User's
Manual

YEWSERIES 80

Installation Manual for Rack-Mounted Instruments

IM 1B4F2-01E

YOKOGAWA ◆
Yokogawa Electric Corporation

IM 1B4F2-01E
4th Edition

Notices

■ Regarding This User's Manual

(1) This manual should be passed on the end user. Keep at least one extra copy of the manual in a safe place.

(2) Read this manual carefully and fully understand how to operate this product before you start operation.

(3) This manual is intended to describe the functions of this product. Yokogawa Electric Corporation (hereinafter simply referred to as Yokogawa) does not guarantee that the functions will suit a particular purpose of the user.

(4) Under absolutely no circumstances may the contents of this manual in part or in whole be transcribed or copied without permission.

(5) The contents of this manual are subject to change without prior notice.

(6) Every effort has been made to ensure accuracy in the preparation of this manual. Should any error or omissions come to your attention however, please contact your nearest Yokogawa representative or our sales office.

■ Regarding Protection, Safety, and Prohibition against Unauthorized Modification

(1) In order to protect the product and the system controlled by it against damage and ensure its safe use, make certain that all of the instructions and precautions relating to safety contained in this manual are strictly adhered to. Yokogawa does not guarantee safety if products are not handled according to these instructions.

(2) Be sure to use the spare parts approved by Yokogawa when replacing parts or consumables.

(3) Modification of the product is strictly prohibited.

(4) Reverse engineering such as the disassembly or decompilation of software is strictly prohibited.

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(2) Yokogawa assumes no liability to any party for any loss or damage, direct or indirect, caused by the user or any unpredictable defect of the product.

CONTENTS

1. GENERAL.

YEWSERIES 80 rack-mounting instruments (see Table 1-1) can be installed individually or side-by-side with other instruments in a rack.

Only one type of rack case is provided for housing rack-mounting instruments, irrespective of the instrument specifications (with the exception of the SDND power supply unit's case). Accordingly, the cases can be prepared in advance before the instrument specifications have been determined. This considerably reduces the time required to have an operating instrumentation system.

This instruction manual explains the procedures for mounting the YEWSERIES 80 rack-mounting instruments in a panel and connecting the wires.

- For the operating procedure and the connections to the individual instruments, refer to the respective instruction manuals. Table 1-1 lists the IM number of the instruction manual for each instrument.
- For the installation environment, installation procedure and wiring procedure for the YEWSERIES 80 instruments, refer to Technical Information TI 1B4A9-01E (YEWSERIES 80/YEWPACK Installation Manual*).

Note: * This information does not accompany the product. It is available on request.

Table 1-1. YEWSERIES 80 Rack-Mounting Instruments.

Model	*Product Name and Instruction Manual Number*
STED	EMF- RTD-To-Voltage Converters(IM 1B4J1-01E)
SKYD	Alarm Unit (IM 1B4K1-01E)
SALD	EMF-and RTD-Input Alarm Units(IM 1B4K2-01E)
SPLR	Programmable Computing Unit (IM 1B4L3-01E)
SPCM	Pulse Computing Unit (IM 1B4L4-01E)
SIND	Integrator (IM 1B4M1-01E)
SISD	Isolator (IM 1B4N1-01E)
SDBT	Distributor (one and two points) (IM 1B4T1-01E)
SDBS	Distributor (four points) (IM 1B4T1-01E)
SDND	Power Supply Unit (IM 1B4T4-01E)

