

R88D-KN□□□-ECT-L

Accurax G5 linear drive

Accurate motion control in a compact size servo drive family. EtherCAT and safety built-in.

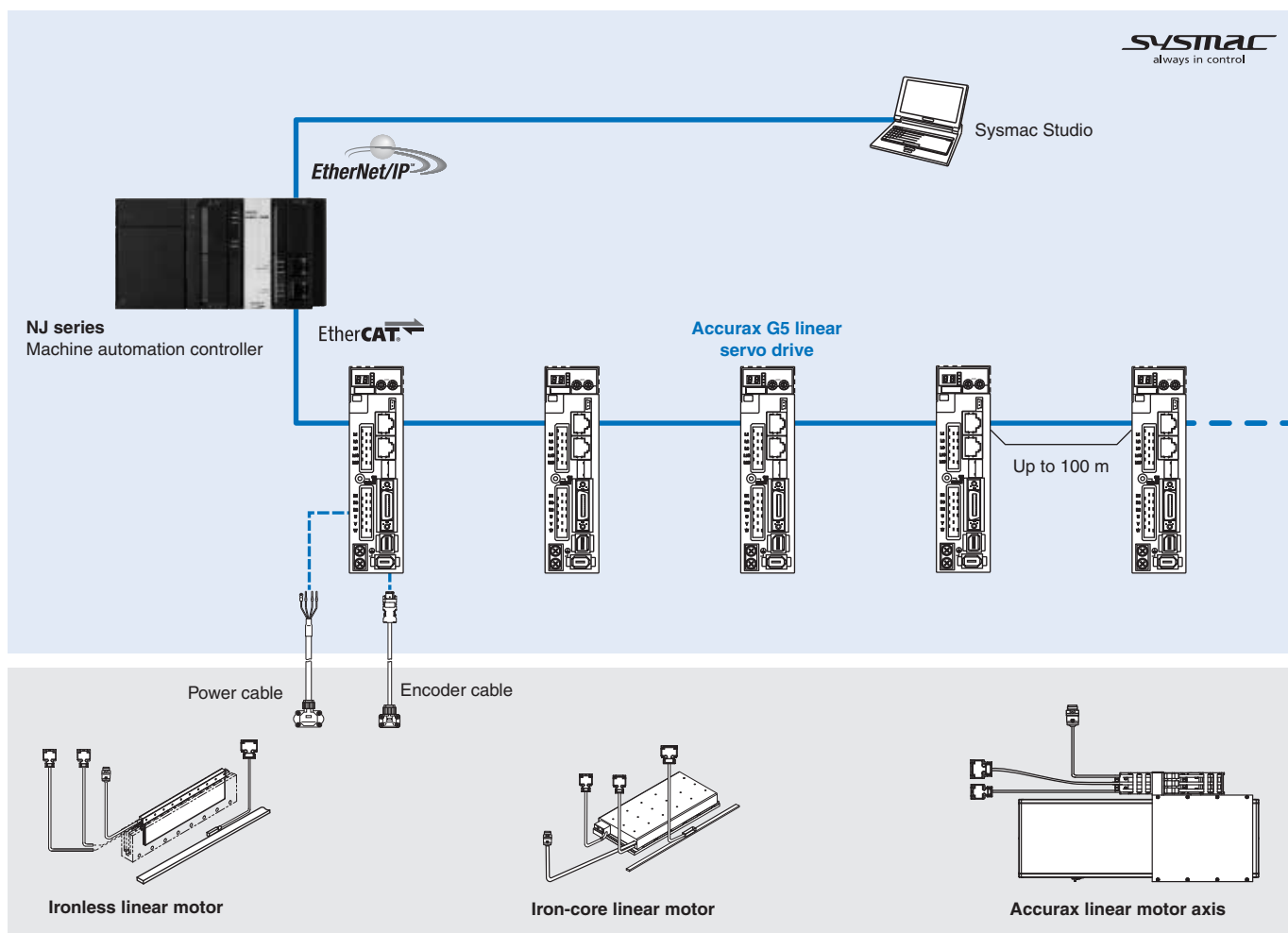
- Ironless and iron-core motor types
- Safety conforming ISO13849-1 PL-d
- High-response frequency of 2 kHz
- High resolution serial encoder for greater accuracy provided by 20 bits encoder
- Real time auto-tuning
- Advanced tuning algorithms (Anti-vibration function, torque feedforward, disturbance observer)

Ratings




- Iron-core motors - 48 to 760 N (2000 N peak force)
- Ironless motors - 29 to 423 N (2100 N peak force)



