
# BFI-P2-24-0022-3F42-MN

Article number 60200

Output power 0.75 kW
Output 3x400 VAC, 2.2 A
Input voltage 3x380-480 VAC
IP20

## Facts

### General description

| | |
|---|---|
| Article number | 60200 |
| Warranty | 3 years |

### Mechanical

| | |
|---|---|
| IP class | IP20 |
| Physical size | Size 2 |
| Measurements (H x W x D) | 221 mm x 110 mm x 185 mm |
| Weight | 1.8 kg |
| Typical power loss at rated power | 2 % of rated power |
| Main switch | No |
| Built in Main switch, control switch and potentiometer | No |
| Conformal coated PCBs | Yes, IEC 60721-3-3, 3S2/3C2 |

## Output ratings

| | |
|---|---|
| Output voltage | 3 x 400 VAC |
| Rated motor current | 2.2 A |
| Overload capacity | 150% for 60 seconds, 200% for 4 seconds |
| Motor power | 0.75 kW |
| Output frequency | 0 – 500Hz, 0.1Hz resolution |
| Supported motor types | 3 phase AC induction (IM), AC permanent magnet (PM), Brushless DC (BLDC), Synchronous reluctance (SynRM) |
| Built-in brake transistor | Yes |
| Regenerative capacity | 100 % ED |

## Input ratings

| | |
|---|---|
| Supply voltage | 380 – 480VAC ± 10% |
| Voltage fluctuations | +/- 10% |
| Phase imbalance | 3% maximum allowed |
| Displacement factor | > 0.98 |
| Supply frequency | 48 – 62Hz |
| Power cycles | 120 per hour maximum, evenly spaced |

## Control specification

| | |
|---|---|
| Control modes | V/F Voltage Vector, Energy Optimised V/F, Sensorless Vector Speed Control, Sensorless Vector Torque Control, Synchronous Reluctance Motor Control, Brushless DC Motor Control, Closed Loop (Encoder) Speed Control, Closed Loop (Encoder) Torque Control, Open Loop PM Vector Control |
| Current/torque limitation | Torque and current limitation |
| PWM frequency | 4-32 kHz effective |
| Stopping mode | Ramp to Stop: User Adjustable 0.01 – 600 seconds, Fast stop, Coast to Stop |
| Braking | Motor Flux Braking, Built-in Braking Transistor |
| Skip frequency | Yes |
| Analog setpoint control | 0 to 10V, 10 to 0V, −10 to 10V, 0 to 20mA, 20 to 0mA, 4 to 20mA, 20 to 4mA |
| Digital setpoint control | 8 fixed speeds, Motorised Potentiometer, Internal PLC, Keypad, Modbus RTU, CANopen, Optional: PROFIBUS DP, DeviceNet, EtherNet/IP, EtherCat, PROFINET, Modbus TCP, CC-Link |

## Communication

| | |
|---|---|
| Modbus RTU | Yes, 9.6 - 115.2 kbps (8N1, 8N2, 8E1, 8O1) |
| BACnet MS/TP | No |
| Modbus TCP | Yes, external option |
| Ethernet IP | Yes, external option |
| EtherCat | Yes, external option |
| Profinet IO | Yes, external option |
| Profibus DP(DPV1) | Yes, external option |
| Device Net | Yes, external option |
| CC-Link | Yes, external option |
| CAN open | Yes, 125-1000 kbps |

## Display

| | |
|---|---|
| Programmable display | Yes |
| Multi language OLED display | TFT Display |
| External OLED display | Yes, TFT Display |
| LED display | No |

## HVAC

| | |
|---|---|
| PID-control | Yes with sleep/wake up functionality |
| Spin start | Yes |
| Pump dry protection | No |
| Pump prime and burst protection | No |
| Stir function | No |
| Motor pre-heat | No |
| Broken impeller and broken belt detection | No |
| Automatic cleaning for pumps | No |
| Bypass control | Yes |
| Fire mode | No |

## Control terminals

| | |
|---|---|
| Power supply | 100 mA @ 24 VDC, 20 mA @ 10 VDC |
| Inputs | 5 in total, 3 Digital, 2 Analog or Digital, selectable |
| Digital inputs | 10-30 V DC, PNP, Response time: < 4 msec, Internal or external supply |
| Analog inputs | Resolution:12 bit, Response time: <4 msec; Accuracy: <± 2% of full scale, Adjustable scaling |
| Outputs | 4 total, 2 relays, 2 analog or digital |
| Digital transistor outputs | 24VDC/20 mA, Internal supply |
| Relay outputs | Maximum Voltage: 250 VAC, 30 VDC Switching Current Capacity: 5A AC, 5A DC |
| Analog outputs | 0 to 10 Volt, 0 to 20mA, 4 to 20mA |
| Safety inputs | 2 |
| Extra IOs | Yes, internal option |

## Control features

| | |
|---|---|
| Speed control Master/slave | Yes, Master and slave |
| Modbus master functionality | Yes, Master and slave |
| Advanced hoist control | Yes |
| Built-in PLC | Yes |

## Standard compliances

| | |
|---|---|
| Low voltage directive | 2014/35/EU |
| EMC directive | 2014/30/EU |
| Conformance | CE, UL, cUL |
| Machine directive | 2006/42/EC |
| Marine approvals | No |
| Safe torque OFF | Cat 3/PL"d" According to ISO 13849-1, SIL CL 2 According to EN61800-5-2 / EN62061 / IEC61508 |
| Restriction of hazardous substances | RoHS2 |
| Registration evaluation and authorisation of chemicals | Reach |
| Earth leakage current | EN 61800-5-1: 2007. Test techniques EN 60990:2000. 1x230 VA < 2,5 mA, 3x400VAC < 4,65 during runing |
| DC Bus discharge time | EN 61800-5-1:2007 |
| Electrostatic discharge | EN 61800-3:2004+A1-2012. Test techniques EN 61000-4-2:2009. |
| Dielectric strength | 61800-5-1: 2007 |
| Surge | EN 61800-3: 2004+A1-2012. Test techniques EN 61000-4-5:2006. |
| Electrical fast transient burst | EN 61800-3: 2004+A1-2012. Test techniques EN 61000-4-4:2004. |

## Ambient conditions

| | |
|---|---|
| Temperature operation | -10 to 50 °C |
| Humidity | 95% max, non-condensing |

## Maintenance

| | |
|---|---|
| Fault memory | Last 4 Trips stored with time stamp |
| Data logging | Logging of data prior to trip, Current, Temperature, DC Bus Voltage |
| Maintenence indicator | Yes. Onboard service life monitoring |
| Monitoring | Hours Run Meter, kWh/MWh meter |



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