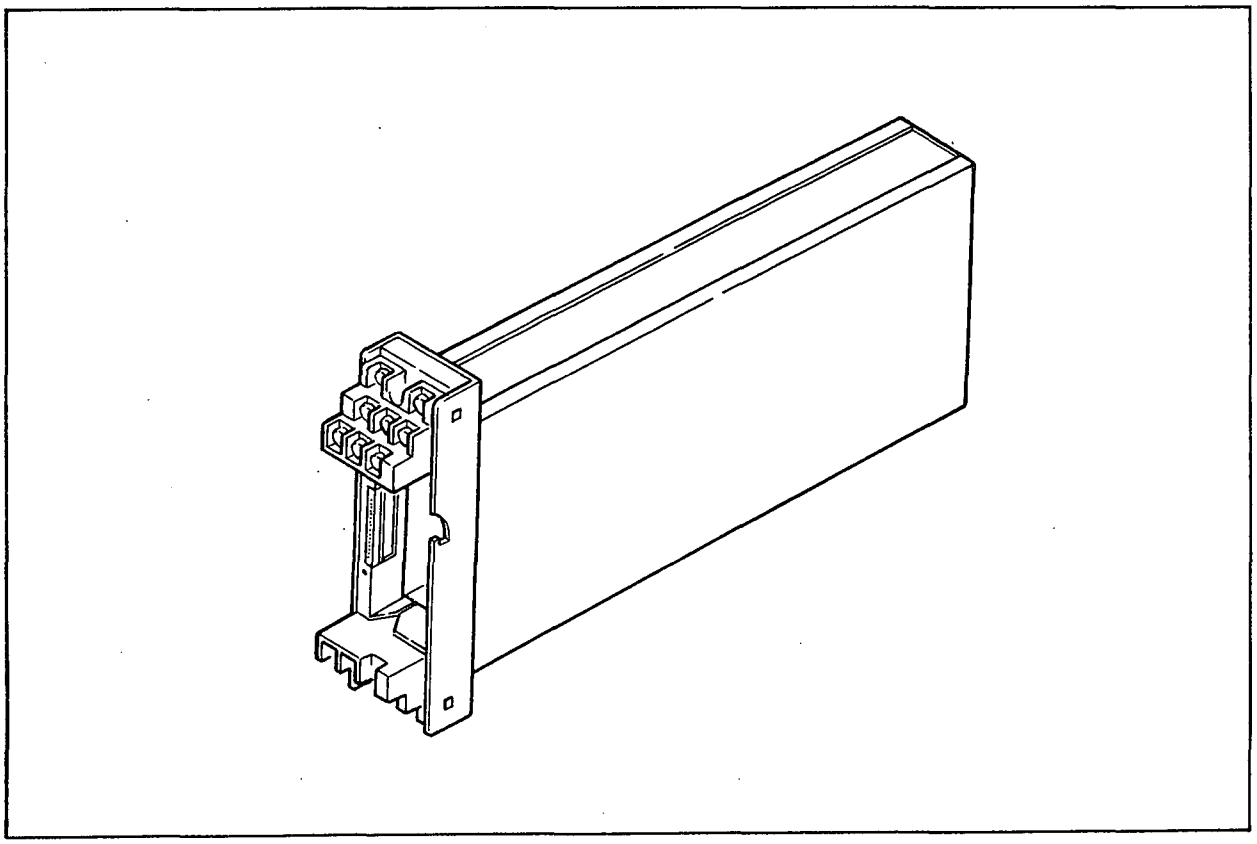


Figure 1-1. Rack Case.

2. RACK-MOUNTING CONFIGURATION.

YEWSERIES 80 rack-mounted instruments adopt a two-piece construction which permits separation of the inner instrument from the rack case. The main body and rack case are connected by a multi-pin connector so the main body can be pulled out with the external wires still connected to the terminal board.

The terminal board cover can be used as a handle for pulling out the main body.

