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

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
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

- 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

<table>
<thead>
<tr>
<th>Inverter</th>
<th>Capacity kVA</th>
<th>Max. applicable motor 4P kW</th>
<th>Output characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2004</td>
<td>CT: 0.4</td>
<td>0.75 1.5 2.2 3.7 5.5 7.5</td>
<td>11 15 18.5 22 30 37</td>
</tr>
<tr>
<td>A2007</td>
<td>VT: 0.75</td>
<td>1.5 2.2 3.7 5.5 7.5 11</td>
<td>15 18.5 22 30 37 45</td>
</tr>
<tr>
<td>A2105</td>
<td>CT: 1.0</td>
<td>1.7 2.5 3.6 5.7 8.3 11</td>
<td>15 18.5 22 26.3 32.9</td>
</tr>
<tr>
<td>A2102</td>
<td>VT: 1.3</td>
<td>2.1 3.2 4.1 6.7 10.4 15.2</td>
<td>20 26.3 29.4 39.1 49.5</td>
</tr>
<tr>
<td>A2110</td>
<td>CT: 1.2</td>
<td>2.0 3.1 4.3 6.8 9.9 13.3</td>
<td>19.1 26.6 31.5 39.4 49.5 59.2 72.7 93.5</td>
</tr>
<tr>
<td>A2150</td>
<td>VT: 1.5</td>
<td>2.6 3.9 5.0 8.1 12.4</td>
<td>18.2 24.1 31.5 35.3 46.9 59.4 71 87.2 112.2</td>
</tr>
<tr>
<td>A2220</td>
<td>CT: 3.0</td>
<td>5.0 7.5 10.5 16.5 24 32</td>
<td>46 64 76 95 121 145 182 220</td>
</tr>
<tr>
<td>A2300</td>
<td>VT: 3.7</td>
<td>6.3 9.4 12 19.6 30 44</td>
<td>58 73 85 113 140 169 210 270</td>
</tr>
</tbody>
</table>

### 400 V class

<table>
<thead>
<tr>
<th>Inverter</th>
<th>Capacity kVA</th>
<th>Max. applicable motor 4P kW</th>
<th>Output characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4004</td>
<td>CT: 0.4</td>
<td>0.75 1.5 2.2 4.0 5.5 7.5</td>
<td>11 15 18.5 22 30 37</td>
</tr>
<tr>
<td>A4007</td>
<td>VT: 0.75</td>
<td>1.5 2.2 4.0 5.5 7.5 11</td>
<td>15 18.5 22 30 37 45</td>
</tr>
<tr>
<td>A4105</td>
<td>CT: 1.0</td>
<td>1.7 2.5 3.6 6.2 9.7 13.1</td>
<td>22.1 26.3 33.2 40.3 51.9 63 77.6 103.2</td>
</tr>
<tr>
<td>A4102</td>
<td>VT: 1.3</td>
<td>2.1 3.3 4.6 7.7 11 15.2</td>
<td>20.9 25.6 30.4 39.4 48.4 58.8 72.7 93.5 110.8 135 159.3 201.9</td>
</tr>
<tr>
<td>A4110</td>
<td>CT: 1.2</td>
<td>2.0 3.1 4.3 7.4 11.6 15.8</td>
<td>20.7 26.6 31.5 39.9 48.2 62.3 75.6 93.1 128.3 146.3</td>
</tr>
<tr>
<td>A4150</td>
<td>VT: 1.5</td>
<td>2.5 4.0 5.5 9.2 13.3</td>
<td>18.2 24.1 30.7 36.5 47.2 58.1 70.6 87.2 112.2 133 162.1</td>
</tr>
<tr>
<td>A4185</td>
<td>CT: 1.5</td>
<td>2.5 3.8 5.3 9.0 14 19</td>
<td>25 32 38 48 58 75 91 112 149 176 217 260</td>
</tr>
<tr>
<td>A4220</td>
<td>VT: 1.9</td>
<td>3.7 4.8 6.7 9.1 16 22</td>
<td>29 37 43 57 70 85 105 135 160 195 230 290</td>
</tr>
</tbody>
</table>

Selection guide: KPP_RX_EN_INT

### 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

- 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)

<table>
<thead>
<tr>
<th>200 V class</th>
<th>Single-phase: 3G3MX2</th>
<th>3G3MX2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BD01</td>
<td>BD02</td>
</tr>
<tr>
<td>Motor kW</td>
<td>For VT setting</td>
<td>0.2</td>
</tr>
<tr>
<td>For CT setting</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Inverter capacity kVA</td>
<td>200 VT</td>
<td>0.4</td>
</tr>
<tr>
<td>200 CT</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>240 VT</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>240 CT</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Rated output current (A) at VT</td>
<td>1.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Rated output current (A) at CT</td>
<td>1.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>400 V class</th>
<th>Three-phase: 3G3MX2</th>
<th>3G3MX2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4004</td>
<td>4007</td>
</tr>
<tr>
<td>Motor kW</td>
<td>For VT setting</td>
<td>0.75</td>
</tr>
<tr>
<td>For CT setting</td>
<td>0.4</td>
<td>0.75</td>
</tr>
<tr>
<td>Inverter capacity kVA</td>
<td>380 VT</td>
<td>1.3</td>
</tr>
<tr>
<td>380 CT</td>
<td>1.1</td>
<td>2.2</td>
</tr>
<tr>
<td>480 VT</td>
<td>1.7</td>
<td>3.4</td>
</tr>
<tr>
<td>480 CT</td>
<td>1.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Rated output current (A) at VT</td>
<td>2.1</td>
<td>4.3</td>
</tr>
<tr>
<td>Rated output current (A) at CT</td>
<td>1.8</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Selection guide: KPP_MX2_EN_INT

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.
### Automation Systems
- Programmable logic controllers (PLC)
- Human machine interfaces (HMI)
- Remote I/O
- Industrial PC’s
- Software

### Motion & Drives
- Motion controllers
- Servo systems
- Inverters
- Robots

### Control Components
- Temperature controllers
- Power supplies
- Timers
- Counters
- Programmable relays
- Digital panel indicators
- Electromechanical relays
- Monitoring products
- Solid-state relays
- Limit switches
- Pushbutton switches
- Low voltage switch gear

### Sensing & Safety
- Photoelectric sensors
- Inductive sensors
- Capacitive & pressure sensors
- Cable connectors
- Displacement & width-measuring sensors
- Vision systems
- Safety networks
- Safety sensors
- Safety units/relay units
- Safety door/guard lock switches

---

Although we strive for perfection, Omron Europe BV and its subsidiaries and affiliated companies do not warrant or make any representations regarding the correctness or completeness of the information described in this document. We reserve the right to make changes at any time without prior notice.