System configuration

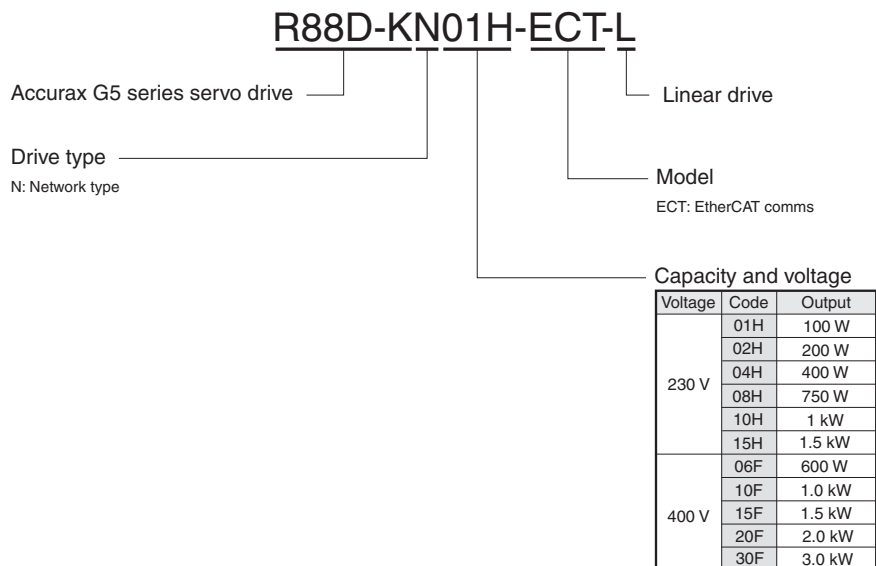


Servo motor supported

| Linear servo motor | | | | Accurax G5 linear drive EtherCAT model | | |
|---|-------------|----------------------|-------------------------|--|------------------|------------------|
| Type | Rated force | Peak force | Model | 230V | 400V | |
| Linear motor coil | | | | | | |
| R88L-EC-FW-□ Iron-core motors  230 V/400 V | 48 N | 105 N | Coil without connectors | R88L-EC-FW-0303-ANPC | R88D-KN02H-ECT-L | R88D-KN06F-ECT-L |
| | 96 N | 210 N | | R88L-EC-FW-0306-ANPC | R88D-KN04H-ECT-L | R88D-KN10F-ECT-L |
| | 160 N | 400 N | | R88L-EC-FW-0606-ANPC | R88D-KN08H-ECT-L | R88D-KN15F-ECT-L |
| | 240 N | 600 N | | R88L-EC-FW-0609-ANPC | R88D-KN10H-ECT-L | R88D-KN20F-ECT-L |
| | 320 N | 800 N | | R88L-EC-FW-0612-ANPC | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L |
| | 608 N | 1600 N | | R88L-EC-FW-1112-ANPC | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L |
| | 760 N | 2000 N | R88L-EC-FW-1115-ANPC | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L | |
| | 48 N | 105 N | Coil with connectors | R88L-EC-FW-0303-APLC | R88D-KN02H-ECT-L | R88D-KN06F-ECT-L |
| | 96 N | 210 N | | R88L-EC-FW-0306-APLC | R88D-KN04H-ECT-L | R88D-KN10F-ECT-L |
| | 160 N | 400 N | | R88L-EC-FW-0606-APLC | R88D-KN08H-ECT-L | R88D-KN15F-ECT-L |
| | 240 N | 600 N | | R88L-EC-FW-0609-APLC | R88D-KN10H-ECT-L | R88D-KN20F-ECT-L |
| | 320 N | 800 N | | R88L-EC-FW-0612-APLC | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L |
| | 608 N | 1600 N | | R88L-EC-FW-1112-APLC | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L |
| | 760 N | 2000 N | | R88L-EC-FW-1115-APLC | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L |
| Linear motor axis | | | | | | |
| R88L-EC-GW-□ Ironless motors  230 V | 29 N | 100 N | Coil without connectors | R88L-EC-GW-0303-ANPS | R88D-KN02H-ECT-L | — |
| | 58 N | 200 N | | R88L-EC-GW-0306-ANPS | R88D-KN08H-ECT-L | — |
| | 87 N | 300 N | | R88L-EC-GW-0309-ANPS | R88D-KN10H-ECT-L | — |
| | 70 N | 240 N | | R88L-EC-GW-0503-ANPS | R88D-KN02H-ECT-L | — |
| | 140 N | 480 N | | R88L-EC-GW-0506-ANPS | R88D-KN04H-ECT-L | — |
| | 210 N | 720 N | | R88L-EC-GW-0509-ANPS | R88D-KN08H-ECT-L | — |
| | 141 N | 700 N | | R88L-EC-GW-0703-ANPS | R88D-KN04H-ECT-L | — |
| | 282 N | 1400 N | | R88L-EC-GW-0706-ANPS | R88D-KN08H-ECT-L | — |
| | 423 N | 2100 N | R88L-EC-GW-0709-ANPS | R88D-KN10H-ECT-L | — | |
| | 29 N | 100 N | Coil with connectors | R88L-EC-GW-0303-APLS | R88D-KN02H-ECT-L | — |
| | 58 N | 200 N | | R88L-EC-GW-0306-APLS | R88D-KN08H-ECT-L | — |
| | 87 N | 300 N | | R88L-EC-GW-0309-APLS | R88D-KN10H-ECT-L | — |
| | 70 N | 240 N | | R88L-EC-GW-0503-APLS | R88D-KN02H-ECT-L | — |
| | 140 N | 480 N | | R88L-EC-GW-0506-APLS | R88D-KN04H-ECT-L | — |
| 210 N | 720 N | R88L-EC-GW-0509-APLS | | R88D-KN08H-ECT-L | — | |
| 141 N | 700 N | R88L-EC-GW-0703-APLS | R88D-KN04H-ECT-L | — | | |
| 282 N | 1400 N | R88L-EC-GW-0706-APLS | R88D-KN08H-ECT-L | — | | |
| 423 N | 2100 N | R88L-EC-GW-0709-APLS | R88D-KN10H-ECT-L | — | | |
| Accurax linear motor axis | | | | | | |
| R88L-EA-AF-□ Linear motor axis  | 48 N | 105 N | R88L-EA-AF-0303-□ | R88D-KN02H-ECT-L | R88D-KN10F-ECT-L | |
| | 96 N | 210 N | R88L-EA-AF-0306-□ | R88D-KN04H-ECT-L | R88D-KN10F-ECT-L | |
| | 160 N | 400 N | R88L-EA-AF-0606-□ | R88D-KN08H-ECT-L | R88D-KN15F-ECT-L | |
| | 240 N | 600 N | R88L-EA-AF-0609-□ | R88D-KN10H-ECT-L | R88D-KN20F-ECT-L | |
| | 320 N | 800 N | R88L-EA-AF-0612-□ | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L | |
| | 608 N | 1600 N | R88L-EA-AF-1112-□ | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L | |
| | 760 N | 2000 N | R88L-EA-AF-1115-□ | R88D-KN15H-ECT-L | R88D-KN30F-ECT-L | |

Type designation

Servo drive



Servo drive specifications

Single-phase, 230 V

| Linear servo drive type | | R88D-KN | 02H-ECT-L | 04H-ECT-L | 08H-ECT-L | 10H-ECT-L | 15H-ECT-L | |
|-------------------------------|-----------------------------------|--|--|-----------|-----------|-----------|-----------|--|
| Applicable linear servo motor | R88L-EC- | | FW-0303 | FW-0306 | FW-0606 | FW-0609 | FW-0612 | |
| | | | GW-0303 | GW-0506 | GW-0306 | GW-0309 | FW-1112 | |
| | | | – | GW-0703 | GW-0509 | GW-0709 | – | |
| | | | – | – | GW-0706 | – | – | |
| Power | W | 200 | 400 | 750 | 1000 | 1500 | | |
| Continuous output current | Arms | 1.6 | 2.6 | 4.1 | 5.9 | 9.4 | | |
| Max. output current | Arms | 4.8 | 7.8 | 12.3 | 16.9 | 28.2 | | |
| Input power | Main circuit | Single-phase/3-phase, 200 to 240 VAC +10% to –15% (50/60 Hz) | | | | | | |
| Supply | Control circuit | Single-phase, 200 to 240 VAC +10% to –15% (50/60 Hz) | | | | | | |
| Control method | | IGBT-driven PWM method, sinusoidal drive | | | | | | |
| Feedback | | Serial encoder (incremental/absolute value) | | | | | | |
| Conditions | Usage/storage temperature | | 0 to 55°C/–20 to 65°C | | | | | |
| | Usage/storage humidity | | 90% RH or less (non-condensing) | | | | | |
| | Altitude | | 1000 m or less above sea level | | | | | |
| | Vibration/shock resistance (max.) | | 5.88 m/s ² 10 to 60 Hz (Continuous operation at resonance point is not allowed)/19.6 m/s ² | | | | | |
| Configuration | | Base mounted | | | | | | |
| Approx. weight | kg | 0.8 | 1.1 | 1.6 | | 1.8 | | |