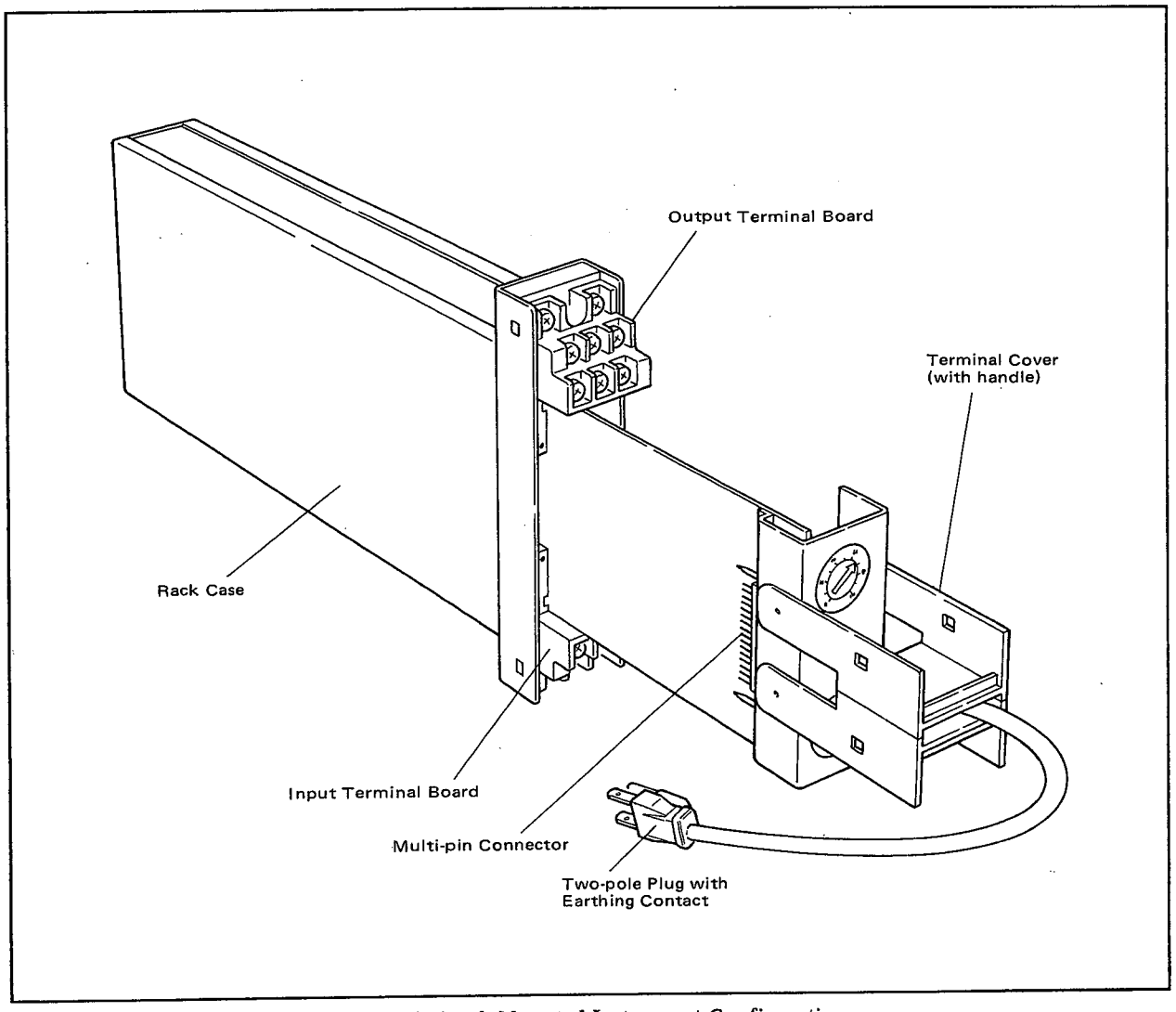


Figure 2-1. Rack-Mounted Instrument Configuration.

3. EXTERNAL DIMENSIONS.

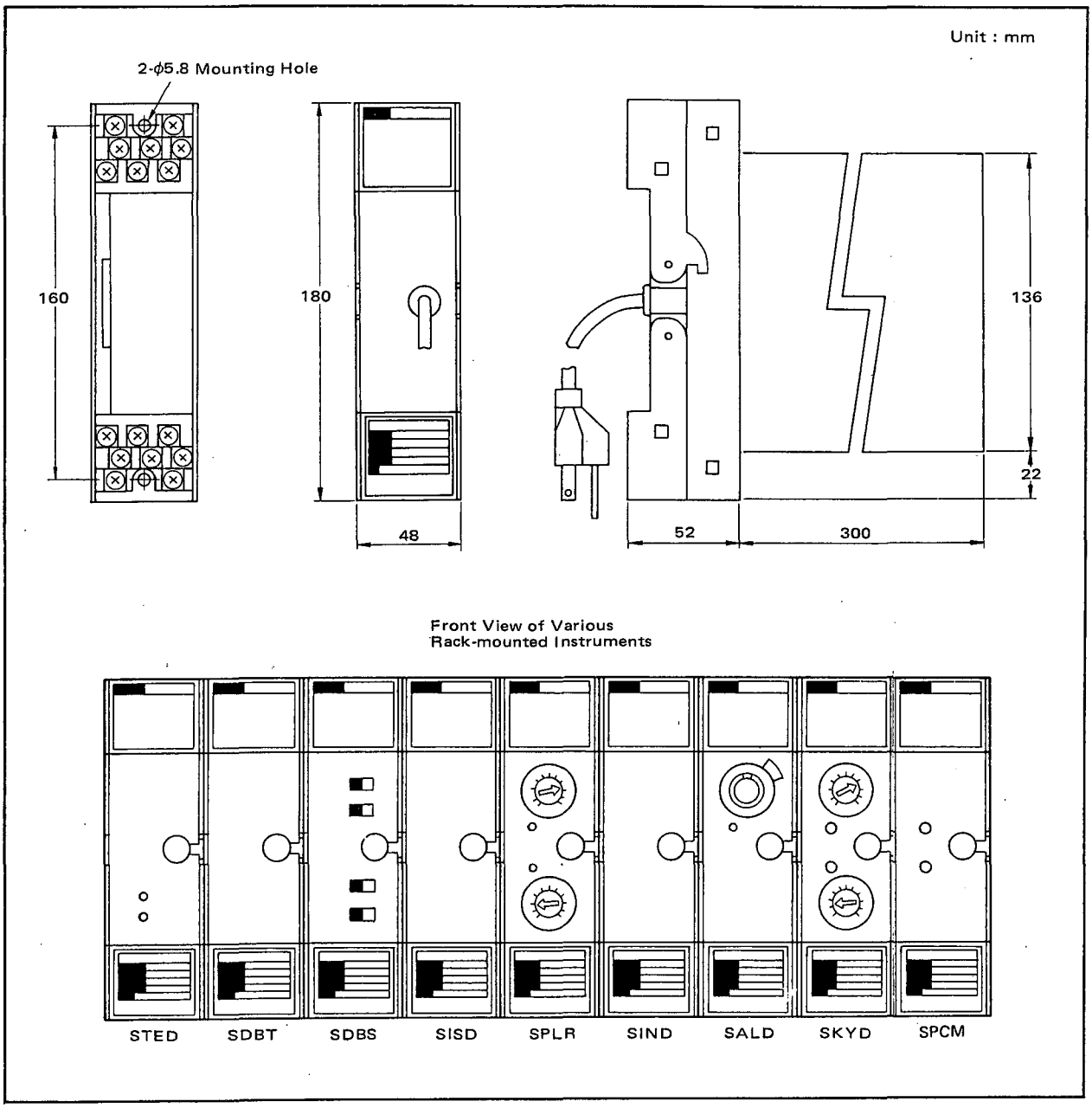


Figure 3-1. External Dimensions.

4. INSTALLATION.

4-1. Rack-Mounting Instrument Layouts.

