

General Specifications

Model ML2 RS232C/RS485 Converter

JUXTA

GS 77J04L02-01E

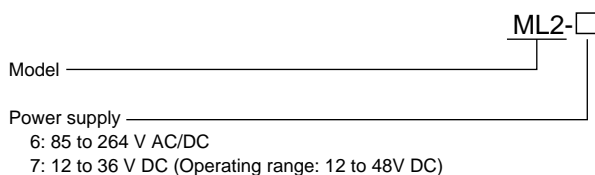
General

This plug-in type RS-232C/RS-485 dual directional (half duplex) converter has two ports of RS-232C and RS-485. Between these two ports, isolation, level conversion and active control of driver are performed. This converter is mainly used to connect RS-232C of personal computer with the instruments equipped with RS-485.

Main Features and Functions

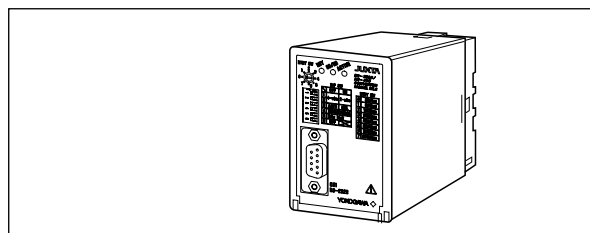
- Two modes (Auto and Manual) for Active control of RS-485 driver can be selected with the DIP switch.
 - Auto: When start bit is detected on RS-232C side, the converter makes RS-485 driver active.
 - Manual: Active control of RS-485 driver depends on RS (Request to Send) of outer set instrument connected with RS-232C.
- For RS-485, 2-wire or 4-wire can be selected by DIP switch. And for 2-wire, On/Off of Echo back function can be selected by DIP switch. (For 4-wire, be sure to set Echo back function at Off.)
- RS-485 line is internally equipped with 220Ω terminating resistor. With or without the resistor can be selected with the DIP switch.
- A corresponding communication speed can be changed to eight stages and selected with the rotary switch. (38400, 19200, 9600, 4800, 2400, 1200, 600, 300 bps)

Model and Suffix Codes



Items to be Specified when Ordering

- Model and Suffix Codes: e.g. ML2-6



Communication Specifications

RS-232C Specifications

Interface: Conforms to RS-232C
 Transmit mode: Half duplex communication
 Synchronizing mode: Start-stop synchronizing mode
 Applicable transmit speed (bps): 38400, 19200, 9600, 4800, 2400, 1200, 600, 300
 CS (CTS) signal: Turned off when data is detected on RS-485 side.
 If no data is detected, CS (Clear to Send) signal is turned on again after elapsed time of 10 bits. However, if data of RS-232C is detected during elapsed time of 10 bits, CS (Clear to Send) signal is turned on immediately.

Rotary Switch No.	Transmit speed (bps)	Timer (ms)
0	300	33.3
1	600	16.7
2	1200	8.33
3	2400	4.17
4	4800	2.08
5	9600	1.04
6	19200	0.52
7	38400	0.26

Connector type: D-sub 9-pin (male)
 Recommended cable: Straight cable
 Terminal to connect: SD (TXD), RD (RXD), RS (RTS), CS (CTS), DR (DSR), CD (DCD), ER (DTR), SG (GND)
 Signal polarity: Start bit +12 V
 Stop bit -12 V
 Terminating resistor: None
 Transmit distance: Maximum 15 m

RS-485 Specifications

Interface: Conforms to RS-485

Transmit mode: Half duplex communication

Synchronizing mode: Start-stop synchronizing mode

Applicable transmit speed (bps): 38400, 19200, 9600, 4800, 2400, 1200, 600, 300

Active control of driver:

Auto: When start bit is detected on RS-232C side, the converter makes RS-485 driver active and transmits data received from RS-232C to RS-485. If no data is detected, the converter returns the driver to passive after elapsed time of 10 bits.

Manual: Active control of RS-485 driver depends on RS (Request to Send) of outer set instrument connected with RS-232C. When RS (Request to Send) is turned on, the converter makes RS-485 driver active and transmits data received from RS-232C to RS-485. When RS (Request to Send) is turned off, the converter returns the driver to passive.