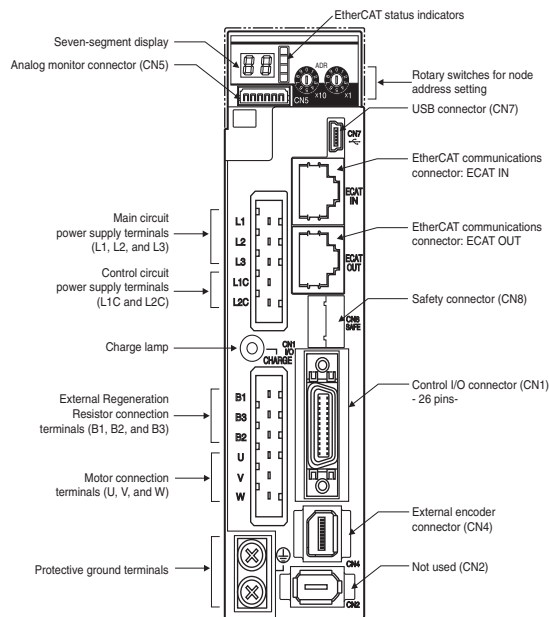
Three-phase, 400 V

| Linear servo drive type | | R88D-KN | 06F-ECT-L | 10F-ECT-L | 15F-ECT-L | 20F-ECT-L | 30F-ECT-L | |
|-------------------------------|-----------------------------------|---|--|-----------|-----------|-----------|-----------|--|
| Applicable linear servo motor | R88L-EC- | | FW-0303 | FW-0303 | FW-0606 | FW-0609 | FW-0612 | |
| | | | – | FW-0306 | – | – | FW-1112 | |
| | | | – | – | – | – | FW-1115 | |
| | | | – | – | – | – | – | |
| Power | kW | 0.6 | 1 | 1.5 | 2 | 3 | | |
| Continuous output current | Arms | 1.5 | 2.9 | 4.7 | 6.7 | 9.4 | | |
| Max. output current | Arms | 6.4 | 8.7 | 14.1 | 19.7 | 28.2 | | |
| Input power | Main circuit | 3-phase, 380 to 480 VAC +10 to –15% (50/60Hz) | | | | | | |
| Supply | Control circuit | 24 VDC ±15% | | | | | | |
| Control method | | IGBT-driven PWM method, sinusoidal drive | | | | | | |
| Feedback | Serial encoder | Incremental or absolute encoder | | | | | | |
| Conditions | Usage/storage temperature | | 0 to 55°C/–20 to 65°C | | | | | |
| | Usage/storage humidity | | 90% RH or less (non-condensing) | | | | | |
| | Altitude | | 1000 m or less above sea level | | | | | |
| | Vibration/shock resistance (max.) | | 5.88 m/s ² 10 to 60 Hz (Continuous operation at resonance point is not allowed)/19.6 m/s ² | | | | | |
| Configuration | | Base mounted | | | | | | |
| Approx. weight | kg | | 1.9 | | 2.7 | 4.7 | | |

General specifications

| | | | | |
|--|--|--|---|--|
| Performance | | Frequency characteristics | 2 kHz | |
| EtherCAT interface | Command input | | EtherCAT commands (for sequence, motion, data setting/reference, monitor, adjustment, and other commands). | |
| | CiA402 Drive profile | | Cyclic synchronous position mode Cyclic synchronous velocity mode Cyclic synchronous torque mode Touch probe function Torque limit function Homing mode | |
| I/O signal | Sequence input signal | | - Multi-function input × 8 by parameter setting (forward/reverse drive prohibition, emergency stop, external latch, origin proximity, forward/reverse torque limit, general purpose monitor inputs). | |
| | Sequence output signal | | 1 × servo drive error output 2 × multi-function outputs by parameters setting (servo ready, brake release, speed limit detection, force limit detection, zero speed detection, warning output, position completion, error clear attributed, remote output, speed detection, position command status, speed command status) | |
| Integrated functions | USB communications | Interface | Personal computer/Connector mini-USB | |
| | | Communications standard | Compliant with USB 2.0 standard | |
| | | Function | Parameter setting and status monitoring | |
| | EtherCAT communications | Communications protocol | IEC 61158 Type 12, IEC 61800-7 | |
| | | Physical layer | 100BASE-TX (IEEE802.3) | |
| | | Connectors | RJ45 × 2 ECAT IN: EtherCAT input × 1 ECAT OUT: EtherCAT output × 1 | |
| | | Communications media | Category 5 or higher (cable with double, aluminium tape and braided shielding is recommended) | |
| | Communications distance | Distance between nodes: 100 m max. | | |
| | LED indicators | RUN × 1 ERR × 1 L/A IN (Link/Activity IN) × 1 L/A OUT (Link/activity OUT) × 1 | | |
| | Automatic load inertia detection | Automatic motor parameter setting. One parameter rigidity setting. | | |
| Dynamic brake (DB) | Built-in. Operates during main power OFF, servo alarm, servo OFF or overtravel. | | | |
| Regenerative processing | Internal resistor included in models from 600 W to 5 kW. Regenerative resistor externally mounted (option). | | | |
| Overtravel (OT) prevention function | DB stop, deceleration stop or coast to stop during P-OT, N-OT operation | | | |
| Encoder divider function | Optional division possible | | | |
| Protective functions | Overcurrent, overvoltage, undervoltage, overspeed, overload, encoder error, overheat... | | | |
| Analog monitor functions for supervision | Analog monitor of motor speed, speed reference, torque reference, command following error, analog input ... The monitoring signals to output and their scaling can be specified with parameters. Number of channels: 2 (Output voltage: ±10 VDC) | | | |
| Panel operator | Display functions | 2 × digit 7-segment LED display shows the drive status, alarm codes, parameters... | | |
| | Switches | 2 × rotary switches for setting the node address | | |
| CHARGE lamp | Lits when the main circuit power supply is turned ON. | | | |
| Safety terminal | Functions | Safety Torque OFF function to cut off the motor current and stop the motor. Output signal for failure monitoring function. | | |
| | Conformed standards | EN ISO13849-1:2008 (PL- d, Performance Level d), IEC61800-5 -2:2007 (function STO, Safe Torque OFF), EN61508:2001 (Safety Integrity Level 2, SIL2), EN954-1:1996 (CAT3). | | |
| External encoder feedback | Serial signal and line-driver A-B-Z encoder | | | |

Servo drive part names



Note: The above picture shows 230 V servo drives models only. The 400 V servo drives have 24 VDC power input terminals for control circuit instead of L1C and L2C terminals.

