same as options for C021 to C026	-	×	14A1h	00
C158	Logic output signal 6 selection 2	(excluding LOG1 to LOG6) Same as options for C021 to C026	_	×	14A2h	00
		(excluding LOG1 to LOG6)				
C159	Logical output signal 6 operator selection	00: AND 01: OR	-	×	14A3h	00
		02: XOR				
C160	Input terminal response time 1	0 to 200 (x 2 ms)	ms	×	14A4h	1
C161	Input terminal response time 2	0 to 200 (x 2 ms)	ms	×	14A5h	1
C162	Input terminal response time 3	0 to 200 (x 2 ms)	ms	×	14A6h	1
C163	Input terminal response time 4	0 to 200 (x 2 ms)	ms	×	14A7h	1

RX Quick Start Guide

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
C164	Input terminal response time 5	0 to 200 (x 2 ms)	ms	×	14A8h	1
C165	Input terminal response time 6	0 to 200 (x 2 ms)	ms	×	14A9h	1
C166	Input terminal response time 7	0 to 200 (x 2 ms)	ms	×	14AAh	1
C167	Input terminal response time 8	0 to 200 (x 2 ms)	ms	×	14ABh	1
C168	FW terminal response time	0 to 200 (x 2 ms)	ms	×	14ACh	1
C169	Multi-step speed/position determination time	0 to 200 (x 2 ms)	ms	×	14ADh	0

4.5 Parameter group H

H002 Motion H202 2nd H003 Motion H203 2nd H004 Motion H204 2nd H005 Speen H205 2nd	tor parameter selection motor parameter selection tor capacity selection motor capacity selection tor pole number selection motor pole number selection ed response speed response pilization parameter	00: OFF (Disabled) 01: ON (STOP) 02: ON (Rotation) 00: Standard motor parameter 01: Auto-tuning parameter 02: Auto-tuning parameter 01: Auto-tuning parameter 02: Auto-tuning parameter 0: Auto-t	- - - - - - - - - - - - - -	x x x x x x x x	1501h 1502h 2502h 1503h 2503h 1504h 2504h 1505h	00 00 Factory default Factory default 4P 4P 1.590
H202 2nd H003 Mote H203 2nd H004 Mote H204 2nd H005 Speet H205 2nd	motor parameter selection tor capacity selection motor capacity selection tor pole number selection motor pole number selection ed response speed response silization parameter	01: Auto-tuning parameter 02: Auto-tuning parameter (online auto-tuning enabled) 00: Standard motor parameter 01: Auto-tuning parameter 02: Auto-tuning parameter (online auto-tuning enabled) 0.20 to 160.0 (kW) 0.20 to 160.0 (kW) 2/4/6/8/10 2/4/6/8/10 0.001 to 80.000	- kW kW Pole -	× × × ×	2502h 1503h 2503h 1504h 2504h	00 Factory default Factory default 4P 4P
H003 Mote H203 2nd H004 Mote H204 2nd H005 Speet H205 2nd	motor parameter selection tor capacity selection motor capacity selection tor pole number selection motor pole number selection ed response speed response pilization parameter	00: Standard motor parameter 01: Auto-tuning parameter 02: Auto-tuning parameter (online auto-tuning enabled) 0.20 to 160.0 (kW) 0.20 to 160.0 (kW) 2/4/6/8/10 2/4/6/8/10 0.001 to 80.000	kW kW Pole -	× × × ×	1503h 2503h 1504h 2504h	Factory default Factory default 4P 4P
H203 2nd H004 Mote H204 2nd H005 Spee H205 2nd	motor capacity selection tor pole number selection motor pole number selection ed response speed response pilization parameter	0.20 to 160.0 (kW) 0.20 to 160.0 (kW) 2/4/6/8/10 2/4/6/8/10 0.001 to 80.000	kW Pole Pole -	× × ×	2503h 1504h 2504h	default Factory default 4P 4P
H004 Mot H204 2nd H005 Spee H205 2nd	tor pole number selection motor pole number selection ed response speed response pilization parameter	2/4/6/8/10 2/4/6/8/10 0.001 to 80.000	Pole Pole -	× ×	1504h 2504h	default 4P 4P
H204 2nd H005 Spee H205 2nd	motor pole number selection ed response speed response pilization parameter	2/4/6/8/10 0.001 to 80.000	Pole -	×	2504h	4P
H005 Spee H205 2nd	ed response speed response pilization parameter	0.001 to 80.000	-			
H205 2nd	speed response		-	~	1505h	1.590
	bilization parameter	0.001 to 80.000	-		1506h	
			1	~	2505h	1.590
					2506h	100
	stabilization parameter	0 to 255	-	✓ ✓	1507h	100
		0 to 255	-	✓ ✓	2507h	100
	stabilization parameter	0 to 255	-	~	3507h	100
H020 Mote	tor parameter R1	0.001 to 65.535	Ω	×	1515h	-
					1516h	
H220 2nd	motor parameter R1	0.001 to 65.535	Ω	×	2515h 2516h	-
H021 Mote	tor parameter R2	0.001 to 65.535	Ω	×	1517h	-
H221 2nd	motor parameter R2	0.001 to 65.535	Ω	×	1518h 2517h	-
H022 Mote	tor parameter L	0.01 to 655.35	mH	×	2518h 1519h	-
H222 2nd	motor parameter I	0.01 to 655.35	mH	×	151Ah 2519h	
2112 2110	motor parameter L	0.0110 055.55			2513h 251Ah	-
H023 Mote	tor parameter Io	0.01 to 655.35	А	×	151Bh 151Ch	-
H223 2nd	motor parameter Io	0.01 to 655.35	А	×	251Bh	-
H024 Mote	tor parameter J	0.001 to 9999.000	kgm ²	×	251Ch 151Dh	-
H224 2nd	motor parameter J	0.001 to 9999.000		×	151Eh 251Dh	
11224 2110		0.001 to 7779.000	kgm ²		251Eh	-
H030 Mote	tor parameter R1 (auto-tuning data)	0.001 to 65.535	Ω	×	1524h 1525h	-
H230 2nd	motor parameter R1 (auto-tuning data)	0.001 to 65.535	Ω	×	2524h	-
H031 Mote	tor parameter R2 (auto-tuning data)	0.001 to 65.535	Ω	×	2525h 1526h	-
H231 2nd	motor parameter R2 (auto-tuning data)	0.001 to 65.535	Ω	×	1527h 2526h	-
	· · ·				2527h	
H032 Mote	tor parameter L (auto-tuning data)	0.01 to 655.35	mH	×	1528h 1529h	-
H232 2nd	motor parameter L (auto-tuning data)	0.01 to 655.35	mH	×	2528h 2529h	-

