

6th-Generation IDEC SmartRelay



BASE MODULE GENERAL SPECIFICATIONS

| Item | | Specifications | Standard |
|--|---------------------|---|---|
| Operating Temperature | Horizontal Mounting | 0 to 55°C (no freezing) | Cold: IEC60068-2-1 Hot: IEC60068-2-2 |
| | Vertical Mounting | 0 to 55°C (no freezing) | |
| Storage/Transportation Temp. | | -40 to +70°C (no freezing) | — |
| Relative Humidity | | 10 to 95% (no condensation) | IEC60068-2-30 |
| Atmospheric Pressure | | 795 to 1080hPa | — |
| Operating Condition | | No corrosive gas | — |
| Degree of Protection | | IP20 | — |
| Vibration Resistance | | 5 to 8.4Hz, amplitude 3.5mm 8.4 to 150Hz, acceleration 9.8m/s ² | IEC60068-2-6 |
| Shock Resistance | | 147m/s ² | IEC60068-2-27 |
| Drop Test (packaged) | | 0.3m | IEC60068-2-32 |
| Emissions | | Limit class B Group 1 | EN55011/A EN55022/B EN50081-1 |
| Electrostatic Discharge Immunity | | 8kV air discharge 6kV contact discharge | IEC61000-4-2 |
| Radiation Field Immunity | | Field Strength: 1V/m and 10V/m | IEC61000-4-3 |
| Fast Transient Burst | | 2kV (power line) 2kV (I/O signal line) | IEC61000-4-4 |
| Surge Immunity ¹ (FL1F-H12RCC, FL1F-B12RCC only) | | 1kV (power line) normal 2kV (power line) common | IEC61000-4-5 |
| Communication Cable | | 2.5mm ² (one wire) 1.5mm ² (two wires) | — |
| Terminal Style | | Finger-safe type ² | — |

1: For protection against surge noise on DC power supply types (FL1F-H12RCE/B12RCE, FL1F-H12SCD, FL1F-H12RCA/B12RCA), use surge absorbers, noise cut transformers or noise filters. Use of a surge protection device (DEHN + SÖHNE GmbH + Co, BVT AD 24 Part No. 918 402) is recommended.

2: Tightening torque 0.5 to 0.6N·m

PRODUCT DESCRIPTION

With an ever-changing market and tough competition, you need an edge to stay on top. This sixth-generation IDEC SmartRelay meets your demands from all small-scale applications by offering more powerful hardware, a new display and full communication options via Ethernet.

BASE MODULE HIGHLIGHTS

Embedded RJ45 Ethernet Port

- Remote program download, upload and monitor
- Integrated web server for remote monitoring and control

Micro SD Card

- Equipped with micro SD slot for program storage, transfer and data logging
- No need for a special memory cartridge

Data Logging

- Up to 20,000 lines in a file with a maximum of 50 files can be stored in the Micro SD Memory card

Integrated Web Server

- Easily monitor and control web pages with no HTML knowledge
- Instant monitoring and control using standard web browser like Chrome, IE and Firefox
- View and control I/O status, timer, counters, analog set point and more

There's an App for that!

- Download iOS and Android App for free
- Using the SmartRelay App, users can view and control any I/O status, timer, counters, and analog set point anywhere and at any time

1:N Communication

- FL1F SmartRelays now have the capability to communicate with each other over an Ethernet network
- Up to 16 FL1F SmartRelays can be configured on the network



