



F600 HIGH IP



SIMPLE, RELIABLE FLOW CONTROL

F600 High IP Highlights

Standard and High IP drives

The High IP drive will already be familiar to users of the F600, with all the same features that make commissioning effortless. The Hand-Off-Auto keypad with the built-in real-time clock is still available, sealed, and the protective casing has been designed with easy servicing and usability in mind.

IP65 rated enclosure.

Save on installation

The F600 High IP drive is enclosed in a sturdy, protective yet light casing, providing a compact solution. This not only allows easy integration in harsh environments but wall mounting close to the pump reduces installation costs, through:

- No cabinet required
- Shorter cable lengths
- Less labor time/cost to install drive

KEY FUNCTIONS

| Function | Function |
|--|--|
| Pump multi-leader mode for up to 3 drives | Low DC link operation |
| Pump cascade mode for up to 4 assist pumps | Analog inputs |
| Control mode: Induction motor operation | Analog outputs |
| Control mode: Permanent magnet motor operation | Temperature monitoring |
| Pump pipe fill mode | Digital inputs |
| Pump dry well detection | Digital outputs |
| Pump low load detection | Relays (normally open/normally closed) |
| Pump no-flow detection | Optional motorized potentiometer |
| Pump over-cycle protection | PID Control |
| Pump cleaning function | Energy meter |
| Hand/Off/Auto control | Trip time stamping |
| Pump volume monitoring | Trip logging |
| Pump flow monitoring | Run time log |
| Pump Wake/sleep operation | Control word control |
| Pump flow switch input | Auto reset |
| Pump assist over-cycle detection | Cloning |
| Auto-tune static | SD card adapter |
| Stop mode: Coast | SMARTCARD |
| Stop mode: Fast ramp | Acceleration rates |
| Motor pre-heat mode | Deceleration rates |
| Bi-polar reference | Skip frequency dead bands |
| Skip frequencies | Guided set-up via 'Connect' commissioning software |
| Fire Mode configurable override function | Sleep Mode |
| HMI support | Supply loss detection |

SPECIFICATION

F600

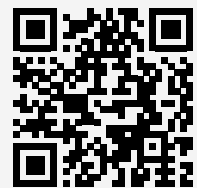
| | |
|---------------------------------------|---|
| Items supplied with the drive | Step-By-Step Guide, safety information, grounding bracket, grounding clamp, DC terminal cover grommets, terminal nuts, supply and motor connector, surface mounting brackets, control terminals, relay connectors, 24V power supply connector, finger guard grommets, IP65 cover and IP65 mounting brackets |
| Storage temperature | -40°C to 55°C, -40°F to 131°F |
| Operating temperature without de-rate | -20°C to 40°C, -4°F to 104°F |
| Operating temperature with de-rate | 40°C to 55°C, 104°F to 131°F |
| Supply requirements | Maximum supply imbalance: 2% negative phase sequence (equivalent to 3% voltage imbalance between phases). Input frequency 45 to 66Hz |
| Switching frequency range | 2,3,4,6,8,12,16kHz (Factory default = 3kHz) |
| Approvals | CE (European Union), cULus Listed (USA and Canada), RCM (Australia/ New Zealand), EAC (Russian Customs Union) |
| Product safety standard | EN61800-5-1 |
| Functional safety (Dual STO function) | TuV |
| Altitude | 1000m (3280ft) – No de-rate. 1000m (3280ft) to 3000m (9840ft) - 1% de-rate/100m (328ft) |
| Humidity | 95% Non-condensing |
| Pollution | Degree 2. Dry, non-conducting pollution only |
| IP / NEMA Rating | IP65 / NEMA12 |
| Vibration | Reference standard IEC60068-2-29 bump test, IEC60068-2-64 random vibration test, IEC60068-2-6, EN61800-5-1 sinusoidal vibration test. |
| Mounting methods | Surface mount or through-panel mount via mounting brackets |
| Output frequency/speed range | 599Hz |
| Braking | In-built braking transistor, external resistor required. |
| Operating modes | Open-loop, RFC-A (enhanced open-loop performance) RFC-S (permanent magnet motor) |
| Overload capability | 110% for 165s from cold or for 9s from 100% load |
| Overvoltage category | Evaluated for OVC III. |