Connection method: 8-pin terminal board (M3.5 screw terminal)

Recommended cable: 0.9 mm² or thicker of multicore twisted pair cable with a shield

Terminal to connect:

4-wire: RDA(-)/RDB(+)/SDA(-)/SDB(+)/SG

2-wire: A(-)/B(+)/SG

Signal polarity:

4-wire

Start bit: SDB(+) is minus side against SDA(-)
RDB(+) is minus side against RDA(-)

Stop bit: SDB(+) is plus side against SDA(-)
RDB(+) is plus side against RDA(-)

2-wire

Start bit: B(+) is minus side against A(-)

Stop bit: B(+) is plus side against A(-)

Terminating resistor: 220Ω (with/without resistor is selectable)

Transmit distance: Maximum 1.2 km

Standard Performance

Insulation resistance: 100 MΩ minimum at 500 V DC between RS-232C, RS-485, power supply and grounding terminals mutually

Withstanding voltage: 2000 V AC for one minute between RS-232C, RS-485, power supply and grounding terminals mutually

Operating temperature range: 0 to 50°C

Operating humidity range: 5 to 90% RH (no condensation)

Power supply rated voltage: 100 to 240 V AC_~, 50/60 Hz or 15 to 30 V DC₋₋₋

Power supply input voltage: 100 to 240 V AC_~ (-15%, +10%), 50/60 Hz or 15 to 30 V DC₋₋₋ (±20%)

Power consumption:

2.6 W at 24 V DC; 2.5 W at 110 V DC;

5.0 VA at 100 V AC; 6.8 VA at 200 V AC

Switch Setting

No.	Setting	OFF	ON
1	2-wire/4-wire	4-wire	2-wire
2			
3	Driver active	Auto	Manual
4	Terminating resistor	Without	With
5	Echo back	OFF	ON
6	Fixed to OFF	OFF	-

Switch setting when shipment from factory

- 2-wire/4-wire select switch: ON (2-wire)
- Terminating resistor select switch: ON
- Driver active switch: OFF (Auto)
- Echo back switch: OFF (echo back Off)
- Rotary switch: No.5 (for 9600 bps)

LED Display

RDY: Lit in green while the power is turned on

SD/RD: Lit in green when data is received in RXD of RS-232C side

DRIVER ACTIVE: Lit in green while the driver is active

Mounting and Appearance

Material: Case body; ABS resin (black), UL94 V-0 Socket; Modified polyphenylene oxide, including glass fiber (black), UL94 V-1

Mounting method: Wall or DIN rail mounting

More than 5 mm interval is required for side-by-side close mounting.

Connection method:

RS-232C D-sub 9-pin (male)

RS-485 M3.5 screw terminal

External dimensions: 86.5 (H)×51 (W)×127.9 (D) mm (including a socket)

Weight: Approx. 250 g (including 60g of socket)

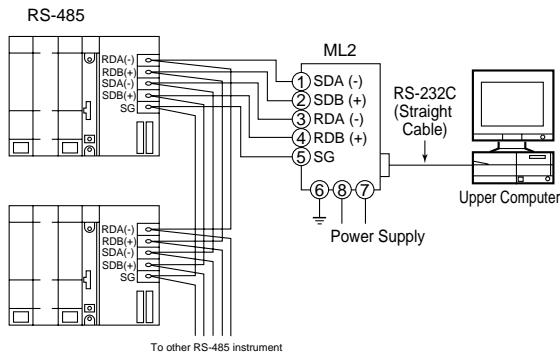
Accessories

Spacer: One (used for DIN rail mounting)