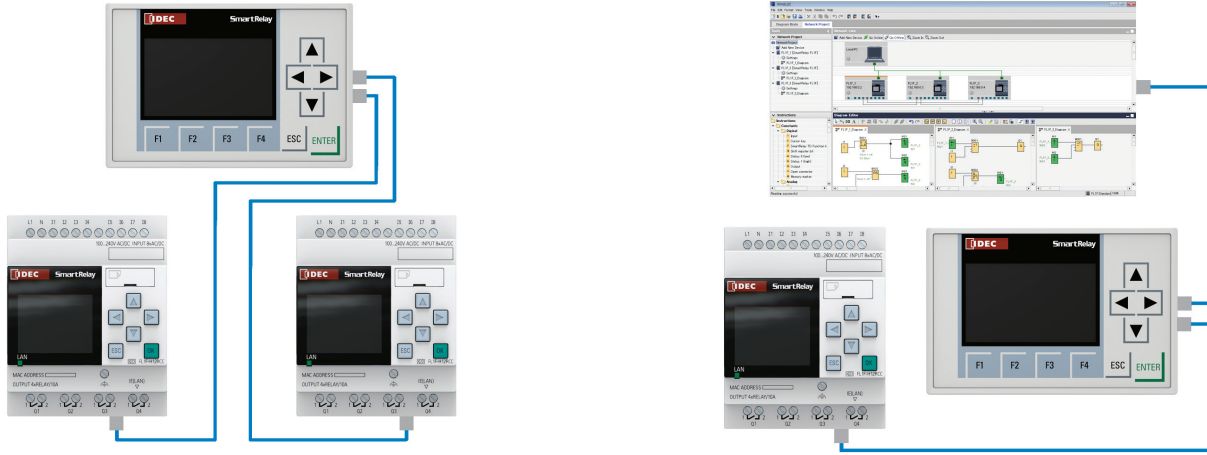
TEXT DISPLAY PANEL HIGHLIGHTS:

New and improved LCD display

- Improved display with 6 lines and 20 characters per line, more than twice as many characters as before
- Selectable white, amber or red backlighting for optical emphasis on alarms and events

Two RJ45 Ethernet ports

- Use a standard Ethernet cable to connect FL1F base module to the Text Display Panel. A special cable is not required.
- Provide different ways to connect



TEXT DISPLAY SPECIFICATIONS

Text Display General Specifications

| Item | Specifications | Standard |
|--|---|---|
| Operating Temperature | Horizontal Mounting | Cold: IEC60068-2-1 Hot: IEC60068-2-2 |
| | Vertical Mounting | |
| Storage/Transportation Temp. | -40 to +70°C (no freezing) | — |
| Relative Humidity | 10 to 95% (no condensation) | IEC60068-2-30 |
| Atmospheric Pressure | 795 to 1080hPa | — |
| Operating Condition | No corrosive gas | — |
| Degree of Protection | IP20 | — |
| Vibration Resistance | 5 to 8.4Hz, amplitude 3.5mm | IEC60068-2-6 |
| | 8.4 to 150Hz, acceleration 9.8m/s ² | |
| Shock Resistance | 147m/s ² | IEC60068-2-27 |
| Drop Test (packaged) | 0.3m | IEC60068-2-32 |
| Emissions | Limit class B Group 1 | EN55011/A EN55022/B EN50081-1 |
| Electrostatic Discharge Immunity | 8kV air discharge 6kV contact discharge | IEC61000-4-2 |
| Radiation Field Immunity | Field Strength: 1V/m and 10V/m | IEC61000-4-3 |
| Fast Transient Burst | 2kV (power line) 2kV (I/O signal line) | IEC61000-4-4 |
| Surge Immunity ¹ (FL1F-H12RCC, FL1F-B12RCC only) | 1kV (power line) normal 2kV (power line) common | IEC61000-4-5 |
| Communication Cable | 2.5mm ² (one wire) 1.5mm ² (two wires) | — |
| Terminal Style | Finger-safe type ² | — |

¹ For protection against surge noise on DC power supply types (FL1F-H12RCE/B12RCE, FL1F-H12SCD, FL1F-H12RCA/B12RCA), use surge absorbers, noise cut transformers, or noise filters. Use of a surge protection device (DEHN + SÖHNE GmbH + Co, BVT AD 24 Part No. 918 402) is recommended.

