OMRON

CRANE SOLUTIONS

Inverter Application Software

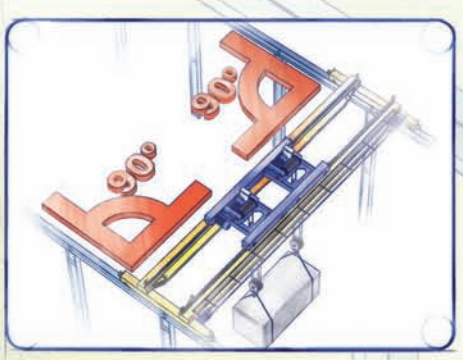
realizing

Inverter Application Software...

With years of experience in crane applications we use the standard built-in functions of Omron's inverters including ELS (Electronic Line Shaft), brake control and positioning functionality, in combination with application functions such as anti-skew, over-travel control and load speed optimisation. As a result we have created the Crane Inverter Application Software. Depending on the crane type and particular needs, different functions can be added to create new dedicated inverter application software versions.

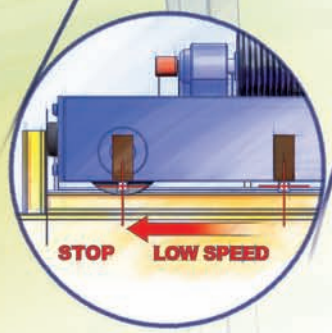
Anti-skew function

- Using external sensors, the inverter ensures the crane operates perfectly in its horizontal alignment.



Over-travel management

- The inverter manages signals from the limit switch about each operation and actuates accordingly; reducing the crane car's speed before stopping.



RX

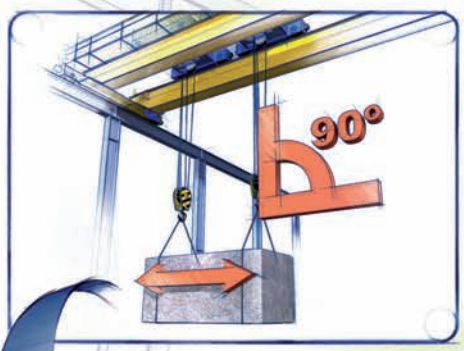
Brake control

- The drive has fully integrated brake control and adjustment parameters to give very smooth starts and stops. A brake release feedback alarm has also been added.

RX

Levelling control

- A critical crane feature is the synchronisation of the motors which ensures a balanced load. This is achieved with the RX's standard built-in ELS (Electronic Line Shaft) function.



Overload control

- The drive controls the load ensuring it is not too heavy for the crane. If excessive weight is detected, an alarm is activated and the operation is automatically stopped.