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
H033	Motor parameter Io (auto-tuning data)	0.01 to 655.35	А	×	152Ah	-
					152Bh	
H233	2nd motor parameter Io (auto-tuning data)	0.01 to 655.35	А	×	252Ah	-
					252Bh	
H034	Motor parameter J (auto-tuning data)	0.001 to 9999.000	kgm ²	×	152Ch	-
					152Dh	
H234	2nd motor parameter J (auto-tuning data)	0.001 to 9999.000	kgm ²	×	252Ch	-
			°		252Dh	1
H050	PI proportional gain	0.0 to 1000.0	-	~	153Dh	100.0
H250	2nd PI proportional gain	0.0 to 1000.0	-	~	253Dh	100.0
H051	PI integral gain	0.0 to 1000.0	-	~	153Eh	100.0
H251	2nd PI integral gain	0.0 to 1000.0	-	~	253Eh	100.0
H052	P proportional gain	0.01 to 10.00	-	~	153Fh	1.00
H252	2nd P proportional gain	0.01 to 10.00	-	~	253Fh	1.00
H060	Limit at 0 Hz	0.0 to 100.0	%	~	1547h	100.0
H260	2nd limit at 0 Hz	0.0 to 100.0	%	~	2547h	100.0
H061	Boost amount at SLV startup, 0 Hz	0 to 50	%	~	1548h	50
H261	2nd boost amount at SLV startup, 0 Hz	0 to 50	%	~	2548h	50
H070	For PI proportional gain switching	0.0 to 1000.0	-	~	1551h	100.0
H071	For PI integral gain switching	0.0 to 1000.0	-	~	1552h	100.0
H072	For P proportional gain switching	0.00 to 10.00	-	~	1553h	1.00
H073	Gain switching time	0 to 9999	ms	~	1554h	100

