

**TELEMETERING UNIT**  
(each 8 points of analog & digital I/O)MODEL **DLS-S1****BEFORE USE ....**

Thank you for choosing us. Before use, please check contents of the package you received as outlined below.

If you have any problems or questions with the product, please contact our sales office or representatives.

**■ PACKAGE INCLUDES:**

Telemetering unit..... (1)

**■ MODEL NO.**

Confirm Model No. marking on the product to be exactly what you ordered.

**■ INSTRUCTION MANUAL**

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

**POINTS OF CAUTION****■ POWER INPUT RATING & OPERATIONAL RANGE**

- Locate the power input rating marked on the product and confirm its operational range as indicated below:  
85 – 132V AC rating: 85 – 132V,  
47 – 66 Hz, approx. 17.5VA max.  
170 – 264V AC rating: 170 – 264V,  
47 – 66 Hz, approx. 17.5VA max.  
12V DC rating: 12V±10%, approx. 17W max.  
24V DC rating: 24V±10%, approx. 17W max., approx. 1.1A

**■ ENVIRONMENT**

- Indoor use
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -5 to +50°C (23 to 122°F) with relative humidity within 30 to 95% RH in order to ensure adequate life span and operation.

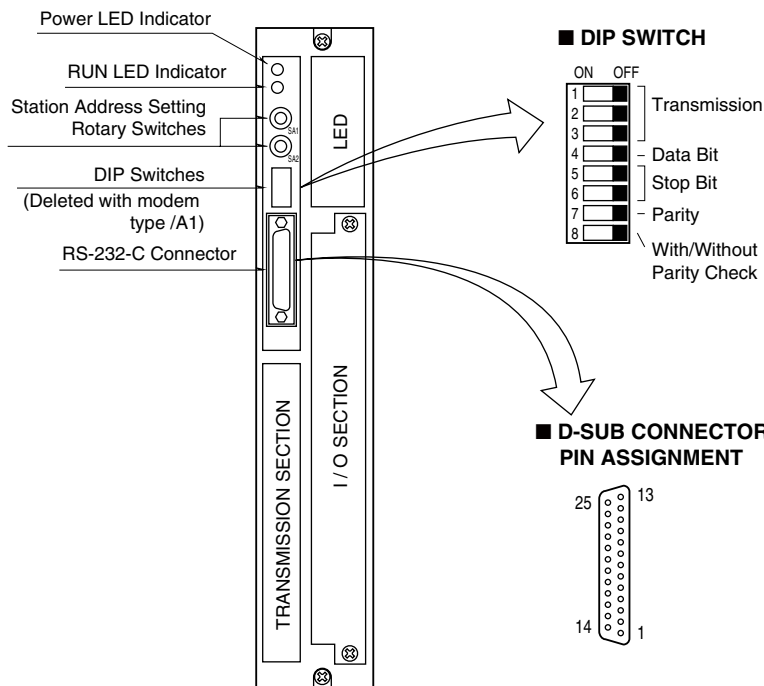
**■ WIRING**

- Do not install cables (power supply, communication) close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

**■ AND ....**

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

# COMPONENT IDENTIFICATION



SWITCH NO.	TRANSMISSION SPEED (BPS)					
	300	600	1200	2400	4800	9600
1	OFF	OFF	OFF	OFF	ON	ON
2	OFF	OFF	ON	ON	OFF	OFF
3	OFF	ON	OFF	ON	OFF	ON

SWITCH NO.	7 BITS	8 BITS
4	OFF	ON

SWITCH NO.	1	1.5	2
5	OFF	ON	OFF
6	ON	OFF	ON

SWITCH NO.	ODD	EVEN
7	OFF	ON

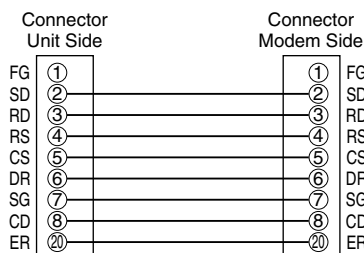
SWITCH NO.	WITHOUT	WITH
8	OFF	ON

### MODEM SETTING

Set the DIP SW for the model suffix codes: /M3x, /M4x, /M5x, /M6x. (x = A or B)