I/O specifications

Terminals specifications

| Symbol | Name | Function |
|--------|---|--|
| L1 | Main power supply input terminal | AC power input terminals for the main circuit Note: for single-phase servo drives connect the power supply input to L1 and L3. |
| L2 | | |
| L3 | | |
| L1C | Control power supply input terminal | AC power input terminals for the control circuit (for 200V single/three-phase servo drives only). DC power input terminals for the control circuit (for 400V three-phase servo drives only). |
| L2C | | |
| 24 V | | |
| 0 V | | |
| B1 | External regeneration resistor connection terminals | Servo drives below 750 W: no internal resistor is connected. Leave B2 and B3 open. Connect an external regenerative resistor between B1 and B2. Servo drives from 750 W to 5 kW: short-circuit in B2 and B3 for internal regenerative resistor. If the internal regenerative resistor is insufficient, connect an external regenerative resistor between B1 and B2 and remove the wire between B2 and B3. |
| B2 | | |
| B3 | | |
| U | Servo motor connection terminals | Terminals for outputs to the servomotor. |
| V | | |
| W | | |

I/O signals (CN1) - input signals

| Pin No. | Signal name | Function | | |
|---------|-------------|--|---|---------------------------------|
| 6 | I-COM | ± pole of external DC power. The power must use 12 V to 24 V (±5%) | | |
| 5 | E-STOP | Emergency stop The signal name shows the factory setting. The function can be changed by parameter setting. | | |
| 7 | P-OT | | | |
| 8 | N-OT | | | |
| 9 | DEC | | | |
| 10 | EXT3 | | | |
| 11 | EXT2 | | | |
| 12 | EXT1 | | | |
| 13 | SI-MON0 | | | |
| 14 | – | Terminals not used. Do not connect. | | |
| 15 | – | | | |
| 17 | – | | | |
| 18 | – | | | |
| 19 | – | | | |
| 20 | – | | | |
| 21 | – | | | |
| 22 | – | | | |
| 23 | – | | | |
| 24 | – | | | |
| – | PCL | Forward force limit | The function of input signals allocated to pins 5 and 7 to 13 can be changed with these options by parameters settings. | |
| | NCL | | | Reverse force limit |
| | SI-MON1 | | | General-purpose monitor input 1 |
| | SI-MON2 | | | General-purpose monitor input 2 |
| Shell | FG | Shield ground. Connected to frame ground if the shield wire of the I/O signal cable is connected to the connector shell. | | |
| 16 | GND | Signal ground. It is insulated with power supply (I-COM) for the control signal in the servo drive. | | |

I/O signals (CN1) - output signals

| Pin No. | Signal name | Function | |
|---------|-------------|--|---|
| 1 | BRK-OFF+ | External brake release signal | |
| 2 | BRK-OFF | | |
| 25 | S-RDY+ | Servo ready: ON when there is no servo alarm and control/main circuit power supply is ON | |
| 26 | S-RDY– | | |
| 3 | ALM+ | Servo alarm: Turns OFF when an error is detected | |
| 4 | ALM– | | |
| – | INP1 | Position complete output 1 | The function of output signals allocated to pins 1, 2, 25 and 26 can be changed with these options by parameters settings |
| | TGON | Motor speed detection | |
| | F_LIMIT | Force limit detection | |
| | ZSP | Zero speed | |
| | VCMP | Speed conformity output | |
| | WARN1 | Warning 1 | |
| | WARN2 | Warning 2 | |
| | PCMD | Position command status | |
| | INP2 | Position complete output 2 | |
| | VLIMIT | Speed limit detection | |
| | ALM-ATB | Error clear attribute | |
| | VCMD | Speed command status | |
| | R-OUT1 | Remote output 1 | |
| | R-OUT2 | Remote output 1 | |

External encoder connector (CN4)

| Pin No. | Signal name | Function |
|---------|-------------|---|
| 1 | E5V | External scale power supply output. Use at 5.2 V \pm 5% and at or below 250 mA. |
| 2 | E0V | This is connected to the control circuit ground connected to connector CN1. |
| 3 | PS | External scale signal I/O (serial signal). |
| 4 | /PS | |
| 5 | EXA | External scale signal input (Phase A, B, and Z signals). Performs the input and output of phase A, B and Z signals. |
| 6 | /EXA | |
| 7 | EXB | |
| 8 | /EXB | |
| 9 | EXZ | |
| 10 | /EXZ | |
| Shell | FG | Shield ground |

Monitor connector (CN5)

| Pin No. | Signal name | Function |
|---------|-------------|--|
| 1 | AM1 | Analog monitor output 1. Outputs the analog signal for the monitor. Use the parameters setting to select the output to monitor. Default setting: Motor rotation speed 1 V/(500 mm/s). |
| 2 | AM2 | Analog monitor output 2. Outputs the analog signal for the monitor. Use the parameters setting to select the output to monitor. Default setting: Motor rotation speed 1 V/(33% of nominal force). |
| 3 | GND | Ground for analog monitors 1,2. |
| 4 | – | Terminals not used. Do not connect. |
| 5 | – | |
| 6 | – | |

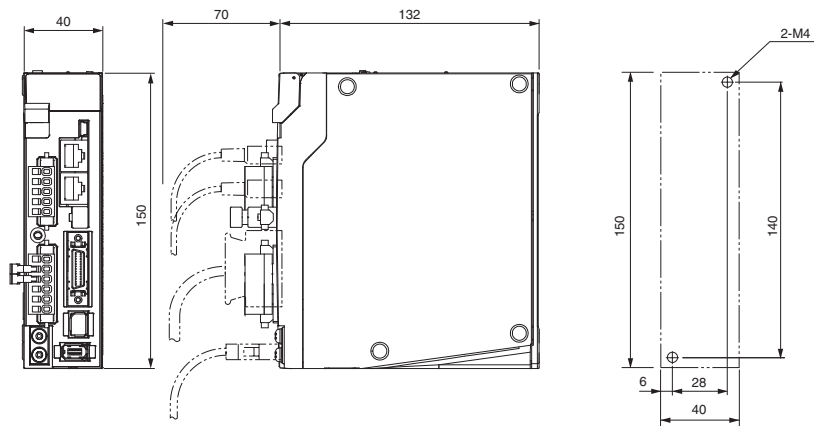
Safety connector (CN8)

| Pin No. | Signal name | Function |
|---------|-------------|--|
| 1 | – | Not used. Do not connect. |
| 2 | – | |
| 3 | SF1– | Safety input 1 & 2. This input turns OFF the power transistor drive signals in the servo drive to cut off the current output to the motor. |
| 4 | SF1+ | |
| 5 | SF2– | |
| 6 | SF2+ | |
| 7 | EDM– | A monitor signal is output to detect a safety function failure. |
| 8 | EDM+ | |
| Shell | FG | Frame ground. |