The ordinary instrument panel is configurated in a center-array style. The wires from the rack instruments to the panel instruments are routed through the ceiling duct to the panel. The wires from the field are connected to the external terminals provided on the lower portion of the panel. When laying out rack-mounted instruments, it is desirable to install alarm unit and other equipment that require operator settings in the upper portion of the panel.

Hence, it is recommended that YEWSERIES 80 rack-mounted instruments be positioned according to their functions. This means that input converters (STED, SDBT, SDBS, SISD, etc.) should be installed in the lower section of the panel, while computing units and alarm units (SPLR, SIND, SKYD, SALD, etc.) should be installed in the upper section. (Figure 4-2.)

This functional arrangement permits the converter input terminals to be used as external terminals. At the same time, the output terminals are wired to the input terminals of the computing units and alarm units through the same duct. This results in a simplified wiring layout and less overlapping of wires in the duct.

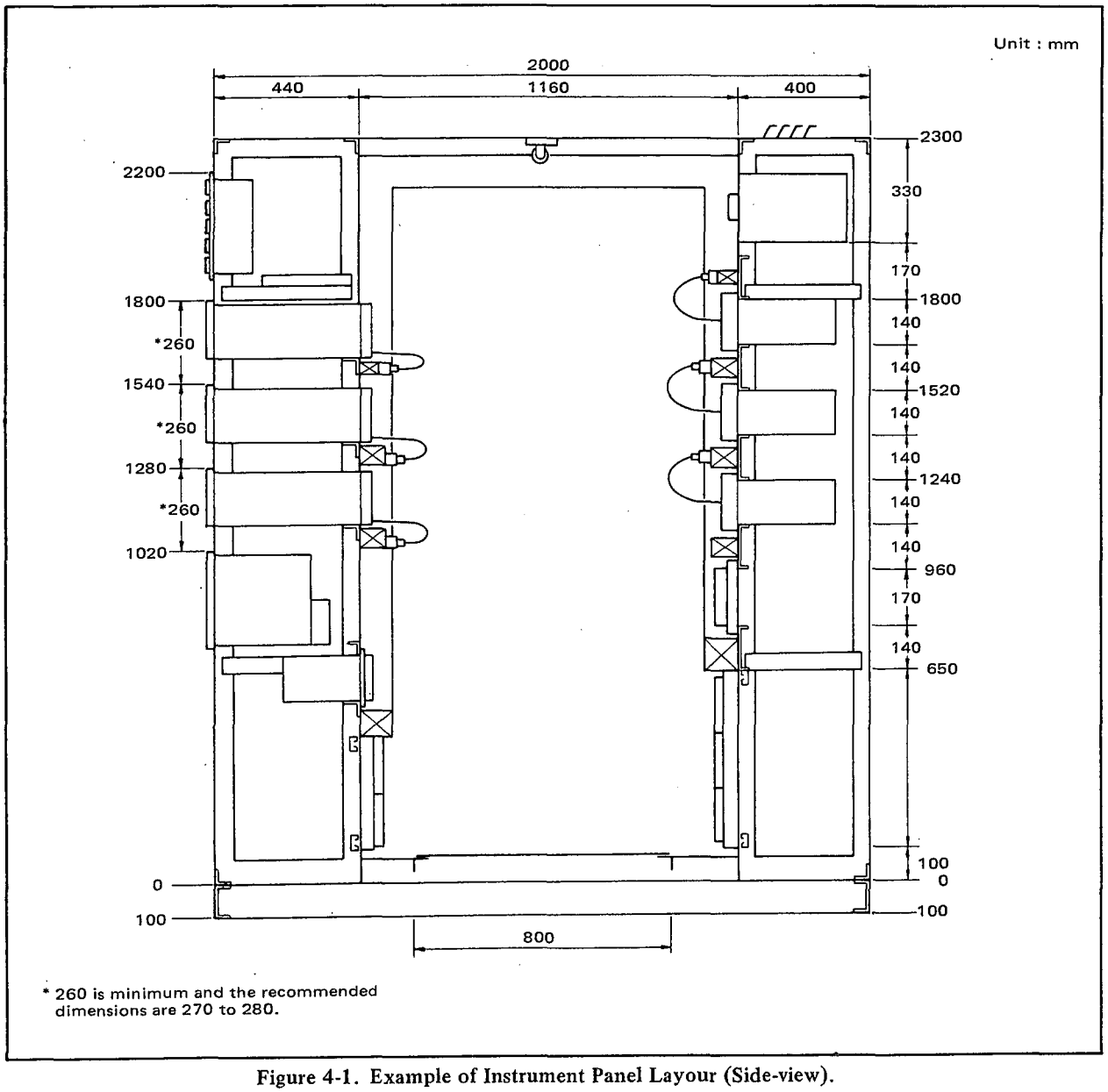


Figure 4-1. Example of Instrument Panel Layour (Side-view).