| | |
|-------------------------------|--|
| Corrosive environments | <p>Concentrations not exceeding levels set in:</p> <p>EN 50178:1998 Table A2</p> <p>IEC 60721-3-3 Class 3C2</p> |
| Immunity compliance | <p>IEC61800-3, EN60800-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-11, IEC61000-6-1, IEC 61000-6-2.</p> |
| Emission compliance | <p>Capable of meeting the requirements of Equipment Category C3 without external filters or line reactors. Capable of meeting the requirements of Equipment Category C2 when installed with the recommended filters and line reactors.</p> <p>IEC61800-3, EN61000-6-4, EN61000-3-2, EN61000-3-12, EN61000-3-3, EN12015</p> |
| Cooling | <p>Forced cooled</p> |
| Safe Torque off | <p>Single STO. SIL 3</p> |
| Communications | <p>RS485, MODBUS RTU, PROFIBUS, EtherNet/IP, EtherCAT, DeviceNET, CANopen and PROFINET</p> |
| Control I/O | <p>2 x analog input, 2 x analog outputs, 3 x digital I/O programmable, 3 x digital input, 2 x NO relay 250Vac Max., 5 x 0V common, 1 x 24V user output, 1 x 24V external input, 1 x STO input.</p> <p>Additional I/O available with SI-I/O option module.</p> |
| Accuracy | <p>Frequency 0.01%, analog input 1 and 2: 11 bits plus sign,</p> <p>Current accuracy typical 2%.</p> |
| Keypad (LCD) | <p>KI- HOA keypad RTC (real time clock), optional HOA Remote Keypad</p> |
| PC Tools | <p>'Connect' commissioning and cloning tool including CT Oscilloscope, Machine Control Studio for second processor module programming.</p> |
| Warranty | <p>5 years</p> |
| Supported options | <p>HMI, Remote Keypad RTC, SI-I/O, Remote I/O, SI-Encoder (speed feedback), SI-Universal Encoder, MCI200 (second processor), MCI210 (second processor), SI-Ethernet, SI-EtherCAT, SI-DeviceNET, SI-PROFIBUS, SI-PROFINET, SI-POWERLINK, SI-CANopen, KI-485 comms adapter, SD card adapter, SMARTCARD</p> |
| Accessories | <p>External EMC filters</p> |

Documentation & Downloads

Product documentation and PC tools available for download from:

www.controltechniques.com/support

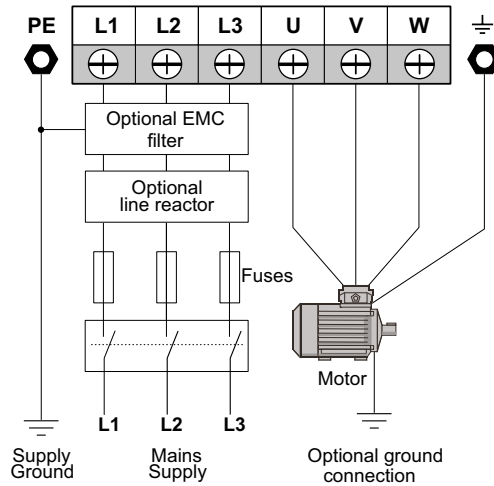


DIMENSIONS

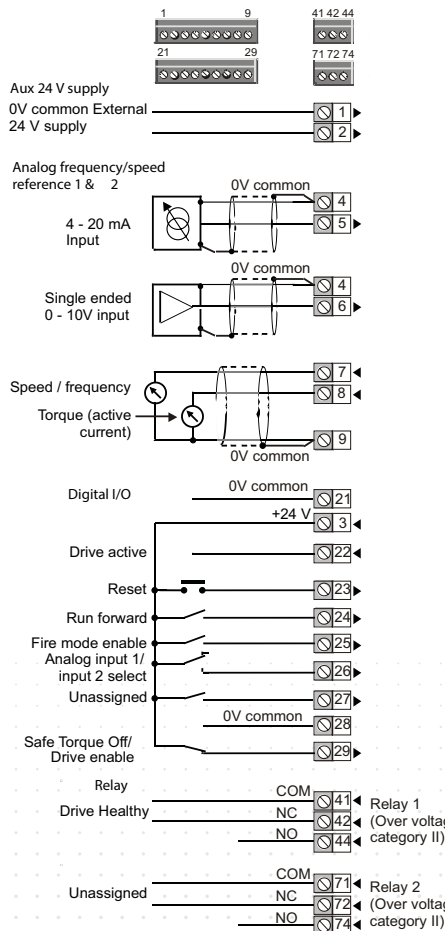


| Frame Size | Overall Dimensions | | | | | | Mounting Dimensions | | | | Mounting Hole Diameter | | Weight | |
|------------|--------------------|--------|-------|-------|------|-----|---------------------|-----|-------|------|------------------------|------|--------|------|
| | mm | | | in | | | mm | | in | | mm | in | kg | lb |
| | H | W | D | H | W | D | H | W | H | W | | | | |
| 3 | 571.4 | 255.8 | 220.7 | 22.49 | 10.7 | 8.7 | 465.5 | 73 | 18.32 | 2.87 | 4 x 6 | 0.23 | 7.5 | 16.5 |
| 4 | 571.4 | 255.8 | 220.7 | 22.49 | 10.7 | 8.7 | 470 | 106 | 18.5 | 4.17 | 4 x 7 | 0.27 | 9.3 | 20.5 |
| 5 | 570.7 | 255.8 | 220.7 | 22.46 | 10.7 | 8.7 | 467 | 110 | 18.38 | 4.38 | 4 x 7 | 0.27 | 10.0 | 22.0 |
| 6 | 573.79 | 316.68 | 247.3 | 22.59 | 9.73 | 9.8 | 478 | 196 | 18.81 | 7.72 | 6 x 7 | 0.27 | 16.9 | 37.3 |