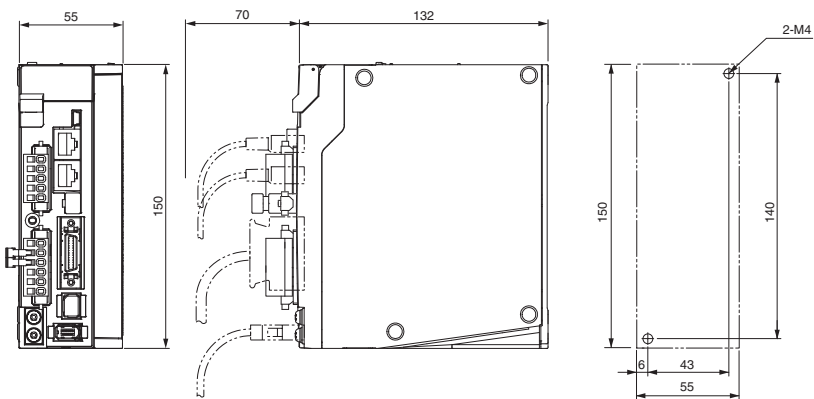
Dimensions

Servo drives

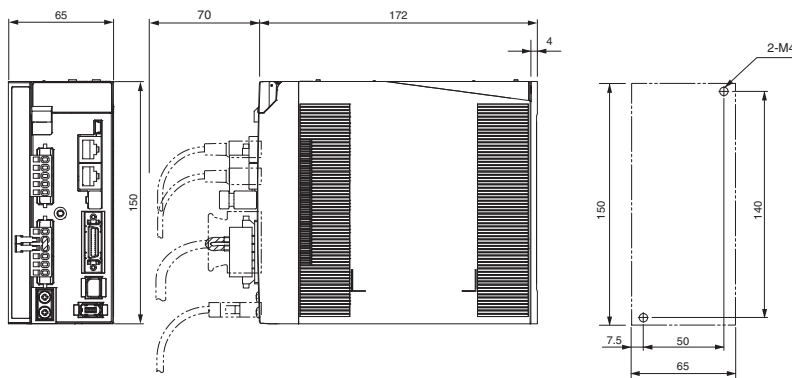
R88D-KN02H-ECT-L (230 V, 200 W)



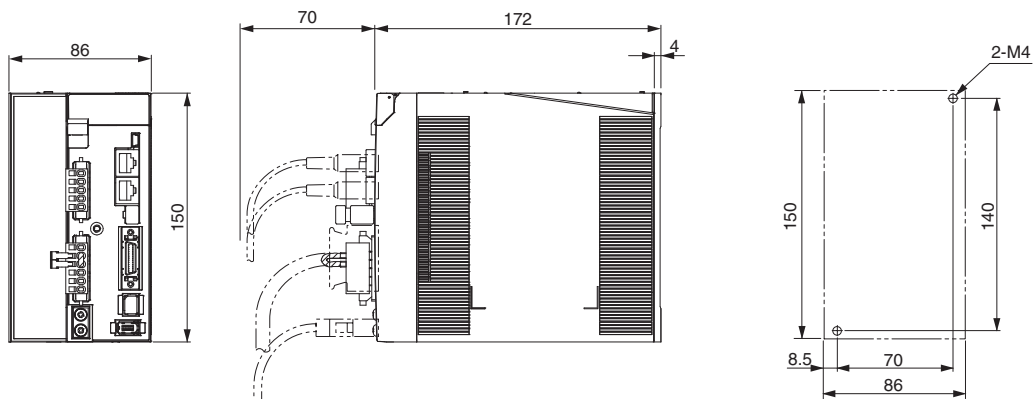
R88D-KN04H-ECT-L (230 V, 400 W)



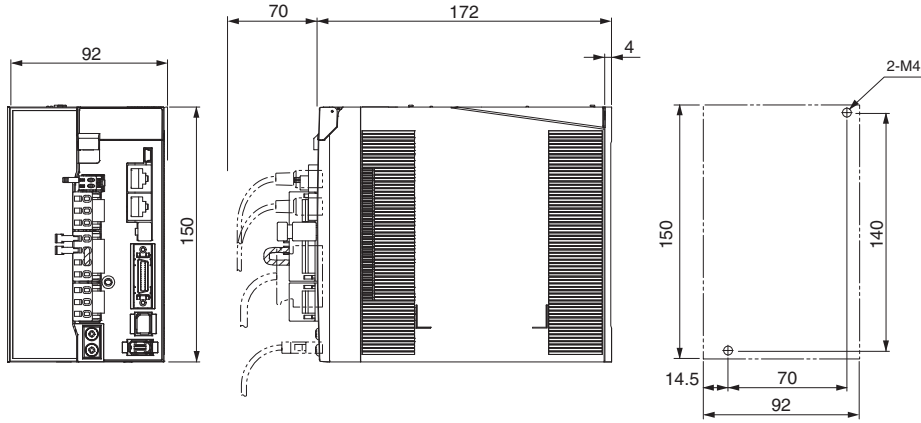
R88D-KN08H-ECT-L (230 V, 800 W)



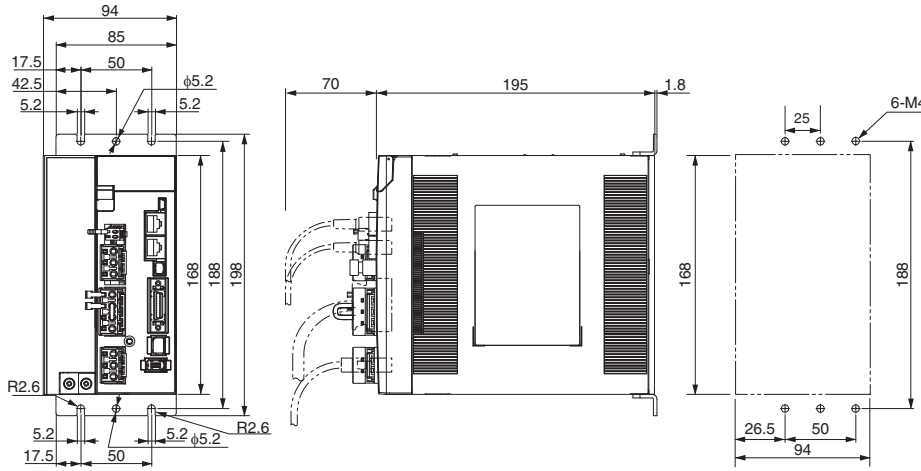
R88D-KN10H/15H-ECT-L (230 V, 1 to 1.5 kW)