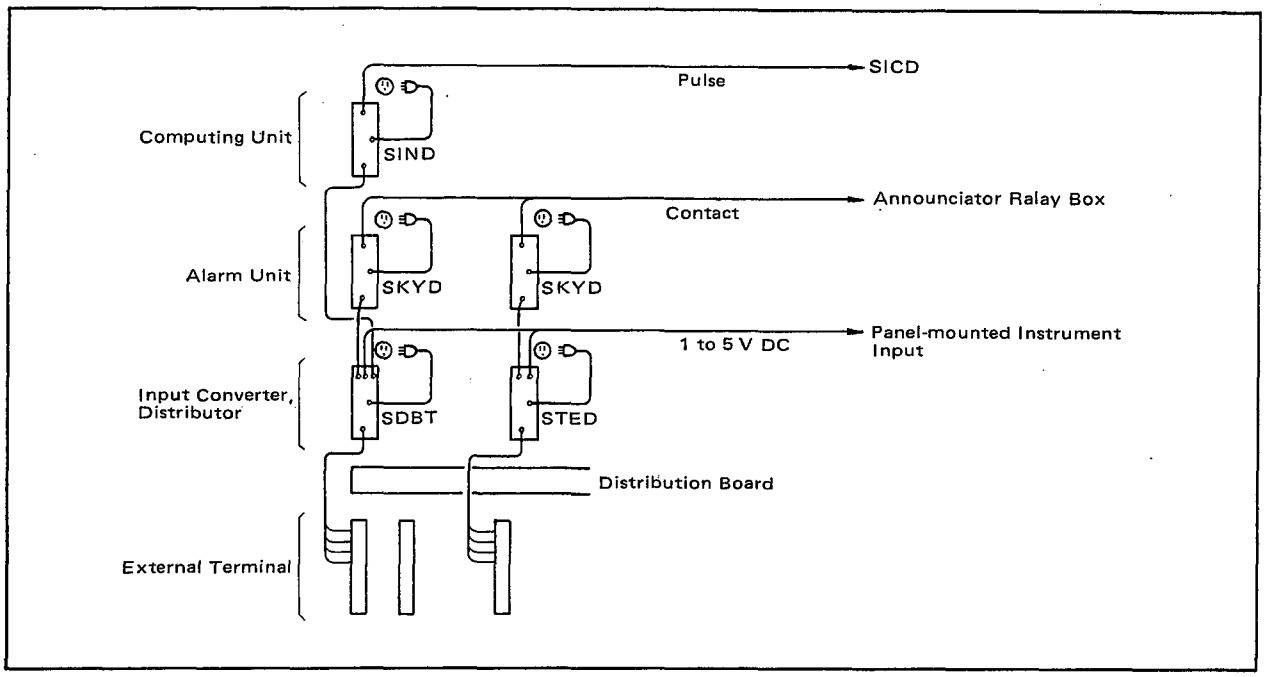


Figure 4-2. Example of Functional Layout.

4-2. Rack Construction.

Figure 4-3 shows the rack structure for side-by side mounting of two or more rack-mounted instruments.

The steel angle to whick the instruments are to be mounted must have a certain minimum strength. In the following example, 40 mm wide X 40 mm X 5 mm thick steel angle is used.

In order to simplify the wiring amd improve safety, it is important that a resin wiring duct be installed and the wires to the instruments be connected through this duct.

Rack-mounted instruments are connected to power and ground through a power plug with grounding contact: JIS C 8303, 15 A, 125 V). Install a receptable that mates with this type of plug. (Figure 4-4.)