4.6 Parameter group P

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No	Default
P001	Operation selection at option 1 error	00: Trip	-	×	1601h	00
	-	01: RUN (Continues operation)				
P002	Operation selection at option 2 error	00: Trip	-	×	1602h	00
		01: RUN (Continues operation)				
P011	Encoder pulses	128 to 65535	Pulse	×	160Bh	1024
P012	V2 control mode selection	00: ASR (Speed control mode)	-	×	160Ch	00
		01: APR (Pulse train position control mode)				
		02: APR2 (Absolute position control mode)				
		03: HAPR (High resolution absolute position control mode)				
P013	Pulse train mode selection	00: Mode 1	-	×	160Dh	00
		01: Mode 2				
		03: Mode 3				
P014	Orientation stop position	0 to 4095	-	×	160Eh	0
P015	Orientation speed setting	Starting frequency to Max. frequency (upper limit: 120.0)	Hz	×	160Fh	5.00
P016	Orientation direction setting	00: FWD (Forward side)	-	×	1610h	00
	_	00: REV (Reverse side)				
P017	Position ready range setting	0 to 10000	Pulse	×	1611h	5
P018	Position ready delay time setting	0.00 to 9.99	8	×	1612h	0.00
P019	Electronic gear setting position selection	00: FB (Position feedback side)	-	~	1613h	00
		01: REF (Position command side)				
P020	Electronic gear ratio numerator	1 to 9999	-	~	1614h	1
P021	Electronic gear ratio denominator	1 to 9999	-	~	1615h	1
P022	Position control feedforward gain	0.00 to 655.35	-	~	1616h	0.00
P023	Position loop gain	0.00 to 100.00	rad/s	~	1617h	0.50
P024	Position bias amount	-2048 to 2048	rad/s	✓	1618h	0
P025	Secondary resistance compensation enable/disable	00: OFF (Disabled)	-	×	1619h	00
	selection	01: ON (Enabled)				
P026	Overspeed error detection level	0.0 to 150.0	%	×	161Ah	135.0
P027	Speed deviation error detection level	0.00 to 120.00	Hz	×	161Bh	7.50
P028	Motor gear ratio numerator	1 to 9999	-	×	161Ch	1
P029	Motor gear ratio denominator	1 to 9999	-	×	161Dh	1
P031	Acceleration/deceleration time input type	00: OPE (Digital operator)	-	×	161Fh	00
		01: Option 1				
		02: Option 2				
		03: EzSQ (Drive programming)				
P032	Orientation stop position input type	00: OPE (Digital operator)	-	×	1620h	00
		01: Option 1				
		02: Option 2	_			
P033	Torque reference selection	00: O (Terminal O)	-	×	1621h	00
		01: OI (Terminal OI)				
		02: O2 (Terminal O2)				
		03: OPE (Digital operator)				
		06: Option 1				
		07: Option 2				