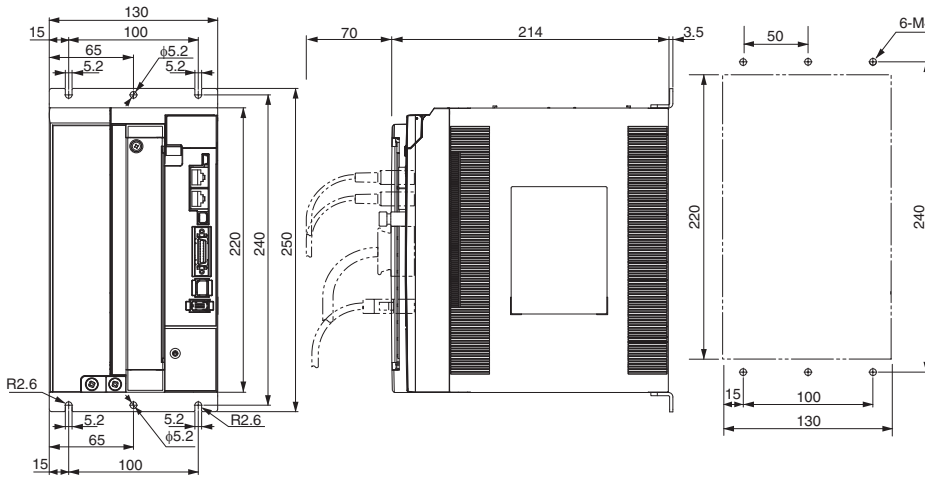
R88D-KN06F/10F/15F-ECT-L (400 V, 600 W to 1.5 kW)



R88D-KN20F-ECT-L (400 V, 2 kW)

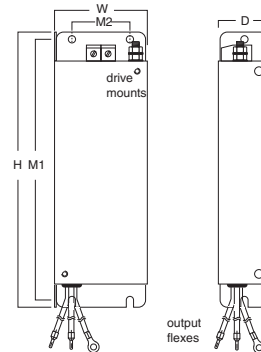


R88D-KN30F-ECT-L (400V, 3 kW)



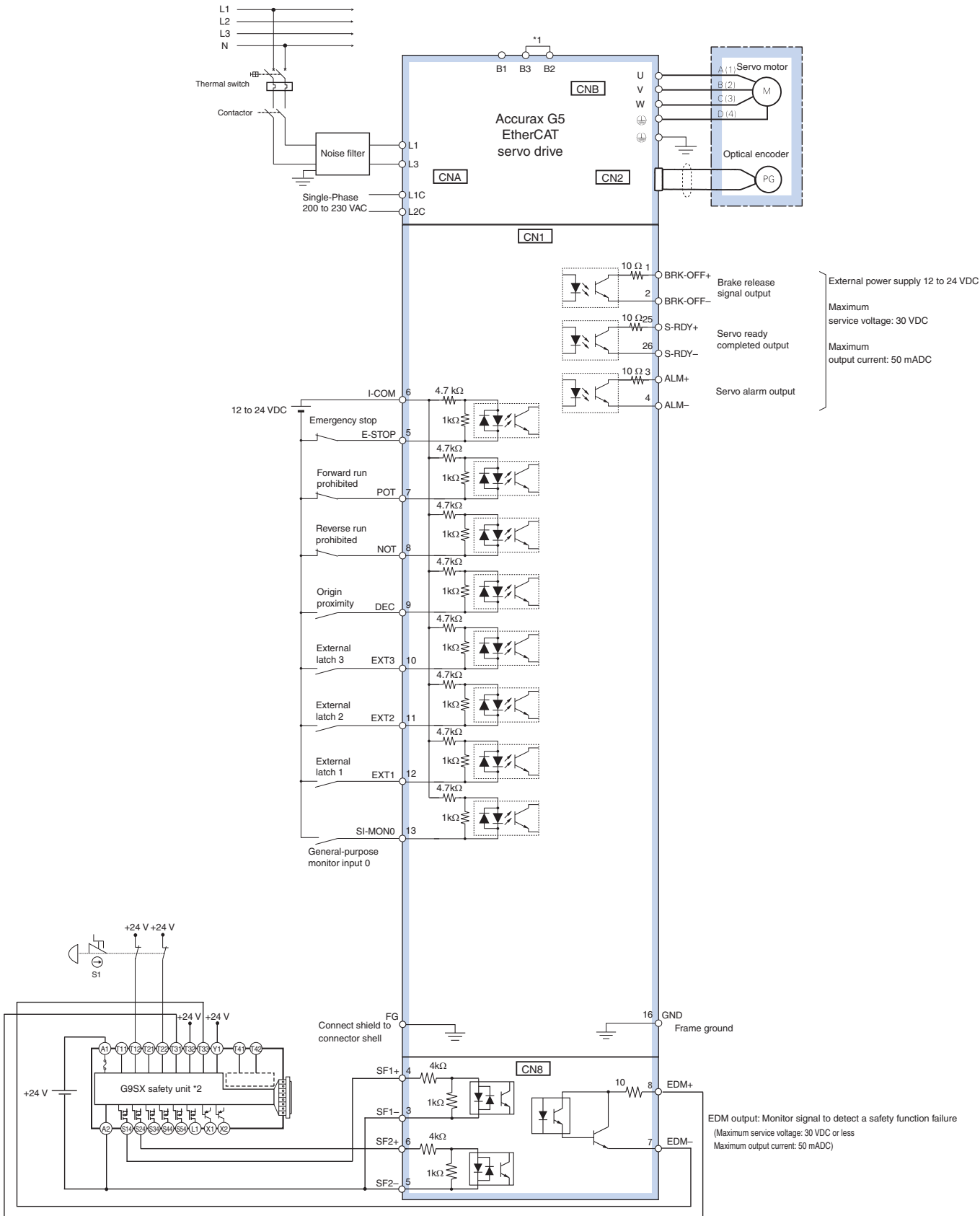
Filters

| Filter model | External dimensions | | | Mount dimensions | |
|----------------|---------------------|-----|----|------------------|-----|
| | H | W | D | M1 | M2 |
| R88A-FIK102-RE | 190 | 42 | 44 | 180 | 20 |
| R88A-FIK104-RE | 190 | 57 | 30 | 180 | 30 |
| R88A-FIK107-RE | 190 | 64 | 35 | 180 | 40 |
| R88A-FIK114-RE | 190 | 86 | 35 | 180 | 60 |
| R88A-FIK304-RE | 196 | 92 | 40 | 186 | 70 |
| R88A-FIK306-RE | 238 | 94 | 40 | 228 | 70 |
| R88A-FIK312-RE | 291 | 130 | 40 | 278 | 100 |