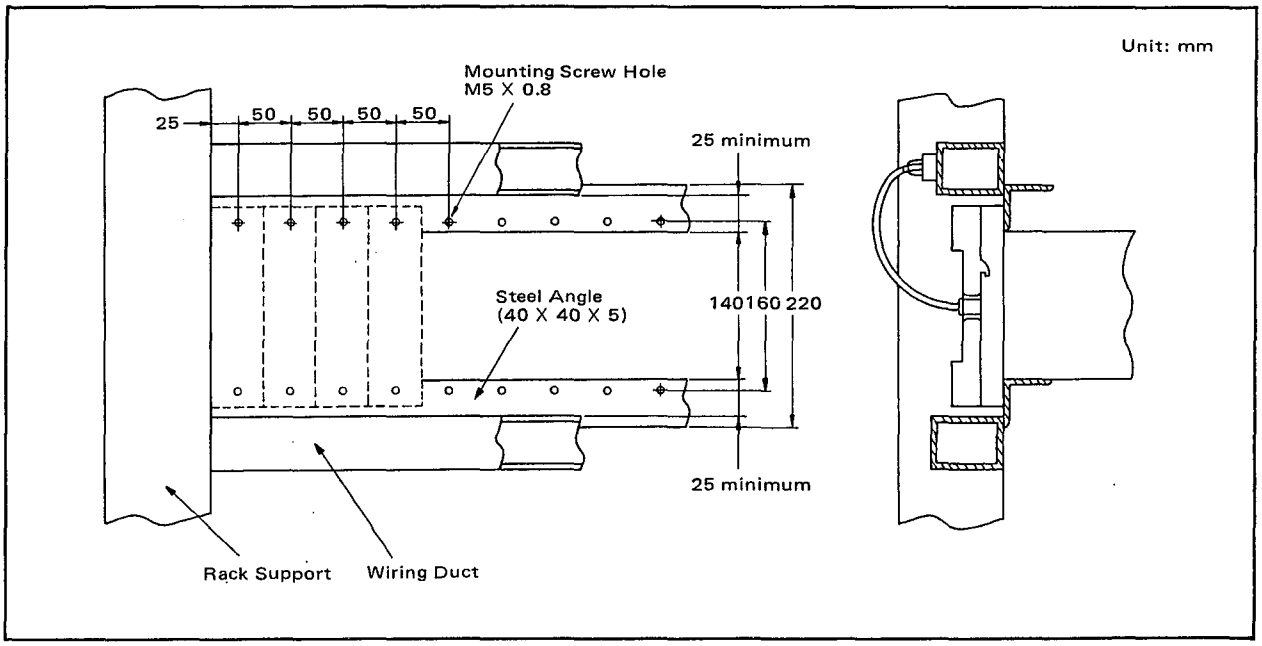


Figure 4-3. Rack Structure.

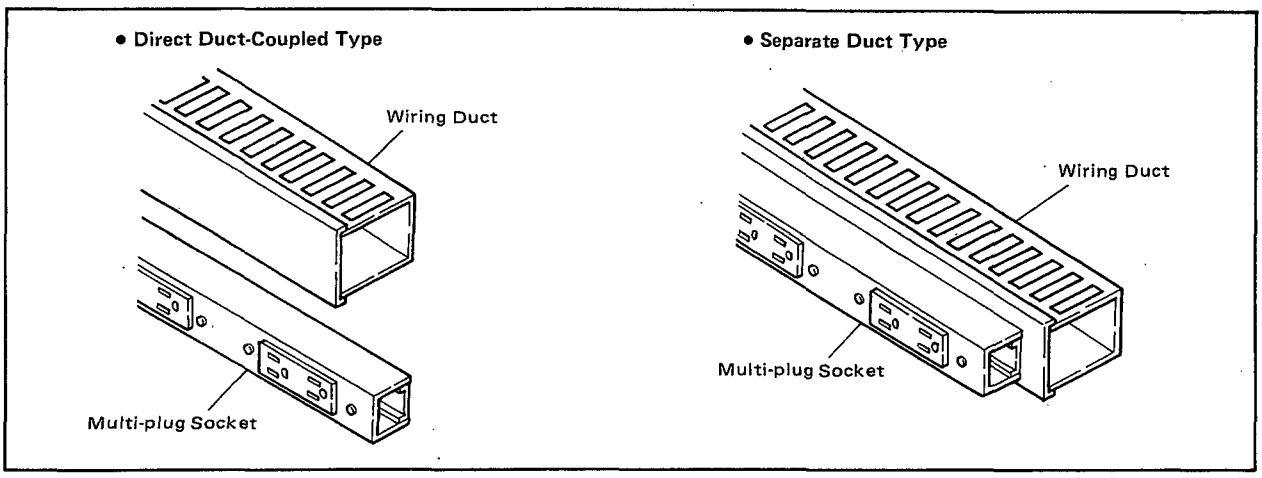


Figure 4-4. Mounting Power Sockets — Example.

4-3. Installation.

Installation and wiring can also be accomplished while inner instrument is housed in the rack case. However, the operation is easier if the main body is removed in advance.

(1) Insert the case into the rack so that the multi-pin connector is on the left side. Install screws (M5 × 8) in both the upper and lower mounting holes of the case and tighten them into the threaded holes of the rack to secure the case. (See Figure 4-5.)

(2) Pass each wire through the wiring duct. Pass the wires that connect to the output terminal board through the upper duct and the wires that connect to the input terminal board through the lower duct. (See Figure 4-6.)

(3) Connect each wire to its respective terminal by referring to the instruction manual for each instrument.

(4) Insert the inner instrument in the case while using great care to insert it into the correxct case. A tag label is attached to both the main body and case. If tag numbers are provided, ensure that the required number of tag labels are provided. (See Figure 4-7.)

(5) Replace the terminal board cover and insert the the power plug into the power outlet. (See Figure 4-8.)

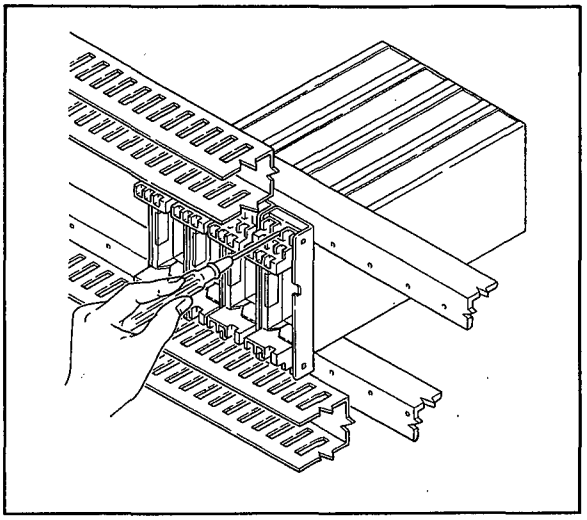


Figure 4-5. Installing Rack Case.