	ode Function name	Monitoring and setting items	Units	Run mode	Modbus Register	Default
P034	Torque reference setting	0 to 200 (0.4 to 55 kW)	%	edit	No 1622h	0
F034	Torque reference setting	0 to 180 (75 to 132 kW)	70	•	102211	0
P035	Polarity selection at torque reference via O2	00: Sign (Signed)	-	×	1623h	00
	romanty selection at torque reference (m. 62	01: Direction (Depends on the RUN direction)			102011	00
P036	Torque bias mode	00: OFF (None)	-	×	1624h	00
	*	01: OPE (Digital operator)				
		02: O2 (Terminal O2)				
		05: Option 1				
		06: Option 2				
P037	Torque bias value	-200 to 200 (0.4 to 55 kW)	%	~	1625h	0
		-180 to 180 (75 to 132 kW)				
P038	Torque bias polarity selection	00: Sign (Signed)	-	×	1626h	00
		01: Direction (Depends on the RUN direction)				
P039	Speed limit value in torque control (forward)	0.00 to maximum frequency	Hz	~	1627h	0.00
					1628h	
P040	Speed limit value in torque control (reverse)	0.00 to maximum frequency	Hz	~	1629h	0.00
					162Ah	
P044	DeviceNet comm watch dog timer	0.00 to 99.99	s	×	162Eh	1.00
P045	Operation setting at communications error	00: Trip	-	×	162Fh	00
		01: Decel-Trip (Trip after deceleration stop)				
		02: Ignore				
		03: Free RUN				
		04: Decel-Stop (Deceleration stop)	L			
P046	Instance number	0: Basic speed I/O	-	×	1630h	1
		1: Extended speed I/O				
		2: Extended speed and torque control				
		3: Special I/O				
		4: Extended control I/O				
		5: Extended control I/O and multifunction I/O monitor				
		6: Flexible format				
		7: Extended speed and acceleration control				
		8-20: Not used				
P048	Operation setting at idle mode detection	00: Trip	-	×	1632h	00
		01: Decel-Trip (Trip after deceleration stop)				
		02: Ignore				
		03: Free RUN				
		04: Decel-Stop (Deceleration stop)				
P049	Polarity setting for rotation speed	0/2/4/6/8/10/12/14/16/18/20/22/24/26/28/30/32/34/36/	-	×	1633h	0
		38	1			
P055	Pulse train frequency scale	1.0 to 50.0	kHz	×	1639h	25.0
P056	Pulse train frequency filter time constant	0.01 to 2.00	s	×	163Ah	0.10
P057	Pulse train frequency bias amount	-100 to 100	%	×	163Bh	0
P058	Pulse train frequency limit	0 to 100	%	×	163Ch	100
P060	Multi-step position command 0	-268435455 to 268435455	-	~	163Eh	0
Do //					163Fh	
P061	Multi-step position command 1	-268435455 to 268435455	-	~	1640h	0
D 0 / 0					1641h	
P062	Multi-step position command 2	-268435455 to 268435455	-	~	1642h	0
D o /a					1643h	
P063	Multi-step position command 3	-268435455 to 268435455	-	~	1644h	0
DOCI				,	1645h	
P064	Multi-step position command 4	-268435455 to 268435455	1 -		4 * * *	
				~	1646h	0
20 4 5					1647h	
P065	Multi-step position command 5	-268435455 to 268435455	-	✓ ✓	1647h 1648h	0
			-	~	1647h 1648h 1649h	0
	Multi-step position command 5 Multi-step position command 6	-268435455 to 268435455 -268435455 to 268435455	-		1647h 1648h 1649h 164Ah	
P066	Multi-step position command 6	-268435455 to 268435455	-	✓ ✓	1647h 1648h 1649h 164Ah 164Bh	0
P066			-	~	1647h 1648h 1649h 164Ah 164Bh 164Ch	0
P066 P067	Multi-step position command 6 Multi-step position command 7	-268435455 to 268435455 -268435455 to 268435455	-	✓ ✓ ✓	1647h 1648h 1649h 164Ah 164Bh 164Ch 164Dh	0
P066 P067	Multi-step position command 6	-268435455 to 268435455 -268435455 to 268435455 00: Low speed	-	✓ ✓	1647h 1648h 1649h 164Ah 164Bh 164Ch	0
P066 P067	Multi-step position command 6 Multi-step position command 7	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1	-	✓ ✓ ✓	1647h 1648h 1649h 164Ah 164Bh 164Ch 164Dh	0
P066 P067 P068	Multi-step position command 6 Multi-step position command 7 Zero return mode	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2	-	✓ ✓ ✓ ✓	1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch	0 0 0 0 0 00
P066 P067 P068	Multi-step position command 6 Multi-step position command 7	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side)	-	✓ ✓ ✓	1647h 1648h 1649h 164Ah 164Bh 164Ch 164Dh	0
P066 P067 P068 P069	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side)	-	· · · · · · · · · · · · · · · · · · ·	1647h 1648h 1649h 164Ah 164Bh 164Ch 164Dh 164Eh 164Fh	0 0 0 0 00 00
P066 P067 P068 P069 P070	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00	- - - - - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1650h	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2066 2067 2068 2069 2069 2070 2071	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency	- - - - Hz Hz		1647h 1648h 1649h 164Ah 164Ah 164Ah 164Ch 164Ch 164Eh 164Fh 1650h 1651h	0 0 00 000 0.00 0.00
P066 P067 P068 P069 P070 P071	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02)			1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1650h 1651h 1652h	0 0 00 00 000 +26843
P066 P067 P068 P069 P070 P070 P071 P072	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03)			1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1650h 1651h 1652h 1653h	0 0 00 00 00 000 +26843 5455
P066 P067 P068 P069 P070 P071 P072	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 02)			1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1650h 1651h 1652h 1653h	0 0 00 00 00 +26843 5455 -26843
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (to 2012) -1073741823 to 0 (at P012: 03)			1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward)	-268435455 to 268435455 -268435455 to 268435455 -00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 02) -1073741823 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060))			1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1650h 1651h 1652h 1653h	0 0 00 00 00 +26843 5455 -26843
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0 to 1073741823 (ot 10212: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 2 (P062))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 02) -1073741823 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 3 (P063))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 3 (P063)) 04: X04 (Multi-step position command 4 (P064))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 -00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 3 (P063)) 04: X04 (Multi-step position command 4 (P064)) 05: X05 (Multi-step position command 5 (P065))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 3 (P063)) 04: X04 (Multi-step position command 4 (P064))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 00 +26843 5455 -26843 5455
P066 P067 P068 P069 P070 P071 P072 P073	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 -00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 3 (P063)) 04: X04 (Multi-step position command 4 (P064)) 05: X05 (Multi-step position command 5 (P065))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 00 00 00 00 +26843 5455 -26843 5455
P065 P066 P067 P068 P069 P070 P071 P072 P073 P074 P074	Multi-step position command 6 Multi-step position command 7 Zero return mode Zero return direction selection Low-speed zero return frequency High-speed zero return frequency Position range specification (forward) Position range specification (reverse)	-268435455 to 268435455 -268435455 to 268435455 00: Low speed 01: High speed 1 02: High speed 2 00: FWD (Forward side) 01: REV (Reverse side) 0.00 to 10.00 0.00 to maximum frequency 0 to 268435455 (at P012: 02) 0 to 1073741823 (at P012: 03) -268435455 to 0 (at P012: 03) -268435455 to 0 (at P012: 03) 00: X00 (Multi-step position command 0 (P060)) 01: X01 (Multi-step position command 1 (P061)) 02: X02 (Multi-step position command 3 (P063)) 04: X04 (Multi-step position command 4 (P064)) 05: X05 (Multi-step position command 5 (P065)) 06: X06 (Multi-step position command 6 (P066))	Hz - -		1647h 1648h 1649h 164Ah 164Bh 164Ch 164Ch 164Ch 164Eh 164Fh 1651h 1651h 1652h 1653h 1653h	0 0 0 00 00 00 +26843 5455 -26843 5455