CONNECTIONS

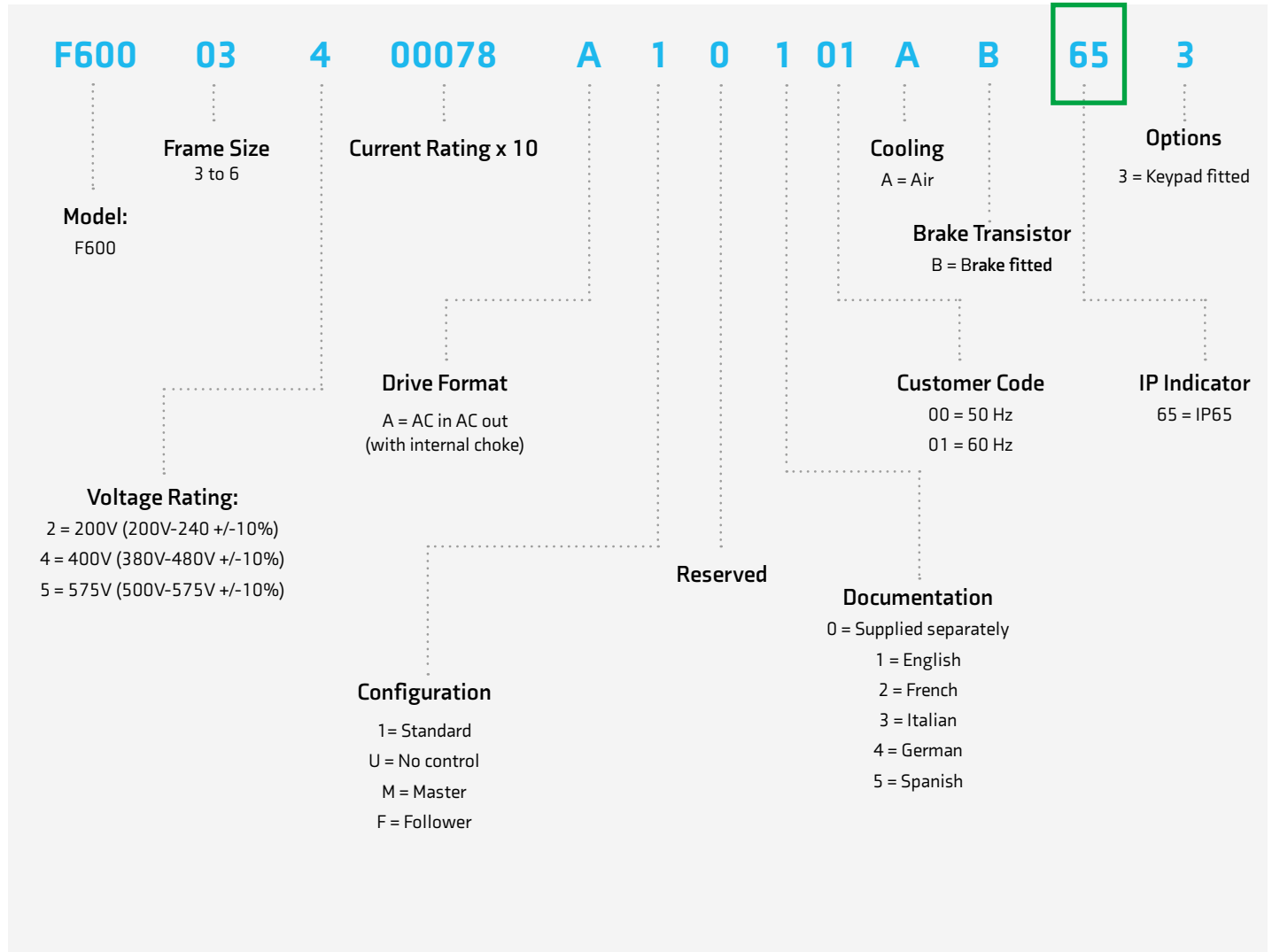


Typical Power Connections



Default Control Connections

PART NUMBERS



MODEL NUMBER AND RATINGS

| 200/240 Vac ±10% | | | | |
|------------------|------------|---------------------------------|------------------------|------------------------|
| Product Code* | Frame size | IP65 Max continuous current (A) | Normal Duty | |
| | | | Motor shaft power (kW) | Motor shaft power (hp) |
| F600-03200066 | 3 | 6.6 | 1.1 | 1.5 |
| F600-03200080 | 3 | 8 | 1.5 | 2 |
| F600-03200110 | 3 | 11 | 2.2 | 3 |
| F600-03200127 | 3 | 12.7 | 3 | 3 |
| F600-04200180 | 4 | 18 | 4 | 5 |
| F600-04200250 | 4 | 22 | 5.5 | 7.5 |
| F600-05200300 | 5 | 30 | 7.5 | 10 |
| F600-06200500 | 6 | 50 | 11 | 15 |

| 500/575 Vac ±10% | | | | |
|------------------|------------|---------------------------------|------------------------|------------------------|
| Product Code* | Frame size | IP65 Max continuous current (A) | Normal Duty | |
| | | | Motor shaft power (kW) | Motor shaft power (hp) |
| F600-05500039 | 5 | 3.9 | 2.2 | 3 |
| F600-05500061 | 5 | 6.1 | 4 | 5 |
| F600-05500100 | 5 | 10 | 5.5 | 7.5 |
| F600-06500120 | 6 | 12 | 7.5 | 10 |
| F600-06500170 | 6 | 17 | 11 | 15 |
| F600-06500220 | 6 | 22 | 15 | 20 |
| F600-06500270 | 6 | 27 | 18.5 | 25 |
| F600-06500340 | 6 | 34 | 22 | 30 |

| 380/480 Vac ±10% | | | | |
|------------------|------------|---------------------------------|------------------------|------------------------|
| Product Code* | Frame size | IP65 Max continuous current (A) | Normal Duty | |
| | | | Motor shaft power (kW) | Motor shaft power (hp) |
| F600-03400034 | 3 | 3.4 | 1.1 | 1.5 |
| F600-03400045 | 3 | 4.5 | 1.5 | 2 |
| F600-03400062 | 3 | 6.2 | 2.2 | 3 |
| F600-03400077 | 3 | 7.7 | 3 | 5 |
| F600-03400104 | 3 | 10.4 | 4 | 5 |
| F600-03400123 | 3 | 11 | 5.5 | 7.5 |
| F600-04400185 | 4 | 18.5 | 7.5 | 10 |
| F600-04400240 | 4 | 21 | 11 | 15 |
| F600-05400300 | 5 | 29 | 15 | 20 |
| F600-06400380 | 6 | 38 | 18.5 | 25 |
| F600-06400480 | 6 | 48 | 22 | 30 |

*Note: this is the short product code, add A10101AB653 to this code when ordering



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