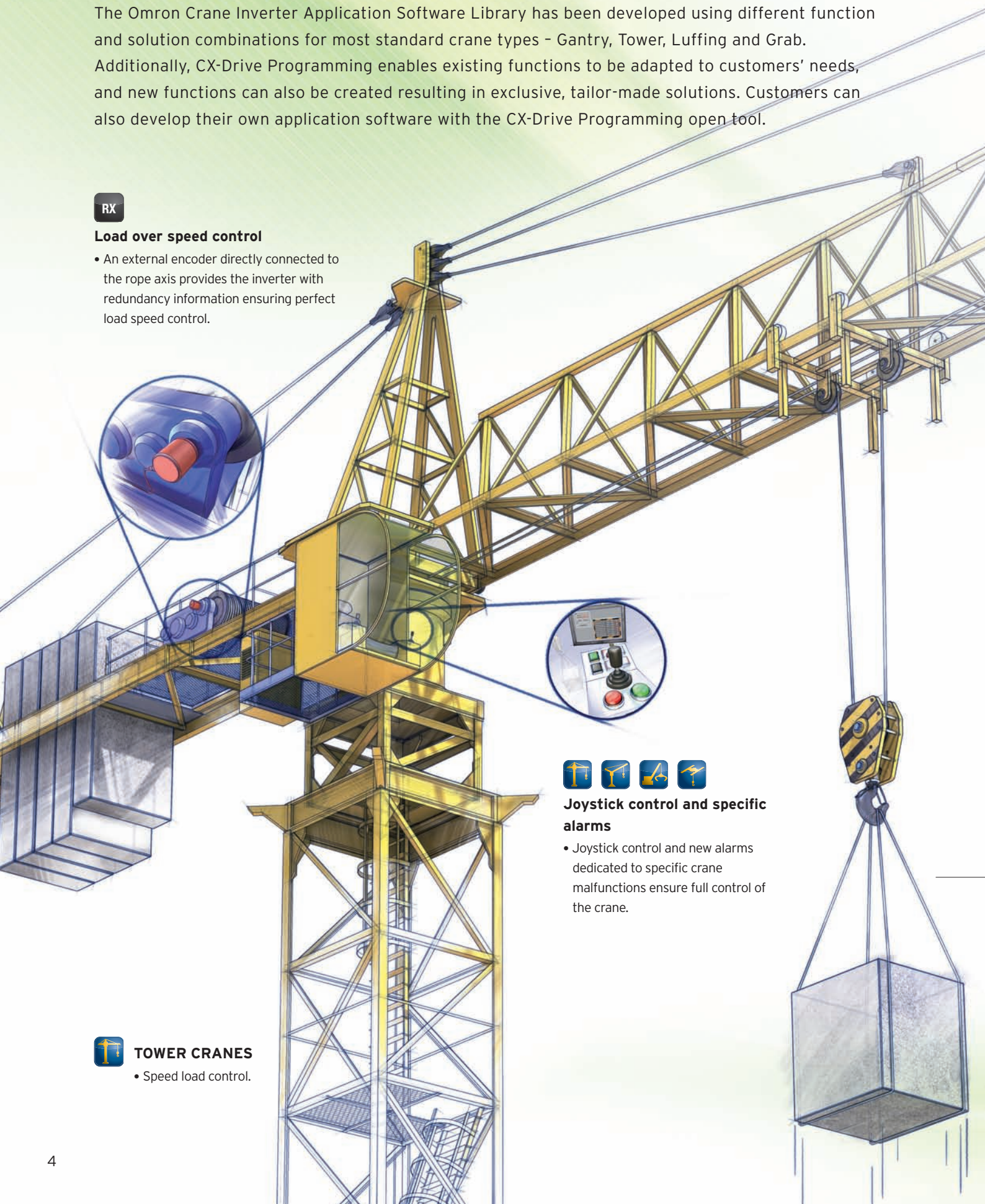
...for Crane Solutions

The Omron Crane Inverter Application Software Library has been developed using different function and solution combinations for most standard crane types – Gantry, Tower, Luffing and Grab. Additionally, CX-Drive Programming enables existing functions to be adapted to customers' needs, and new functions can also be created resulting in exclusive, tailor-made solutions. Customers can also develop their own application software with the CX-Drive Programming open tool.

RX

Load over speed control

- An external encoder directly connected to the rope axis provides the inverter with redundancy information ensuring perfect load speed control.

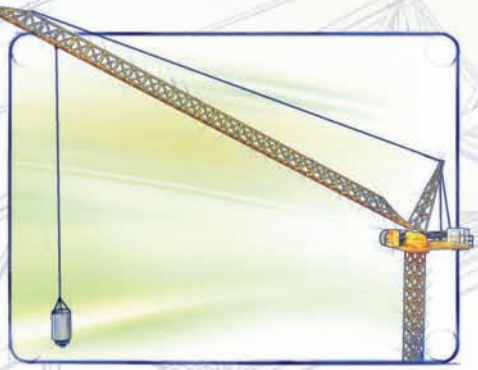


Joystick control and specific alarms

- Joystick control and new alarms dedicated to specific crane malfunctions ensure full control of the crane.

TOWER CRANES

- Speed load control.



LUFFING CRANES

- Hook control level

GRAB CRANES

- Grab control

APPLICATION SOFTWARE LIBRARIES

Benefit from using Omron's Inverter Application Software Library which provides solutions for cranes, winders, positioning, water and energy as well as other areas which will be launched in the future. Omron's inverter **application software can be customised to meet specific customer needs...**

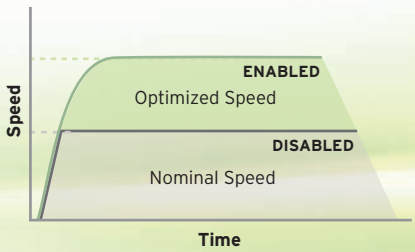
...or just create your ones

by using the CX-Drive Programming tool included in the standard CX-Drive software, which features:

- Flow chart and text editor programming languages.
- 5 tasks running simultaneously with up to 1000 lines per program.
- Full access to parameters and inverter functions.
- Access to an LCD real time clock.

Speed Optimisation

- Load Speed Optimisation facilitates a vital crane function; speeds can be adjusted according to each load, reducing job times.



RX Inverter

Inverter

- Power range up to 132 kW
- Sensor-less and closed-loop vector control
- High starting torque in open loop (200% at 0.3 Hz)
- Full torque at 0 Hz in closed-loop
- Double rating VT 120%/ 1 min and CT 150%/1 min
- Built-in application functionality: ELS (Electronic Line Shaft), brake control, load over speed control