PARAMETER LIST

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No	Default
P102	Drive program parameter U(02)	0 to 65535	-	~	1668h	0
P103	Drive program parameter U(03)	0 to 65535	-	~	1669h	0
P104	Drive program parameter U(04)	0 to 65535	-	~	166Ah	0
P105	Drive program parameter U(05)	0 to 65535	-	~	166Bh	0
P106	Drive program parameter U(06)	0 to 65535	-	~	166Ch	0
P107	Drive program parameter U(07)	0 to 65535	-	✓	166Dh	0
P108	Drive program parameter U(08)	0 to 65535	-	~	166Eh	0
P109	Drive program parameter U(09)	0 to 65535	-	✓	166Fh	0
P110	Drive program parameter U(10)	0 to 65535	-	✓	1670h	0
P111	Drive program parameter U(11)	0 to 65535	-	✓	1671h	0
P112	Drive program parameter U(12)	0 to 65535	-	✓	1672h	0
P113	Drive program parameter U(13)	0 to 65535	-	✓	1673h	0
P114	Drive program parameter U(14)	0 to 65535	-	~	1674h	0
P115	Drive program parameter U(15)	0 to 65535	-	~	1675h	0
P116	Drive program parameter U(16)	0 to 65535	-	~	1676h	0
P117	Drive program parameter U(17)	0 to 65535	-	~	1677h	0
P118	Drive program parameter U(18)	0 to 65535	-	~	1678h	0
P119	Drive program parameter U(19)	0 to 65535	-	✓	1679h	0
P120	Drive program parameter U(20)	0 to 65535	-	√	167Ah	0
P121	Drive program parameter U(21)	0 to 65535	-	√	167Bh	0
P122	Drive program parameter U(22)	0 to 65535	-	✓	167Ch	0
P123	Drive program parameter U(23)	0 to 65535	-	✓	167Dh	0
P124	Drive program parameter U(24)	0 to 65535	-	\checkmark	167Eh	0
P125	Drive program parameter U(25)	0 to 65535	-	~	167Fh	0
P126	Drive program parameter U(26)	0 to 65535	-	✓	1680h	0
P127	Drive program parameter U(27)	0 to 65535	-	✓	1681h	0
P128	Drive program parameter U(28)	0 to 65535	-	~	1682h	0
P129	Drive program parameter U(29)	0 to 65535	-	~	1683h	0
P130	Drive program parameter U(30)	0 to 65535	-	~	1684h	0
P131	Drive program parameter U(31)	0 to 65535	-	~	1685h	0
P160	Option I/F cmd W register 1	0000 to FFFF	-	~	16A2h	0000
P161	Option I/F cmd W register 2	0000 to FFFF	-	~	16A3h	0000
P162	Option I/F cmd W register 3	0000 to FFFF	-	~	16A4h	0000
P163	Option I/F cmd W register 4	0000 to FFFF	-	~	16A5h	0000
P164	Option I/F cmd W register 5	0000 to FFFF	-	~	16A6h	0000
P165	Option I/F cmd W register 6	0000 to FFFF	-	~	16A7h	0000
P166	Option I/F cmd W register 7	0000 to FFFF	-	~	16A8h	0000
P167	Option I/F cmd W register 8	0000 to FFFF	-	~	16A9h	0000
P168	Option I/F cmd W register 9	0000 to FFFF	-	~	16AAh	0000
P169	Option I/F cmd W register 10	0000 to FFFF	-	~	16ABh	0000
P170	Option I/F cmd R register 1	0000 to FFFF	-	~	16ACh	0000
P171	Option I/F cmd R register 2	0000 to FFFF	-	~	16ADh	0000
P172	Option I/F cmd R register 3	0000 to FFFF	-	~	16AEh	0000
P173	Option I/F cmd R register 4	0000 to FFFF	-	~	16AFh	0000
P174	Option I/F cmd R register 5	0000 to FFFF	-	~	16B0h	0000
P175	Option I/F cmd R register 6	0000 to FFFF	-	~	16B1h	0000
P176	Option I/F cmd R register 7	0000 to FFFF	-	~	16B2h	0000
P177	Option I/F cmd R register 8	0000 to FFFF	-	~	16B3h	0000
P178	Option I/F cmd R register 9	0000 to FFFF	-	~	16B4h	0000
P179	Option I/F cmd R register 10	0000 to FFFF	-	~	16B5h	0000
P180	Profibus node address	0 to 125	-	×	16B6h	0
P181	Profibus clear mode	00: Clear 01: Last value	-	×	16B7h	00
P182	Profibus map selection	00: PPO 01: Conventional 02: Flexible mode	-	×	16B8h	00
P190	CompoNet node address	0 to 63	_	×	16C0h	0
P190 P192	DeviceNet node address	0 to 63		×	16C0h	63
P192 P195	ML2 frame length	00: 32 bytes 01: 17 bytes	-	×	16C2h 16C5h	00
i						4