² Tightening torque 0.5 to 0.6N·m

Text Display General Specifications Cont.

| | |
|------------------------|---|
| Dimensions (W × H × D) | 128.2 × 86 × 38.7 mm |
| Weight (approx.) | 220g |
| Installation | Panel cut-out using mounting clips |
| Keyboard | Membrane keypad |
| Display | FSTN graphic display (W × H: 160 × 96 dots) LED backlight (White, Amber, Red) |
| Font type | English, Spanish, Russian, Chinese, Italian, Turkish, German, Dutch, French, Japanese |
| Displayable string | 1 screen 6 lines × 20 columns |

Power Supply Specifications

| | |
|-----------------------------|--|
| Power Voltage | 24V AC/DC 12V DC |
| Allowable Voltage Range | 20.4 to 26.4V AC 10.2 to 28.8V DC |
| Allowable Voltage Frequency | 47 to 63Hz |
| Power Consumption | 12V DC: 145mA (Typ.) 24V DC: 70mA (Typ.) 24V AC: 75mA (Typ.) |
| Data Transmission Rate | 10/100M full/half duplex data transmission rate |

LCD Display / Backlight Specifications

| | |
|-------------------------------------|--------------|
| LCD Display Durability ³ | 50,000 hours |
| Backlight Durability ⁴ | 20,000 hours |

³ Display durability is calculated under ordinary operating and storage conditions: room temperature, normal humidity below 65% RH, and not subjected to direct sunlight.

⁴ Backlight durability is the number of hours taken for the light to become 50% of the original brightness.

PART NUMBERS

Base Module

| Rated Power Voltage | Input Signal | Output Signal | Display | Clock | I/O Points | Weight (approx.) | Part No. |
|---------------------|--|---------------|---------|-------|------------|------------------|-------------|
| 24V DC | DC I1, I2, I7 and I8 are used for digital/ analog inputs | Transistor | Yes | Yes | 8/4 points | 195g | FL1F-H12SCD |
| 12/24V DC | | Relay | Yes | Yes | 8/4 points | 240g | FL1F-H12RCE |
| | | | — | | | 200g | FL1F-B12RCE |
| 24V AC/DC | AC/DC ¹ | Relay | Yes | Yes | 8/4 points | 240g | FL1F-H12RCA |
| — | | | 200g | | | FL1F-B12RCA | |
| 100 to 240V AC/DC | AC/DC | Relay | Yes | Yes | 8/4 points | 240g | FL1F-H12RCC |
| | | | — | | | 200g | FL1F-B12RCC |

¹ With NPN/PNP sensor input. For details, see Input Internal Circuits in the Specifications table.

Expansion I/O Module

| Type | Rated Power Voltage | Input Signal | Output Signal | I/O Points | Weight (approx.) | Part No. |
|---------------|------------------------|--------------------|---------------|------------|------------------|--------------|
| Input/Output | 24V DC | DC | Transistor | 4/4 points | 95g | FL1F-M08B1S2 |
| | 12/24VDC | DC | Relay | 4/4 points | 130g | FL1F-M08B2R2 |
| | 24V AC/DC ² | AC/DC ² | Relay | 4/4 points | 130g | FL1F-M08D2R2 |
| | 100 to 240V AC/DC | AC/DC | Relay | 4/4 points | 130g | FL1F-M08C2R2 |
| Analog Input | 12/24V DC | Analog | — | 2/0 points | 95g | FL1F-J2B2 |
| Analog Output | 24V DC | — | Analog | 0/2 points | 95g | FL1F-K2BM2 |

² With NPN/PNP sensor input. For details, see Input Internal Circuits in the Specifications table.

I/O points within the maximum number of expandable I/O points can be used.

When using modules of the same power voltage, supply power to the base module and expansion I/O modules using one power supply.

When power is supplied to the modules from different power supplies, the fast transient burst is 1 kV (IEC61000-4-4).