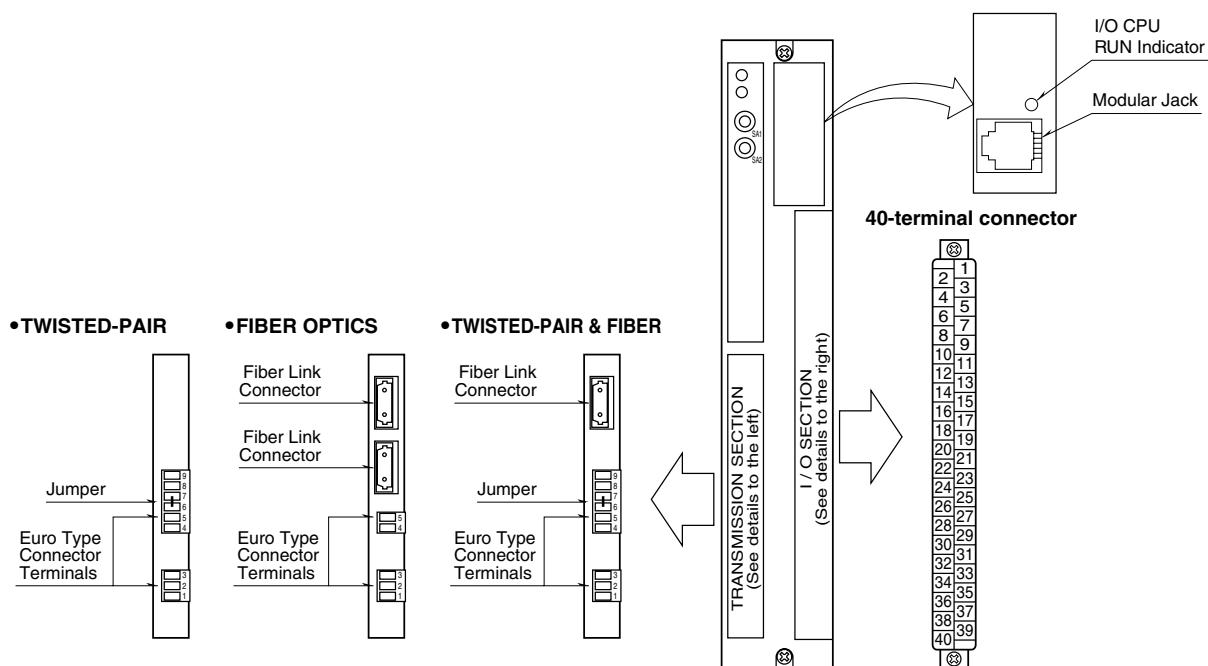
SWITCH NO.	MODEM TYPE			
	/M3x	/M4x	/M5x	/M6x
1	OFF	OFF	OFF	OFF
2	ON	OFF	ON	ON
3	OFF	OFF	OFF	ON
4	ON	ON	ON	ON
5	ON	ON	ON	OFF
6	ON	ON	ON	ON
7	OFF	OFF	OFF	ON
8	OFF	ON	ON	ON

### RS-232-C Connection Example (straight type cable)



Use straight type cable as in the diagram above.

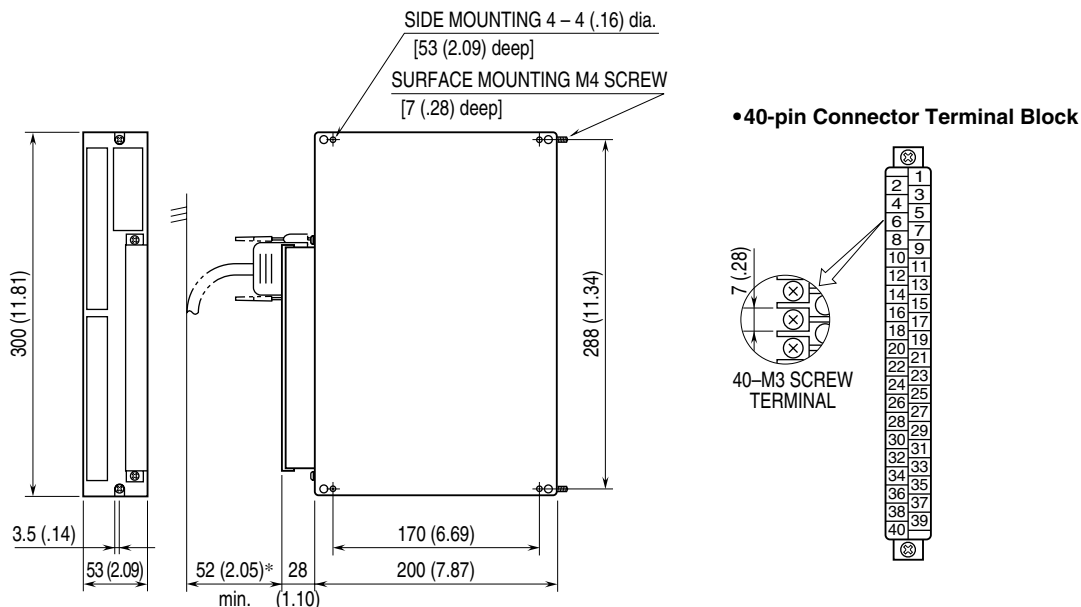
### MULTIPLEX COMMUNICATION, PROCESS I/O, I/O INDICATOR LEDS



## CONNECTIONS

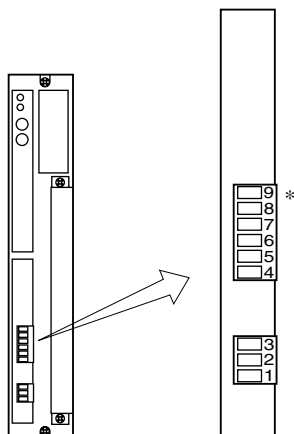
Make wiring to terminals as shown in the figure below.

