

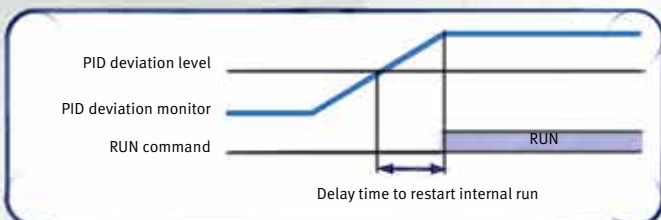
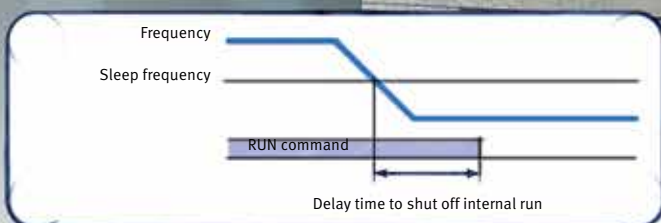
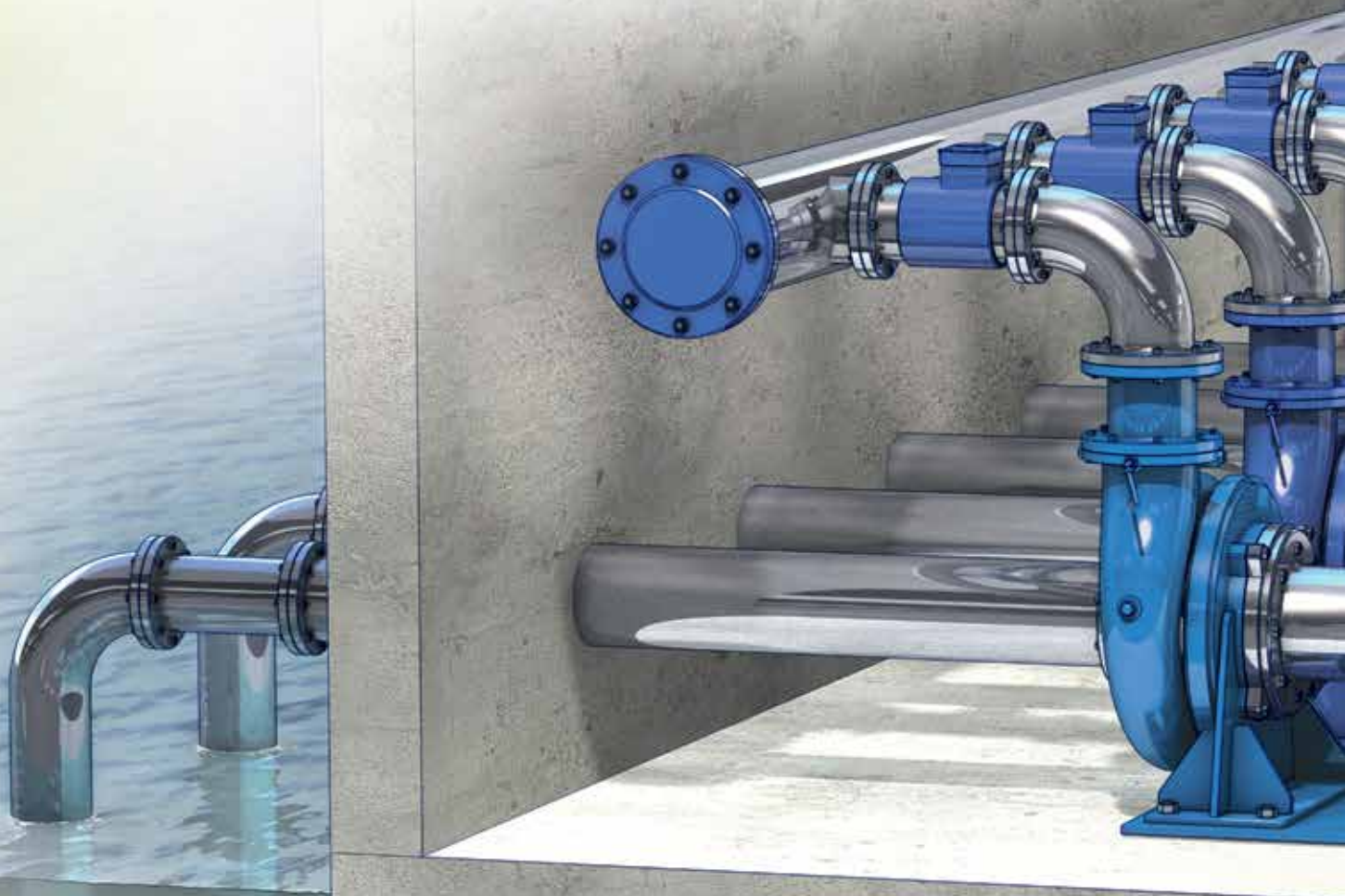
PUMP SEQUENCER