Text Display

| Rated Power Voltage | Weight (approx.) | Part Number | Remarks |
|---------------------|------------------|-------------|--|
| 24V AC/DC 12V DC | 220g | FL1F-RD1 | Supplied with mounting clip and gasket |

Options

| Description | Part Number | Package Quantity | Remarks |
|--|---------------|------------------|--|
| Application Software: WindLGC | FL9Y-LP1CDW | 1 | DVD-ROM (incl. online help manual) |
| Mounting Clip for Base Module | FL1F-PSP1PN05 | 5 | Supplied with a module ³ |
| Mounting Clip and Waterproof Gasket for Text Display | FL1F-KW1 | 1 | Supplied with text display ⁴ |
| IDEC SmartRelay User's Manual (English) | FL9Y-B1789 | 1 | Downloadable from: http://www.idec.com/download |

³ Supplied with a base module and an expansion module.

⁴ Supplied with a text display, it includes a gasket, four mounting clips, and a power supply connector.

NEW FUNCTION BLOCKS

NEW
Analog filter

NEW
Astronomical clock

NEW
Max/Min

NEW
Stopwatch

NEW
Average value

BASE MODULE SPECIFICATIONS

| Base Module Type No. | | FL1F-H12SCD | FL1F-H12RCE FL1F-B12RCE | FL1F-H12RCA FL1F-B12RCA | FL1F-H12RCC FL1F-B12RCC | |
|--------------------------|--|--|---|---|---|-----------------------------|
| Power Supply | Rated Power Voltage | 24V DC | 12/24V DC | 24V AC/DC | 100 to 240V AC/DC | |
| | Allowable Voltage Range | 20.4 to 28.8V DC | 10.8 to 28.8V DC | 20.4 to 26.4V AC 20.4 to 28.8V DC | 85 to 265V AC 100 to 253V DC | |
| | Rated Frequency | — | — | 47 to 63Hz | 47 to 63Hz | |
| | Current Draw | 15 to 50 mA (24V DC) 1.2A (with max. load on digital output) | 30 to 140 mA (12V DC) 15 to 90 mA (24V DC) | 15 to 150mA (12V DC) 15 to 130mA (24V DC) | 15 to 40mA (100V AC) 5 to 10mA (100V DC) 15 to 25mA (240V AC) 2 to 8mA (240V DC) | |
| | Allowable Momentary Power Interruption | — | 2ms Typ. (12V DC) 5ms Typ. (24V DC) | 5ms Typ. (24V AC/DC) | 10ms Typ. (100V AC/DC) 20ms Typ. (240V AC/DC) | |
| | Power Consumption | 1.2 W (24V DC) | 1.7W (12V DC) 2.2W (24V DC) | 3.6 W (24V AC) 3.2 W (24V DC) | 4.6W (100V AC) 1.2W (100V DC) 6.0W (240V AC) 2.0W (240V DC) | |
| | Reverse Polarity Protection | Yes | Yes | — | — | |
| Clock | Backup Duration | 20 days | 20 days | 20 days | 20 days | |
| | Clock Accuracy | ±2 sec/day (Typ.) | ±2 sec/day (Typ.) | ±2 sec/day (Typ.) | ±2 sec/day (Typ.) | |
| Input | Input Signal | DC | DC | AC/DC | AC/DC | |
| | Input Points | 8 (I1 to I8) | 8 (I1 to I8) | 8 (I1 to I8) | 8 (I1 to I8) | |
| | High-speed Input ¹ | 4 (I3, I4, I5, I6), 5kHz maximum | 4 (I3, I4, I5, I6), 5kHz maximum | — | — | |
| | Analog Input Points | 4 (I1, I2, I7, I8) | 4 (I1, I2, I7, I8) | — | — | |
| | Analog Input Range | 0 to 10V DC (max. rated input: 28.8V DC) | 0 to 10V DC (max. rated input: 28.8V DC) | — | — | |
| | Analog Input Error | ±1.5 (of full scale) | ±1.5 (of full scale) | — | — | |
| | Analog Input Resolution | 10 bits (0 to 1000) | 10 bits (0 to 1000) | — | — | |
| | Cycle time | 300ms | 300ms | 300ms | 300ms | |
| | Allowable Voltage Range | 0 to 28.8V DC | 0 to 28.8V DC | 0 to 26.4V AC 0 to 28.8V DC | 0 to 265V AC 0 to 253V DC | |