### ■ DIMENSIONS unit: mm (inch)

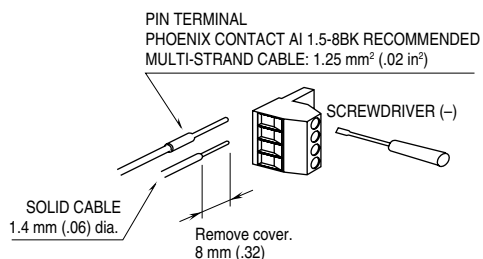


\*Dimension of the cable attached to our modem.

### • Terminal Assignment, Euro Type Connector Terminals



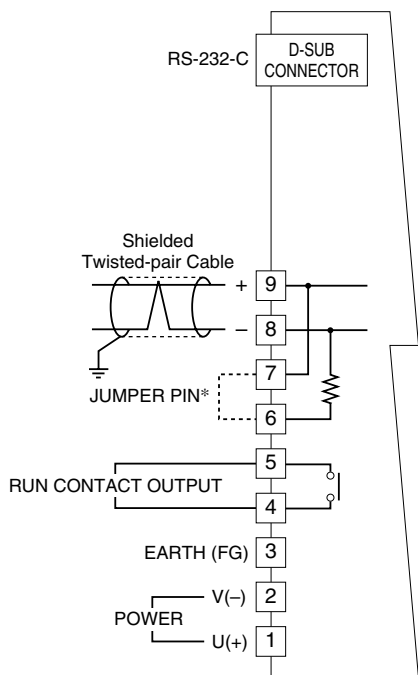
### • Wiring Procedure of Euro Type Connector Terminals



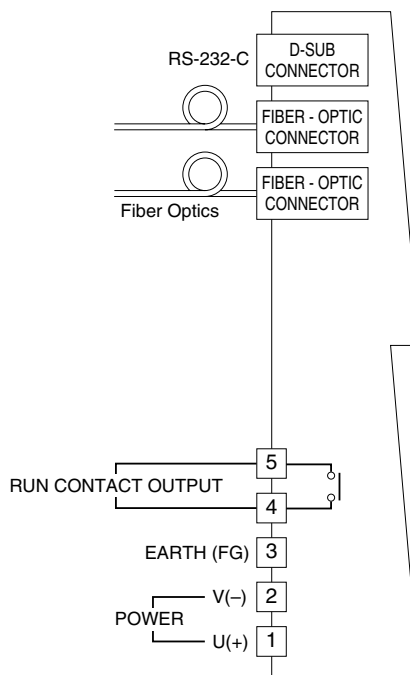
\*Not provided for fiber optics (Transmission media code 2)  
Note : There is no specific order for connecting fiber optics.

■ TERMINAL CONNECTIONS

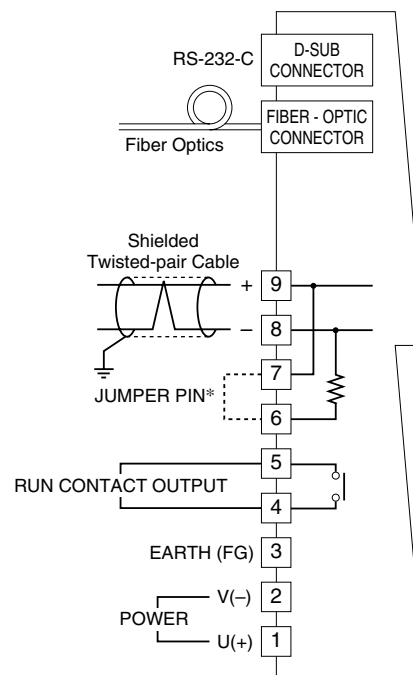
■ TWISTED-PAIR CABLE  
(transmission media code: 1)



■ FIBER OPTICS CABLE  
(transmission media code: 2)