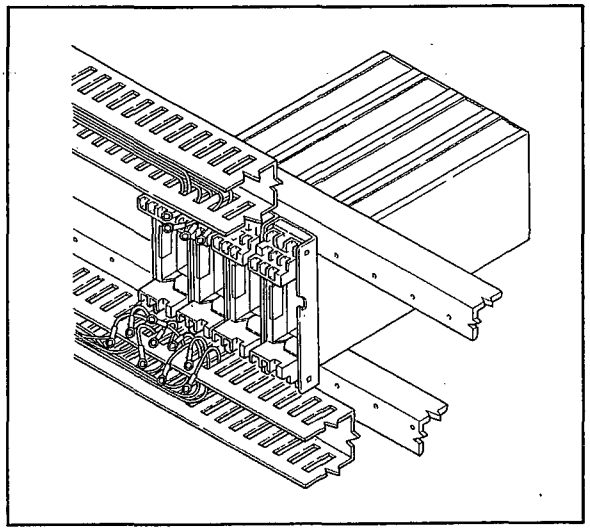


Figure 4-6. Passing Wires Through Ducts.

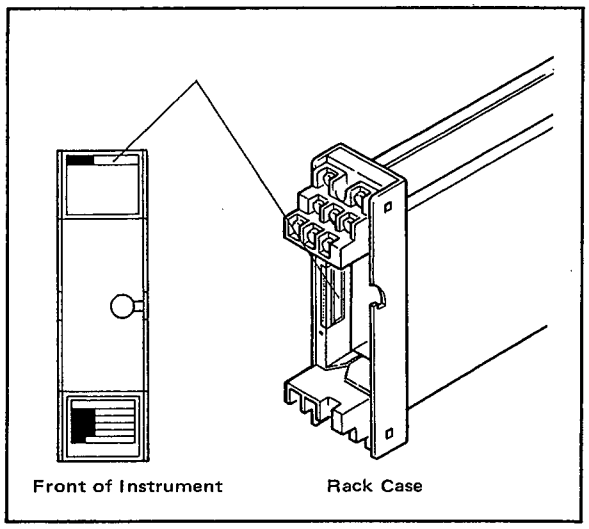


Figure 4-7. Tag Label Location.

4-4. Withdrawing the Inner Instrument.

This section explains the procedure for removing the inner instrument from the case. This operation may be necessary when performing instrument adjustments and maintenance.

For YEWSERIES 80 rack-mounted instruments, it is unnecessary to disconnect the wires from the terminal board when removing the inner instrument. The inner instrument is connected to the case by a multi-pin connector. When this connector is disconnected, the main body can be pulled out of the case without removing the wires from the terminal board.

(1) Remove the power plug from the socket.
(2) Lift off the terminal board cover for ease of wiring. The cover also serves as a handle. Lift off the terminal cover and draw out the inner unit.

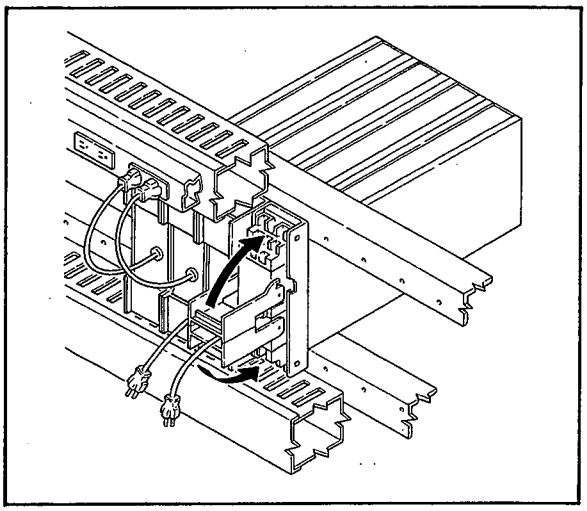


Figure 4-8. Housing the Inner Instrument.

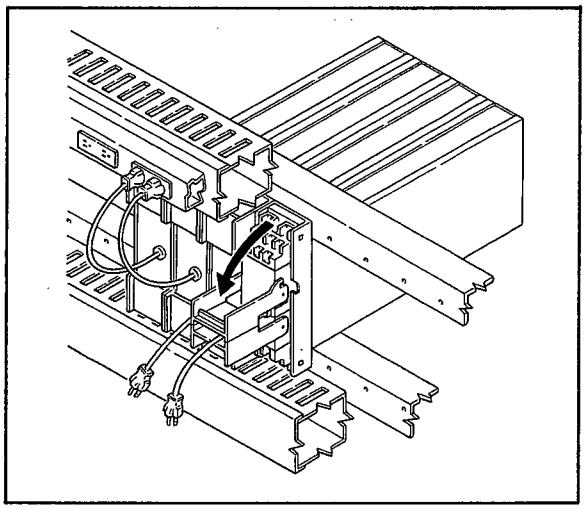


Figure 4-9. Removing the Inner Instrument — Part 1.