| | Input Impedance | Digital Input | 5.8kΩ | 5.8kΩ | 4.8kΩ | 610kΩ |
| | | Analog Input | 72kΩ | 72kΩ | — | — |
| | Isolation | — | — | — | — | |
| | Operating Range | OFF Voltage | < 5V DC | < 5V DC | < 5V AC/DC | < 40V AC < 30V DC |
| | | ON Voltage | ≥ 12V DC | ≥ 8.5 V DC | ≥ 12V AC/DC | ≥ 79V AC ≥ 79V DC |
| | | OFF Current | < 0.9mA (I3 to I6) < 0.07mA (I1, I2, I7, I8) | < 0.88mA (I3 to I6) < 0.07mA (I1, I2, I7, I8) | < 1.2mA | < 0.05mA (AC) < 0.06mA (DC) |
| | | ON Current | ≥ 2.1mA (I3 to I6) ≥ 0.18mA (I1, I2, I7, I8) | ≥ 1.5mA (I3 to I6) ≥ 0.12mA (I1, I2, I7, I8) | ≥ 2.6mA | ≥ 0.08mA (AC) ≥ 0.13mA (DC) |
| | Turn ON Time | 1.5ms (Typ.) ≤ 1.0ms (I3 to I6) | 1.5ms (Typ.) ≤ 1.0ms (I3 to I6) | 1.5ms (Typ.) | 100V AC: 40ms (Typ.) 240V AC: 30ms (Typ.) 100V DC: 25ms (Typ.) 240V DC: 20ms (Typ.) | |
| Turn OFF Time | 1.5ms (Typ.) ≤ 1.0ms (I3 to I6) | 1.5ms (Typ.) ≤ 1.0ms (I3 to I6) | 15ms (Typ.) | 100V AC: 45ms (Typ.) 240V AC: 70ms (Typ.) 100V DC: 60ms (Typ.) 240V DC: 75ms (Typ.) | | |
| Wire Length ² | 100m | 100m | 100m | 100m | | |
| Output | Output Signal | Transistor source output | Relay output | Relay output | Relay output | |
| | Output Points/ Contact Configuration | 4 points (separate) | 4NO contacts | 4NO contacts | 4NO contacts | |
| | Isolation | — | Isolated | Isolated | Isolated | |
| | Dielectric Strength (between power/input terminals and output terminals) | — | 2500V AC, 1 minute 500V DC, 1 minute | 2500V AC, 1 minute 500V DC, 1 minute | 2500V AC, 1 minute 500V DC, 1 minute | |
| | Output Voltage | External power voltage | — | — | — | |
| | Maximum Load Current | 0.3A maximum | Resistive load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC | Resistive load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC | Resistive load 10A at 12/24V AC/DC 10A at 100/120V AC 10A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC | |
| | Surge Current | — | 30A maximum | 30A maximum | 30A maximum | |
| | Short-circuit Protection | Built-in current limiting resistor: Approx. 1A | External fuse required: 16A maximum | External fuse required: 16A maximum | External fuse required: 16A maximum | |
| | Minimum Switching Load | — | 10mA, 12V DC (reference value) | 10mA, 12V DC (reference value) | 10mA, 12V DC (reference value) | |
| | Initial Contact Resistance | — | 100mΩ maximum (at 1A, 24V DC) | 100mΩ maximum (at 1A, 24V DC) | 100mΩ maximum (at 1A, 24V DC) | |
| | Mechanical Life | — | 10 million operations (no load, 10Hz) | 10 million operations (no load, 10Hz) | 10 million operations (no load, 10Hz) | |
| Electrical Life | — | 100,000 operations (rated resistive load) 1800 operations/hour | 100,000 operations (rated resistive load) 1800 operations/hour | 100,000 operations (rated resistive load) 1800 operations/hour | | |

1 When selecting frequency trigger function and up/down counter function.

2 10m when connected to analog input (twisted pair cable)

Initialization Time: After power-up, the FL1F takes a maximum of 9 seconds (when using a micro SD card) for initialization. When initialization is complete, the FL1F is automatically set to RUN mode.