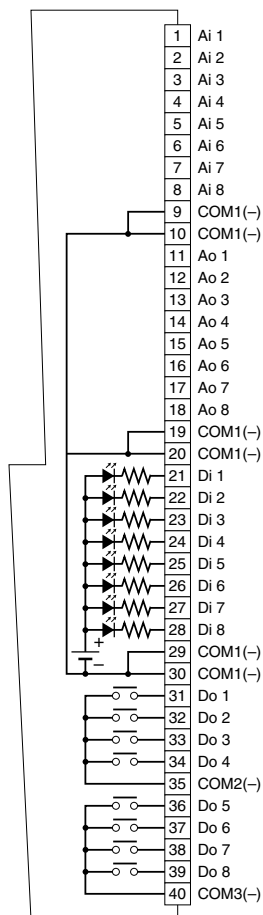


■ TWISTED-PAIR & FIBER OPTICS  
(transmission media code: 7)



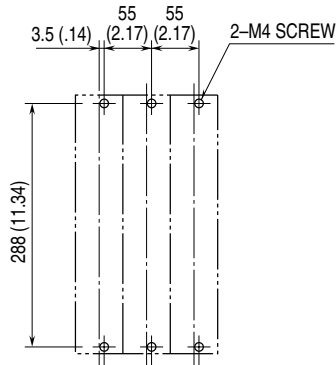
\*When the unit is located at the end of transmission line via twisted-pair cable (= no cross-wiring), short across the terminals 6 – 7 with the jumper pin (or wire) provided with the unit. Remove the jumper pin for all the unit not located at the end.

■ I/O TERMINAL CONNECTION

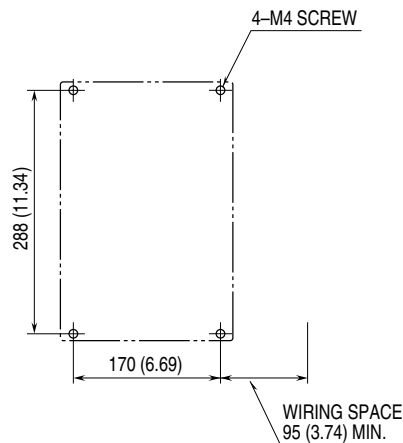


■ MOUNTING REQUIREMENTS

■ SURFACE MOUNTING



■ SIDE MOUNTING (terminal block at the right side)



- **Connecting to the Modem**

Use a straight-type RS-232-C cable.

- **Connection between the Modems**

Two-wire connection is to be used between the modems.

- **Connecting to the Power Source**

For models DLS-xS1xx-K or -L, connect an AC supply source across the terminal U and V.

For models DLS-xS1xx-S or -R, connect a DC supply source across the terminal U(+) and V(-).

- **Twisted-Pair Cable**

- 1) Use a cable at the minimum of 0.9 mm diameter.
- 2) Connect between the LINE terminal (+) and (+), (-) and (-) of the corresponding units.
- 3) Install transmission cables in a general instrumentation cable pit or rack, separate from those for power supply cables, in order to prevent noise interference.

- **Fiber Optics**

- 1) Connect a fiber link connector to Fiber Link terminal.
- 2) Observe an enough radius when bending fiber optics cables.
- 3) Follow installation instructions by the cable manufacturer.

- **Euro Type Connector Terminal**

Power supply, twisted-pair cable transmission line, RUN contact output are connected at the terminal block.

The terminal block is composed of the base connector and the removable plug. Clamp the cable with the screw in the clamping unit. Solid cables must be with a pin terminal. Stranded cables must be of 1.4 mm dia. at the maximum. DO NOT solder wires in stranded cables.

Refer to 'Terminal Assignment, Euro Type Connector Terminals' for connection of euro type connector terminal.

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## TERMINATING RESISTOR

A transmission line via twisted-pair cables needs to have terminating resistors in order to prevent the transmission waveform from reflecting at the ends of the line.

Each DLS unit incorporates a terminating resistor which is connected with a jumper across the terminating resistor terminals. When the system is composed of three or more units, remove the jumper from those which are not at the both ends of transmission line in order to disconnect the terminating resistors.

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## STATION ADDRESS

Station number (Station Address = SA) is selectable with the front accessed DIP rotary switches (SA1 and SA2), from 00H to FFH.

Assign an even number to one unit and assign the consecutive one to the paired unit.

For example, assign "02" and "03," or "1A" and "1B."

More than two units cannot be paired.

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## CHECKING

- 1) Check that all cables are correctly wired according to the connection diagram. Check polarity of the transmission cables and power supply cables.
- 2) Check Station Address.
- 3) Terminating resistor (required only for units at the both ends of transmission line)
- 4) Check the I/O signals.

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## LIGHTNING SURGE PROTECTION

In order to prevent lightning surges entering through power supply line and signal line, proper surge protection will be required. Specify our M-RESTER Series Lightning Surge Protectors.