Installation

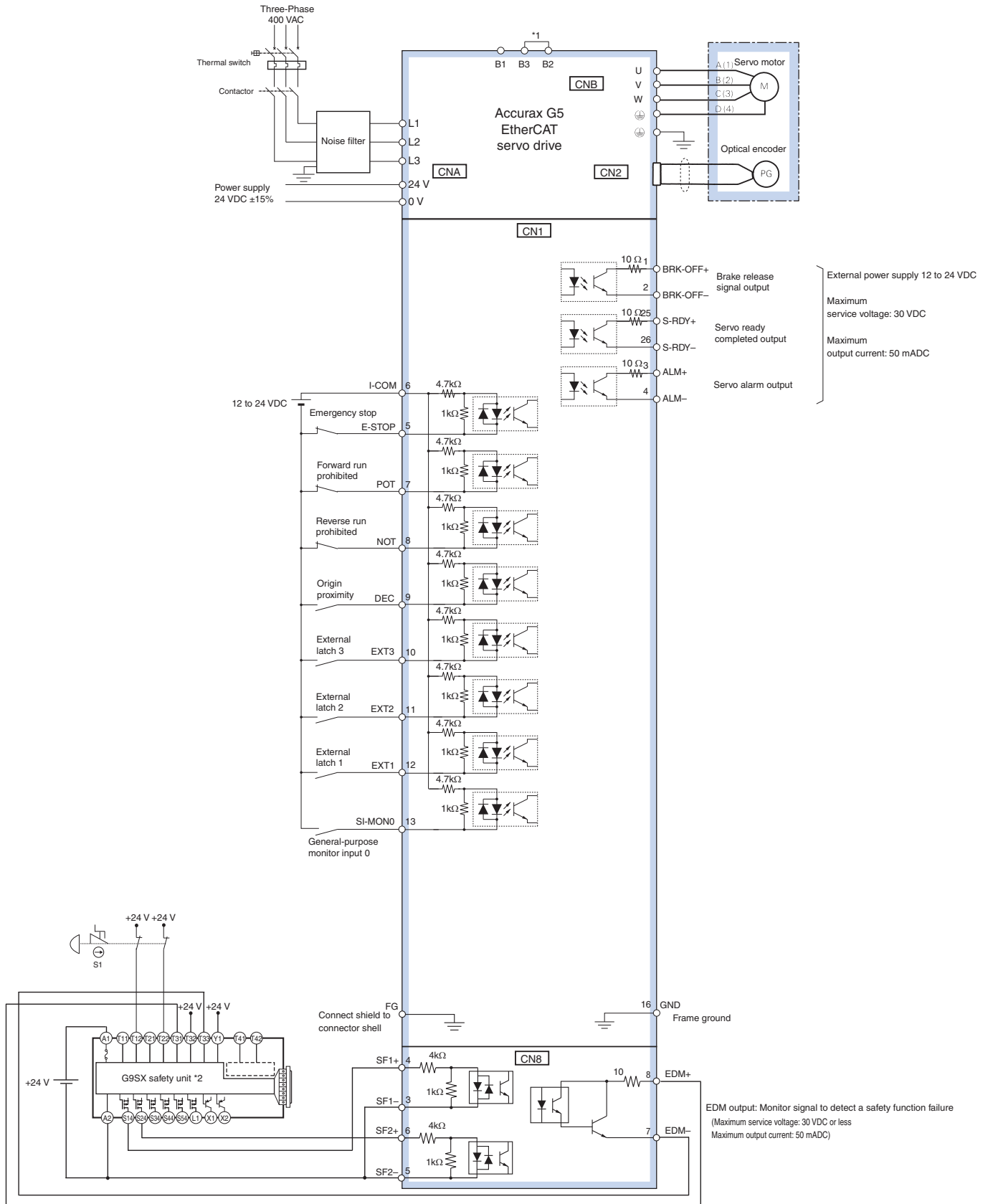
Single-phase, 230 VAC



*1 For servo drives from 750 W, B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.
 *2 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

Note: The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.

Three-phase, 400 VAC



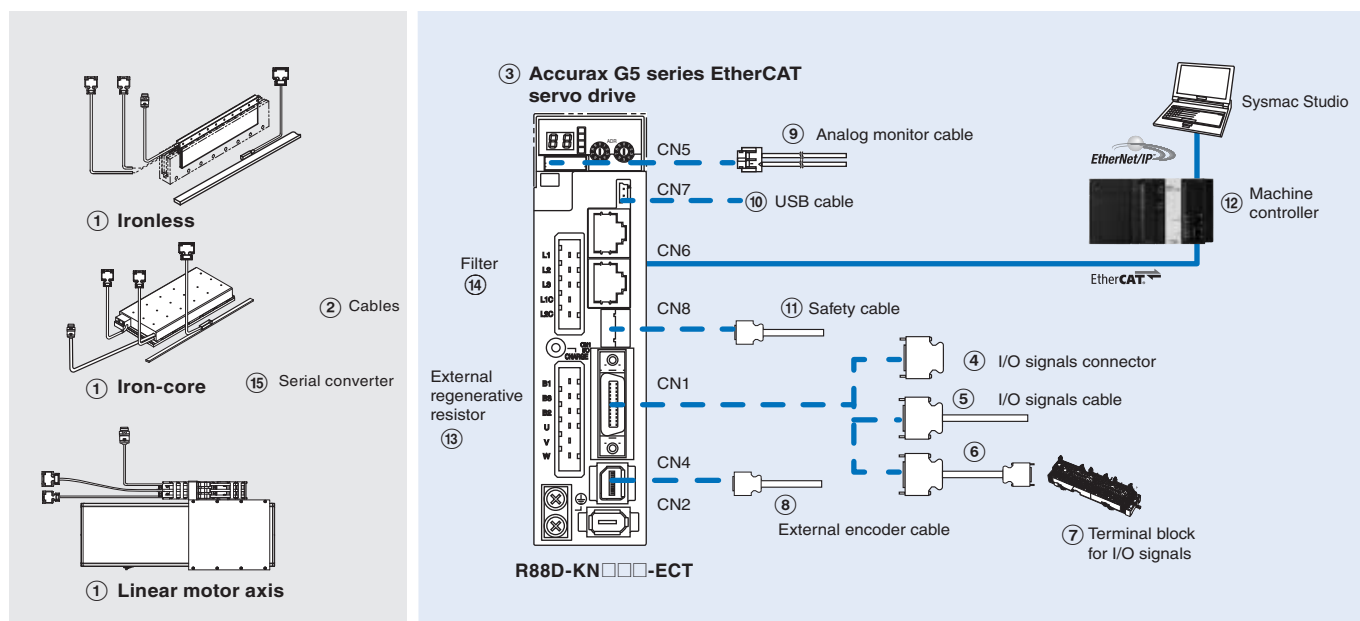
*1 Normally B2 and B3 are short-circuited. If the internal regenerative resistor is insufficient, remove the wire between B2 and B3 and connect an external regenerative resistor between B1 and B2.

*2 Wiring diagram example using the G9SX safety unit. If a safety unit is not used, keep the factory safety bypass connector installed in the CN8.

Note: The input function of pins 5 and 7 to 13, and output function of pins 1, 2, 25 and 26, can be changed via parameter settings.