RX Quick Start Guide

4.7 Parameter group F

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
F001	Output frequency setting/monitor	0.0/Starting frequency to 1st/2nd/3rd max. frequency	Hz	~	0001h	0.00
		0.00 to 400.00			0002h	
F002	Acceleration time 1	0.01 to 3600.00	s	~	1103h	10.00
1002		0.01 10 5000.00	3	·	1104h	10.00
F202	2nd acceleration time 1	0.01 to 3600.00	s	~	2103h	10.00
1202		0.01 10 5000.00	3	·	2104h	10.00
F302	3rd acceleration time 1	0.01 to 3600.00	s	~	3103h	10.00
1.302		0.01 10 5000.00	3	·	3104h	10.00
F003	Deceleration time 1	0.01 to 3600.00	s	~	1105h	10.00
1005		0.01 10 5000.00	3	·	1106h	10.00
F203	2nd deceleration time 1	0.01 to 3600.00	s	~	2105h	10.00
1205		0.01 10 5000.00	3	·	2106h	10.00
F303	3rd deceleration time 1	0.01 to 3600.00	s	~	3105h	10.00
1.202	Sid deceleration time i	0.01 (0.000,000 5	3	,	3106h	10.00
F004	Operator rotation direction selection	00: FWD (Forward)	-	×	1107h	00
		01: REV (Reverse)				

4.8 Parameter group U: User parameters

Any function code can be register on these 32 parameters. When display mode is set be "user parameter" only U001 to U032 plus d001, F001, b037 are displayed.

Function code	Function name	Monitoring and setting items	Units	Run mode edit	Modbus Register No.	Default
U001	User 1 selection	no/d001 to P196	-	✓	-	no
U002	User 2 selection	no/d001 to P196	-	~	-	no
U003	User 3 selection	no/d001 to P196	-	~	-	no
U004	User 4 selection	no/d001 to P196	-	~	-	no
U005	User 5 selection	no/d001 to P196	-	~	-	no
U006	User 6 selection	no/d001 to P196	-	~	-	no
U007	User 7 selection	no/d001 to P196	-	~	-	no
U008	User 8 selection	no/d001 to P196	-	~	-	no
U009	User 9 selection	no/d001 to P196	-	~	-	no
U010	User 10 selection	no/d001 to P196	-	~	-	no
U011	User 11 selection	no/d001 to P196	-	~	-	no
U012	User 12 selection	no/d001 to P196	-	✓	-	no



Note: Specifications subject to change without notice. Cat. No. I130E-EN-02