Inverter Application Software



Inverter Application Software...

The pump sequencer application software, in combination with standard inverter functionality, provides accurate control of a system of pumps where one pump is controlled in speed and the others are controlled in start and stop modes in line with system demands. The inverter application software uses PID regulation to control the modulated pump, with a further four auxiliary pumps controlled via I/O, providing smooth control of the total system. The result is a compact and flexible solution for your pump application.



Sleep Function

- Internal RUN command of modulated pump will be shut off if the output frequency monitor drops below the sleep frequency level during for a specified period
- If the PID deviation monitor exceeds the PID deviation level value, for a specified period, the internal run command will be restarted

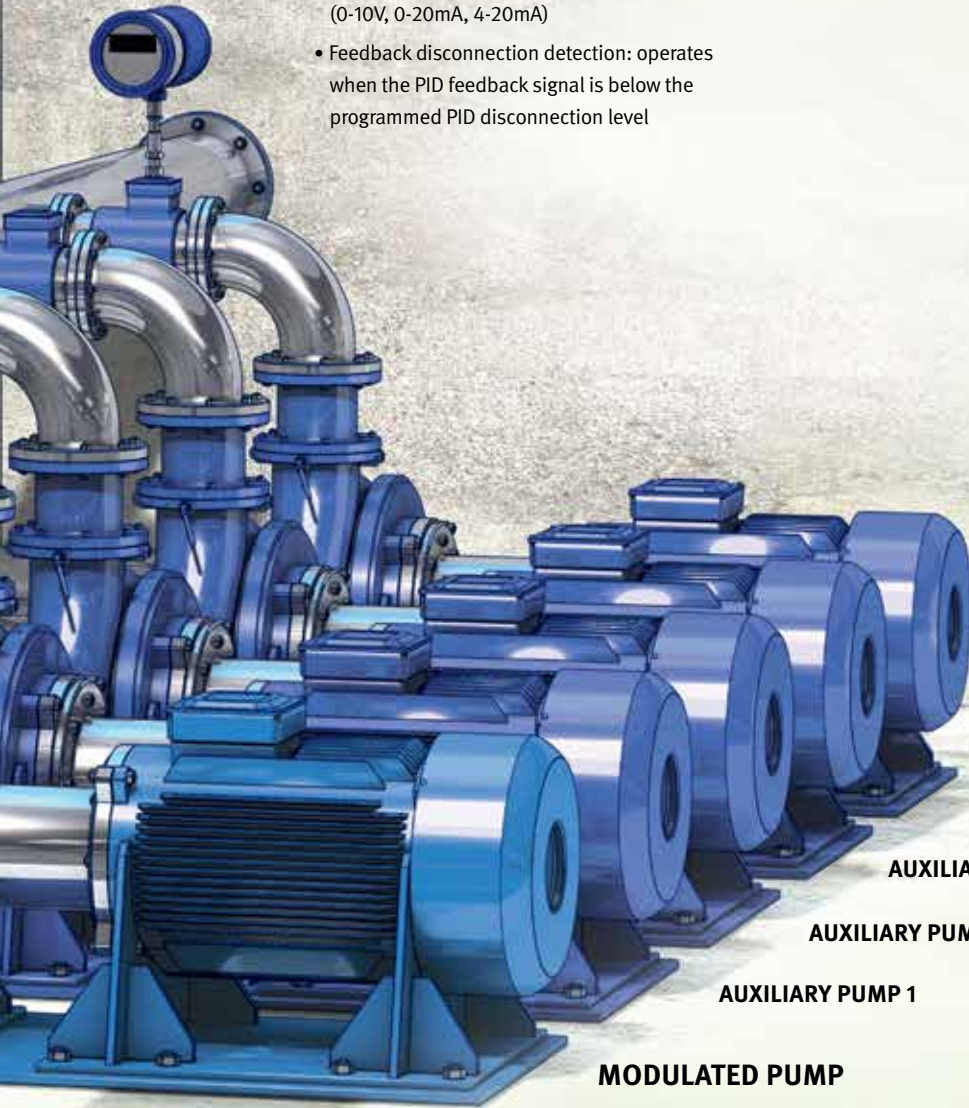
Pressure/flow/level feedback signal

- Standard inverter analogue inputs (0-10V, 0-20mA, 4-20mA)