200 V class

Three-phase: 3G3RX				A2004	A2007	A2015	A2022	A2037	A2055	A2075	A2110	A2150	A2185	A2220	A2300	A2370	A2450	A2550
Max. applicable motor 4P 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
			at VT	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75
Output characteristics	Inverter capacity KVA	200 V	at CT	1.0	1.7	2.5	3.6	5.7	8.3	11	15.9	22.1	26.3	32.9	41.9	50.2	63	76.2
			at VT	1.3	2.1	3.2	4.1	6.7	10.4	15.2	20	26.3	29.4	39.1	49.5	59.2	72.7	93.5
		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
			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	87.2	112.2
	Rated output current (A)		at CT	3.0	5.0	7.5	10.5	16.5	24	32	46	64	76	95	121	145	182	220
			at VT	3.7	6.3	9.4	12	19.6	30	44	58	73	85	113	140	169	210	270

400 V class

Three-phase: 3G3RX				A4004	A4007	A4015	A4022	A4040	A4055	A4075	A4110	A4150	A4185	A4220	A4300	A4370	A4450	A4550	B4750	B4900	B411K	B413K
Max. applicable motor 4P 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	75	90	110	132
			at VT	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160
Output characteristics	Inverter capacity KVA	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	77.6	103.2	121.9	150.3	180.1
			at VT	1.3	2.1	3.3	4.6	7.7	11	15.2	20.9	25.6	30.4	39.4	48.4	58.8	72.7	93.5	110.8	135	159.3	200.9
		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	128.3	146.3	180.4	216.1
			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	133	162.1	191.2	241.1
	Rated output current (A)		at CT	1.5	2.5	3.8	5.3	9.0	14	19	25	32	38	48	58	75	91	112	149	176	217	260
			at VT	1.9	3.1	4.8	6.7	11.1	16	22	29	37	43	57	70	85	105	135	160	195	230	290

Selection guide: KPP_RX_EN_INT

Software*

SOFTWARE TOOL

- CX-Drive with Drive Programming functionality.

APPLICATION LIBRARIES

Crane

TOWER LUFFING GRAB GANTRY

Winder

TORQUE CONTROL PID CONTROL

Water

PUMP SEQ

Positioning

EXTRA POSITIONING

*Note: Please contact your OMRON representative for detailed specifications and ordering information.

MX2 Inverter

Inverter

- Power range up to 15 kW
- Torque control in open loop
- 200% starting torque (at 0.5 Hz)
- Double rating VT 120%/1 min and CT 150%/1 min
- Models with IP54 housing protection
- 24 VDC backup supply for control board and communication
- Built-in application functionality (i.e. Brake control)

200 V class

Single-phase: 3G3MX2			B001	B002	B004	B007	B015	B022	-	-	-	-	-
Three-phase: 3G3MX2			2001	2002	2004	2007	2015	2022	2037	2055	2075	2110	2150
Motor kW		For VT setting	0.2	0.4	0.55	1.1	2.2	3.0	5.5	7.5	11	15	18.5
		For CT setting	0.1	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15
Output characteristics	Inverter capacity kVA	200 VT	0.4	0.6	1.2	2.0	3.3	4.1	6.7	10.3	13.8	19.3	23.9
		200 CT	0.2	0.5	1.0	1.7	2.7	3.8	6.0	8.6	11.4	16.2	20.7
		240 VT	0.4	0.7	1.4	2.4	3.9	4.9	8.1	12.4	16.6	23.2	28.6
		240 CT	0.3	0.6	1.2	2.0	3.3	4.5	7.2	10.3	13.7	19.5	24.9
	Rated output current (A) at VT		1.2	1.9	3.5	6.0	9.6	12.0	19.6	30.0	40.0	56.0	69.0
	Rated output current (A) at CT		1.0	1.6	3.0	5.0	8.0	11.0	17.5	25.0	33.0	47.0	60.0

400 V class

Three-phase: 3G3MX2			4004	4007	4015	4022	4030	4040	4055	4075	4110	4150
Motor kW		For VT setting	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15	18.5
		For CT setting	0.4	0.75	1.5	2.2	3.0	4.0	5.5	7.5	11	15
Output characteristics	Inverter capacity kVA	380 VT	1.3	2.6	3.5	4.5	5.7	7.3	11.5	15.1	20.4	25.0
		380 CT	1.1	2.2	3.1	3.6	4.7	6.0	9.7	11.8	15.7	20.4
		480 VT	1.7	3.4	4.4	5.7	7.3	9.2	14.5	19.1	25.7	31.5
		480 CT	1.4	2.8	3.9	4.5	5.9	7.6	12.3	14.9	19.9	25.7
	Rated output current (A) at VT		2.1	4.1	5.4	6.9	8.8	11.1	17.5	23.0	31.0	38.0
	Rated output current (A) at CT		1.8	3.4	4.8	5.5	7.2	9.2	14.8	18.0	24.0	31.0

Selection guide: KPP_MX2_EN_INT

Software*

SOFTWARE TOOL

- CX-Drive with Drive Programming functionality.

APPLICATION LIBRARIES

Winder	Water	Hoist & Lift	Textile	Energy
PID CONTROL	PUMP SEQ	LIFT	TRAVERSE	SOLAR TRAK

*Note: Please contact your OMRON representative for detailed specifications and ordering information.