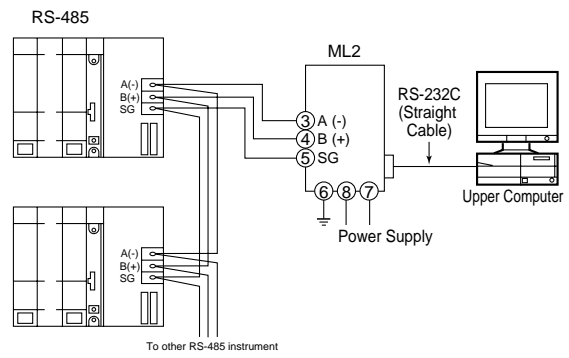
Tag number labels: One sheet

System Configuration

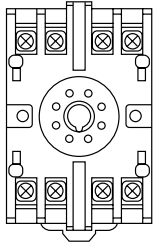
4-wire



2-wire

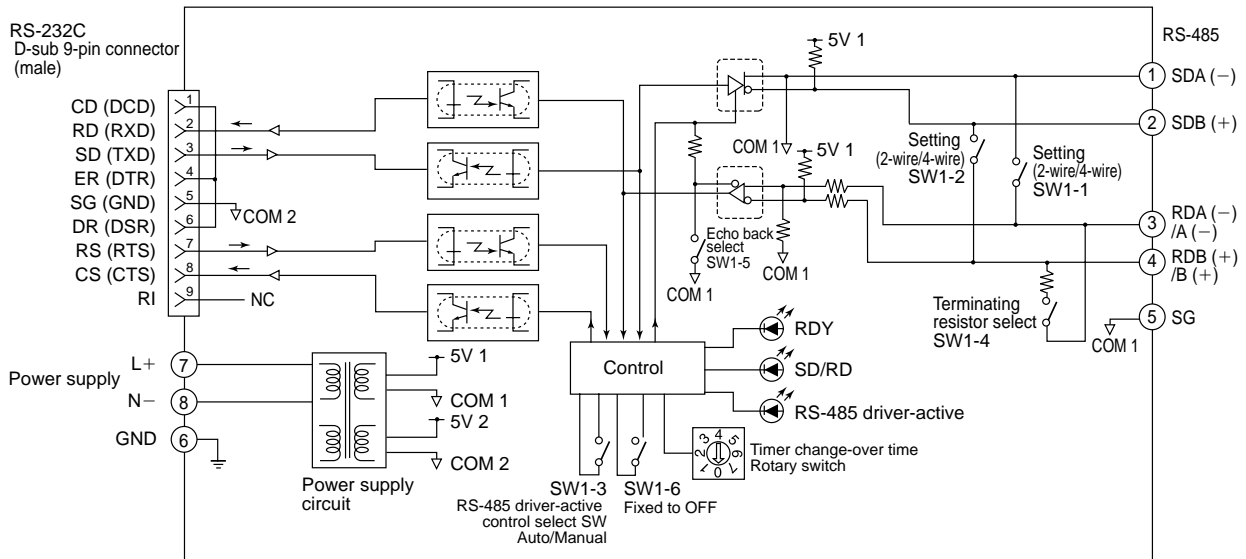


Terminal Assignments



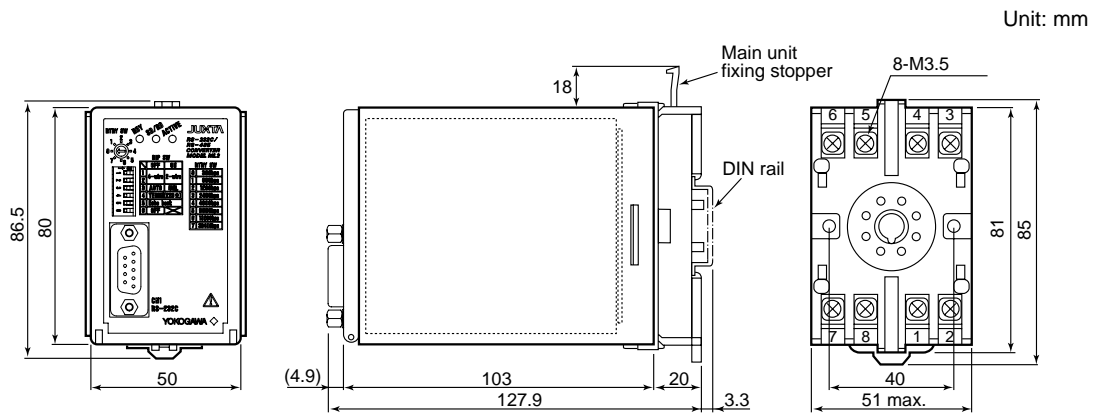
1	SDA (-)	RS-485
2	SDB (+)	
3	SDA (-) / A (-)	
4	SDB (+) / B (+)	
5	SG	SUPPLY
6	GND	
7	L+	
8	N-	

Block Diagrams

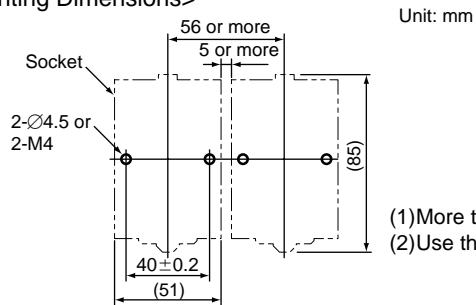


For 2-wire: Turn on the SW1-1 and SW1-2 to short-circuit, then connect cables to the terminals 3, 4, and 5.
 For 4-wire: Turn off the SW1-1 and SW1-2 to open circuit, then connect cables to the terminals 1, 2, 3, 4, and 5.

External Dimensions



<Mounting Dimensions>



- (1) More than 5 mm interval is required for side-by-side close mounting.
- (2) Use the supplied spacer for DIN rail mounting to keep 5 mm interval.

• The information covered in this document is subject to change without notice for reasons of improvements in quality and/or performance.