- Feedback disconnection detection: operates when the PID feedback signal is below the programmed PID disconnection level



Pump sequencer management

- Control of up to 4 auxiliary pumps
- Pump working time control: individual for each pump and inverter
- Test operation modes: Start/stop manual control of the auxiliary fixed speed pumps for testing and commissioning



AUXILIARY PUMP 4

AUXILIARY PUMP 3

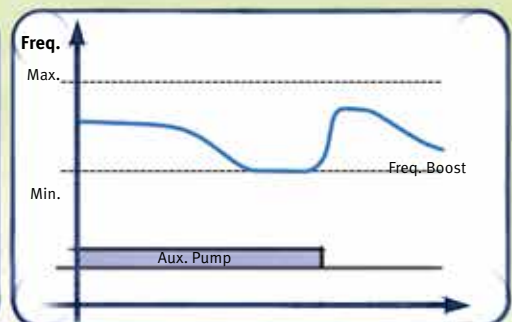
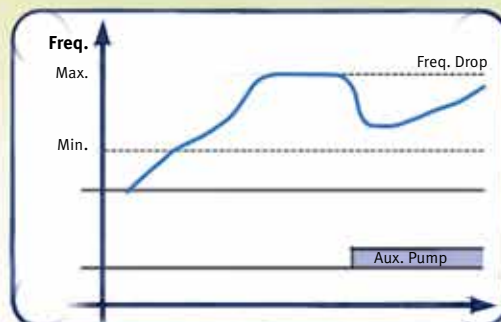
AUXILIARY PUMP 2

AUXILIARY PUMP 1

MODULATED PUMP

Modulated pump automatic frequency drop/rise (water hammer effect cancellation)

- Compensates for pressure peaks occurring when an auxiliary fixed speed pump is activated

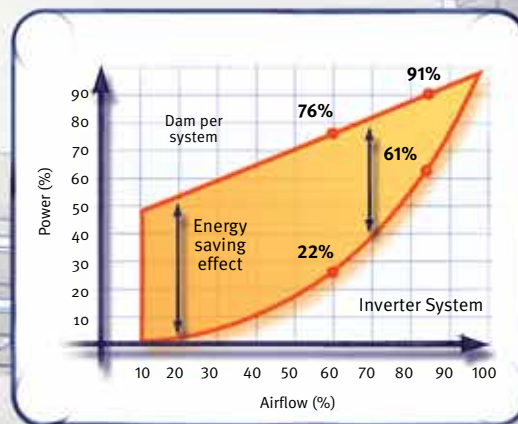


...for Pump Sequencer

Inverter functions also include automatic energy saving of the modulated pump and dedicated alarms for feedback sensor failure/limit. Additionally, the CX-Drive Programming tool allows the user to develop customised solutions to specific project requirements.