EXPANSION I/O MODULE SPECIFICATIONS

| Expansion I/O Module Type No. | | FL1F-M08B1S2 | FL1F-M08B2R2 | FL1F-M08D2R2 | FL1F-M08C2R2 | FL1F-J2B2 | FL1F-K2BM2 | |
|-------------------------------------|--|--|--|--|--|--|--|---|
| Power Supply | Rated Power Voltage | 24V DC | 12/24V DC | 24V AC/DC | 100 to 240V AC/DC | 12/24V DC | 24V DC | |
| | Allowable Voltage Range | 20.4 to 28.8V DC | 10.8 to 28.8V DC | 20.4 to 26.4V AC 20.4 to 28.8V DC | 85 to 265V AC 100 to 253V DC | 10.8 to 28.8V DC | 20.4 to 28.8V DC | |
| | Rated Frequency | — | — | 50/60Hz (47 to 63Hz) | 50/60Hz (47 to 63Hz) | — | — | |
| | Current Draw | 15 to 40mA | 10 to 80mA (12V DC) 10 to 40mA (24V DC) | 20 to 100mA (24V AC) 8 to 50mA (24V DC) | 10 to 30mA (100V AC) 10 to 20mA (240V AC) 5 to 15mA (100V DC) 5 to 10mA (240V DC) | 15 to 30mA | 15 to 82mA | |
| | Allowable Momentary Power Interruption | — | 2 ms (typ.) (12V DC) 5 ms (typ.) (24V DC) | 5 ms (typ.) (24V AC/DC) | 10ms (typ.) (100V AC/DC) 20ms (typ.) (240V AC/DC) | 10ms (typ.) (12/24V DC) | 10ms (typ.) | |
| | Power Consumption | 1.0W | 1.0W (12V DC) 1.0W (24V DC) | 2.4W (24V AC) 1.2W (24V DC) | 3.5W (100V AC) 1.8W (100V DC) 4.8W (240V AC) 2.4W (240V DC) | 0.4W (12V DC) 0.8W (24V DC) | 2.0W | |
| | Reverse Polarity Protection | Yes | Yes | — | — | Yes | Yes | |
| Input | Input Signal | DC input | DC input | AC/DC input | AC/DC input | Analog input | — | |
| | Input Points | 4 | 4 | 4 | 4 | — | — | |
| | Isolation | — | — | — | — | — | — | |
| | Allowable Voltage Range | 20.4 to 28.8V DC | 10.8 to 28.8V DC | 20.4 to 26.4V AC 20.4 to 28.8V DC | 85 to 265V AC 100 to 253V DC | — | — | |
| | Operating Range | OFF Voltage | < 5V DC | < 5V DC | < 5V AC/DC | < 40V AC < 30V DC | — | — |
| | | ON Voltage | ≥ 12V DC | ≥ 8.5V DC | ≥ 12V AC/DC | ≥ 79V AC ≥ 79V DC | — | — |
| | | OFF Current | < 0.88mA | < 0.88mA | < 1.1mA | < 0.05mA (AC) < 0.06mA (DC) | — | — |
| | | ON Current | ≥ 2.1mA | ≥ 1.5mA | ≥ 2.63mA | ≥ 0.08mA (AC) ≥ 0.13mA (DC) | — | — |
| | Turn ON Time | 1.5ms (Typ.) | 1.5ms (typ.) | 1.5ms (typ.) | 100V AC: 40 ms (typ.) 240V AC: 30 ms (typ.) 100V DC: 25 ms (typ.) 240V DC: 20 ms (typ.) | — | — | |
| | Turn OFF Time | 1.5ms (Typ.) | 1.5ms (typ.) | 15ms (typ.) | 100V AC: 45 ms (typ.) 240V AC: 70 ms (typ.) 100V DC: 60 ms (typ.) 240V DC: 75 ms (typ.) | — | — | |
| | Analog Input Points | — | — | — | — | 2 | — | |
| | Analog Input Range | — | — | — | — | 0 to 10V (max. rated input: 28.8V) 0 to 20mA (max. rated input: 40mA) | — | |
| | Digital Resolution | — | — | — | — | 10 bits (0 to 1000) | — | |
| Input Error | — | — | — | — | ±1.5% (of full scale) | — | | |
| Input Impedance | — | — | — | — | 76kΩ (0 to 10V) 250Ω (0 to 20mA) | — | | |