Ordering information

Accurax G5 series EtherCAT reference configuration



Note: The symbols ①②③④⑤... show the recommended sequence to select the components in Accurax G5 servo system

Servo motors, power & encoder cables

Note: ①② Refer to the Accurax linear motor chapter for linear motor, cables or connectors selection

Servo drives

| Symbol | Specifications | Servo drive models | ① Compatible Accurax G5 Linear motors | | |
|--------|-----------------|--------------------|---|---|---|
| | | | Iron-core motors | Ironless motors | Linear motor axis |
| ③ | 1 phase 230 VAC | R88D-KN02H-ECT-L | R88L-EC-FW-0303-□ | R88L-EC-GW-0303-□ R88L-EC-GW-0503-□ | R88L-EA-AF-0303-□ |
| | | R88D-KN04H-ECT-L | R88L-EC-FW-0306-□ | R88L-EC-GW-0506-□ R88L-EC-GW-0703-□ | R88L-EA-AF-0306-□ |
| | | R88D-KN08H-ECT-L | R88L-EC-FW-0606-□ | R88L-EC-GW-0306-□ R88L-EC-GW-0509-□ R88L-EC-GW-0706-□ | R88L-EA-AF-0606-□ |
| | | R88D-KN10H-ECT-L | R88L-EC-FW-0609-□ | R88L-EC-GW-0309-□ R88L-EC-FW-0709-□ | R88L-EA-AF-0609-□ |
| | | R88D-KN15H-ECT-L | R88L-EC-FW-0612-□ R88L-EC-FW-1112-□ R88L-EC-FW-1115-□ | - | R88L-EA-AF-0612-□ R88L-EA-AF-1112-□ R88L-EA-AF-1115-□ |
| | 3 phase 400 VAC | R88D-KN06F-ECT-L | R88L-EC-FW-0303-□ | - | - |
| | | R88D-KN10F-ECT-L | R88L-EC-FW-0306-□ | - | R88L-EA-AF-0303-□ R88L-EA-AF-0306-□ |
| | | R88D-KN15F-ECT-L | R88L-EC-FW-0606-□ | - | R88L-EA-AF-0606-□ |
| | | R88D-KN20F-ECT-L | R88L-EC-FW-0609-□ | - | R88L-EA-AF-0609-□ |
| | | R88D-KN30F-ECT-L | R88L-EC-FW-0612-□ R88L-EC-FW-1112-□ R88L-EC-FW-1115-□ | - | R88L-EA-AF-0612-□ R88L-EA-AF-1112-□ R88L-EA-AF-1115-□ |

Signals cables for I/O general purpose (CN1)

| Symbol | Description | Connect to | Model |
|--------|--|-------------------------|---------------------|
| ④ | I/O connector kit (26 pins) | For I/O general purpose | - R88A-CNW01C |
| ⑤ | I/O signals cable | For I/O general purpose | 1 m R88A-CPKB001S-E |
| | | | 2 m R88A-CPKB002S-E |
| ⑥ | Terminal block cable | For I/O general purpose | 1 m XW2Z-100J-B34 |
| | | | 2 m XW2Z-200J-B34 |
| ⑦ | Terminal block (M3 screw and for pin terminals) | - | XW2B-20G4 |
| | Terminal block (M3.5 screw and for fork/round terminals) | - | XW2B-20G5 |
| | Terminal block (M3 screw and for fork/round terminals) | - | XW2D-20G6 |

External encoder cable (CN4)

| Symbol | Name | | Model |
|--------|------------------------|------|------------------|
| ⑧ | External encoder cable | 5 m | R88A-CRKM005SR-E |
| | | 10 m | R88A-CRKM010SR-E |
| | | 20 m | R88A-CRKM020SR-E |

Analog monitor (CN5)

| Symbol | Name | | Model |
|--------|----------------------|-----|--------------|
| ⑨ | Analog monitor cable | 1 m | R88A-CMK001S |

USB personal computer cable (CN7)

| Symbol | Name | | Model |
|--------|--------------------------|-----|---------------|
| ⑩ | USB mini-connector cable | 2 m | AX-CUSBM002-E |

Cable for safety (CN8)

| Symbol | Name | | Model |
|--------|--------------|-----|----------------|
| ⑪ | Safety cable | 3 m | R88A-CSK003S-E |

Machine controller

| Symbol | Name | | Model |
|--------|-----------|-------------------|----------------------|
| ⑫ | NJ series | CPU unit | NJ501-1500 (64 axes) |
| | | | NJ501-1400 (32 axes) |
| | | | NJ501-1300 (16 axes) |
| | | | NJ301-1200 (8 axes) |
| | | | NJ301-1100 (4 axes) |
| | | Power supply unit | NJ-PA3001 (220 VAC) |
| | | | NJ-PD3001 (24 VDC) |

External regenerative resistor

| Symbol | Regenerative resistor unit model | Specifications |
|--------|----------------------------------|----------------|
| ⑬ | R88A-RR08050S | 50 Ω, 80 W |
| | R88A-RR080100S | 100 Ω, 80 W |
| | R88A-RR22047S | 47 Ω, 220 W |
| | R88A-RR50020S | 20 Ω, 500 W |

Filters

| Symbol | Applicable servodrive | Filter model | Manufacturer | Rated current | Leakage current | Rated voltage |
|--------|--|----------------|------------------------|---------------|----------------------------|----------------------|
| ⑭ | R88D-KN02H-ECT-L | R88A-FIK102-RE | Rasmi Electronics Ltd. | 2.4 A | 3.5 mA | 250 VAC single-phase |
| | R88D-KN04H-ECT-L | R88A-FIK104-RE | | 4.1 A | 3.5 mA | |
| | R88D-KN08H-ECT-L | R88A-FIK107-RE | | 6.6 A | 3.5 mA | |
| | R88D-KN10H-ECT-L, R88D-KN15H-ECT-L | R88A-FIK114-RE | | 14.2 A | 3.5 mA | |
| | R88D-KN06F-ECT-L, R88D-KN10F-ECT-L, R88D-KN15F-ECT-L | R88A-FIK304-RE | | 4 A | 0.3 mA/32 mA ^{*1} | 400 VAC three-phase |
| | R88D-KN20F-ECT-L | R88A-FIK306-RE | | 6 A | 0.3 mA/32 mA ^{*1} | |
| | R88D-KN30F-ECT-L | R88A-FIK312-RE | | 12.1 A | 0.3 mA/32 mA ^{*1} | |

*1 Momentary peak leakage current for the filter at switch-on/off.

Connectors

| Specifications | Model |
|---------------------------------------|-------------|
| External encoder connector (for CN4) | R88A-CNK41L |
| Safety I/O signal connector (for CN8) | R88A-CNK81S |

Computer software

| Specifications | Model |
|-------------------------------------|---------------|
| Sysmac Studio version 1.0 or higher | SYSMAC-SE2□□□ |
| CX-Drive version 2.60 or higher | CX-DRIVE 2.60 |

Note: If CX-One is installed on the same computer as Sysmac Studio, it must be CX-One v4.2 or higher

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.