Automatic energy saving

The Inverter always adopts the optimum energy-saving setting for maximum cost savings. The inverter can reduce energy consumption by up to 61% compared with standard mechanical systems ...



Specific faults & alarms

- Feedback sensor disconnection detection fault
- Feedback limit alarms (Hi/Lo faults)

Humidity protection for extreme conditions

- MX2 and RX inverters are supplied with PCB coating for humidity protection as standard



RX Inverter

- Control of up to 4 auxiliary fixed speed pumps
- Energy saving
- Built-in EMC filter
- Communications: Modbus, EtherCAT, DeviceNet, Profibus, EtherNet/IP, CompoNet
- Real time clock

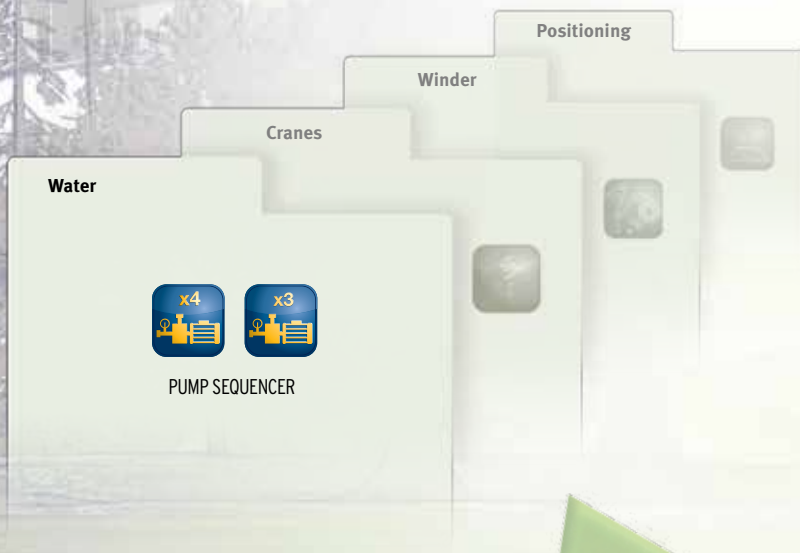


MX2 Inverter

- Control of up to 3 auxiliary fixed speed pumps
- Energy saving
- IM & PM motor control
- Communications: Modbus, EtherCAT, DeviceNet, Profibus, EtherNet/IP, CompoNet
- Real time clock via LCD operator option
- IP54 inverter models available

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



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	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	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	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	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

*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
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
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



PID CONTROL

Water



PUMP SEQ

Hoist & Lift



LIFT

Textile



TRAVERSE

Energy



SOLAR TRAK

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

OMRON EUROPE B.V. Wegalaan 67-69, NL-2132 JD, Hoofddorp, The Netherlands. Tel: +31 (0) 23 568 13 00 Fax: +31 (0) 23 568 13 88 www.industrial.omron.eu

Austria

Tel: +43 (0) 2236 377 800
www.industrial.omron.at

Belgium

Tel: +32 (0) 2 466 24 80
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Tel: +33 (0) 1 56 63 70 00
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Tel: +49 (0) 2173 680 00
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Tel: +48 (0) 22 645 78 60
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Tel: +7 495 648 94 50
www.industrial.omron.ru

South Africa

Tel: +27 (0)11 608 3041
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Spain

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www.industrial.omron.es

Sweden

Tel: +46 (0) 8 632 35 00
www.industrial.omron.se

Switzerland

Tel: +41 (0) 41 748 13 13
www.industrial.omron.ch

Turkey

Tel: +90 212 467 30 00
www.industrial.omron.com.tr

United Kingdom

Tel: +44 (0) 870 752 08 61
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