| Sampling Cycle | — | — | — | — | 50ms | — | | |
| Output | Wire Length | 100m | 100m | 100m | 100m | 10m (twisted-pair shielded cable) | — | |
| | Output Signal | Transistor source output | Relay output | Relay output | Relay output | — | — | |
| | Output Points/ Contact Configuration | 4 points (separate) | 4NO contacts | 4NO contacts | 4NO contacts | — | — | |
| | Isolation | — | Isolated | Isolated | Isolated | — | — | |
| | Dielectric Strength (between power/input terminals and output terminals) | — | 2500V AC, 1 minute 500V DC, 1 minute | 2500V AC, 1 minute 500V DC, 1 minute | 2500V AC, 1 minute 500V DC, 1 minute | — | — | |
| | Output Voltage | External power voltage (20.4 to 28.8V DC) | — | — | — | — | — | |
| | Maximum Load Current | 0.3A maximum | Resistive load 5A at 12/24V AC/DC 5A at 100/120V AC 5A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC | Resistive load 5A at 12/24V AC/DC 5A at 100/120V AC 5A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC | Resistive load 5A at 12/24V AC/DC 5A at 100/120V AC 5A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC Inductive load 2A at 12/24V AC/DC 3A at 100/120V AC 3A at 230/240V AC 0.2A at 120V DC 0.1A at 240V DC | — | — | |
| | Short-circuit Protection | Built-in current limiting resistor: Approx. 1A | External fuse required: 16A maximum | External fuse required: 16A maximum | External fuse required: 16A maximum | — | Yes | |
| | Minimum Switching Load | — | 10mA, 12V DC (reference value) | 10mA, 12V DC (reference value) | 10mA, 12V DC (reference value) | — | — | |
| | Initial Contact Resistance | — | 100mΩ maximum (at 1A, 24V DC) | 100mΩ maximum (at 1A, 24V DC) | 100 mΩ maximum (at 1A, 24V DC) | — | — | |
| | Mechanical Life | — | 10 million operations (no load, 10Hz) | 10 million operations (no load, 10Hz) | 10 million operations (no load, 10Hz) | — | — | |
| | Electrical Life | — | 100,000 operations (rated resistive load) 1800 operations/hour | 100,000 operations (rated resistive load) 1800 operations/hour | 100,000 operations (rated resistive load) 1800 operations/hour | — | — | |
| | Analog Output Points | — | — | — | — | — | 2 | |
| | Analog Output Range | — | — | — | — | — | Voltage: 0-10V DC Current: 0-20, 4-20 mA | |
| | Digital Resolution | — | — | — | — | — | 10 bits (0 to 1000) | |
| | Output Error (of full scale) | — | — | — | — | — | Voltage output: ±2.5% Current output: ±3% | |
| Output Impedance | — | — | — | — | — | Voltage: 5kΩ min Current: 250Ω max | | |
| Analog Value Conversion Interval | — | — | — | — | — | 50ms (typ.) | | |
| Wire Length | — | — | — | — | — | 10m (twisted-pair shielded cable) | | |