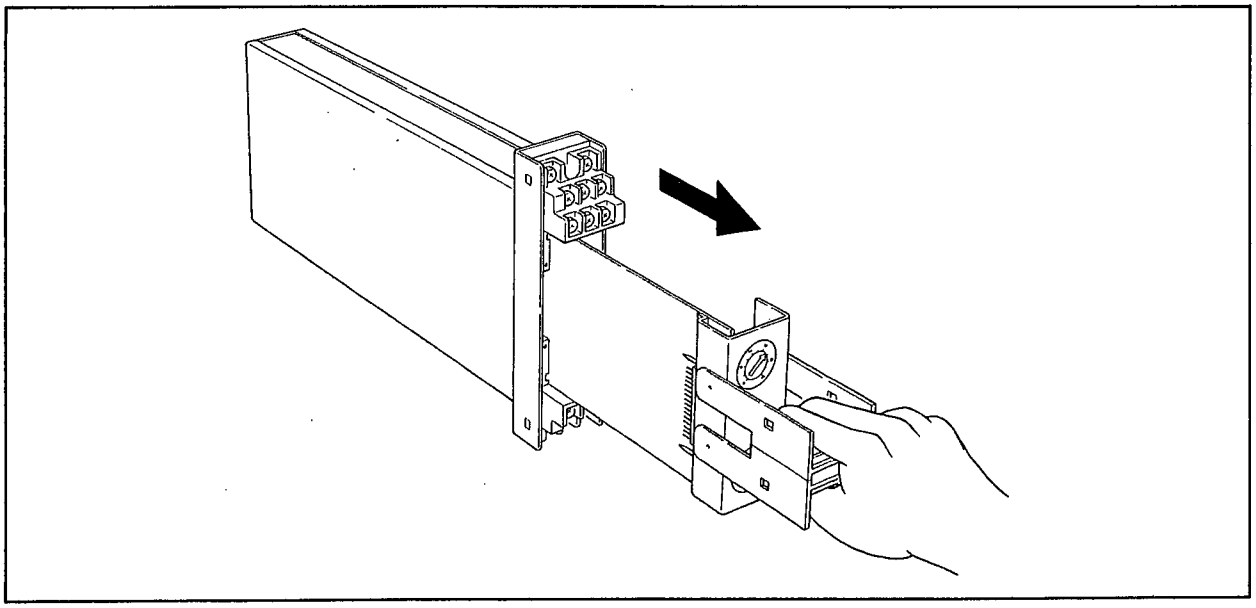


Figure 4-10. Removing the Inner Instrument — Part 2.

5. WIRING.

5-1. Wiring Precautions.

(1) Be sure to use twisted-pair wire for the internal panel wiring.
(2) Install round crimp-on solderless lugs on each end of the wires to be connected to the instrument terminal board. (Use 4 mm screws.)

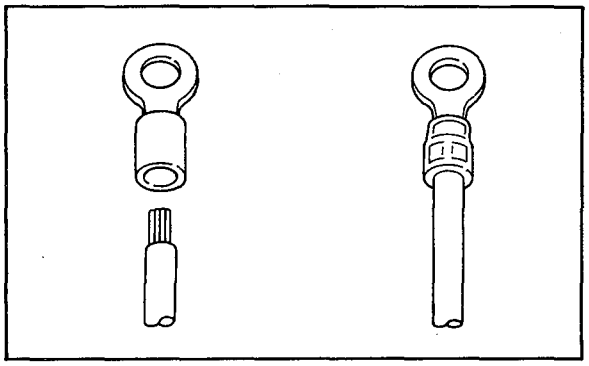


Figure 5-1. Solderless Crimp-On Terminal Lugs.

(3) When connecting two wires on a single terminal, first place the lugs back-to-back.

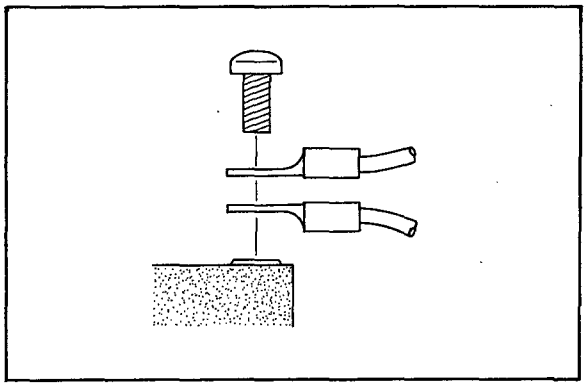


Figure 5-2. Installing Two Lugs on a Terminal.

(4) Power and ground are connected by means of a power plug with grounding contact. Prepare a power socket to mate with this type of plug. (See Sec. 4-2.)
(5) For the terminal wiring, refer to the respective instruction manual.

5-2. Selecting and Terminating Power Cable.

Use twisted-pair wire for the terminal board wiring. (Use solderless crimp-on type lugs for 4 mm screws to wire the rack-mounted instrument.)

Wire types and their proper usages are explained below.

(1) Signal Wire
Nominal Cross Section Area of Conductor:
0.5 to 0.75 mm^2.
Examples of Suitable Wire:
Vinyl Sheathed Cord (VSF) Twisted-pair wire for Instruments (JIS C 3306).
Heat-resistant Vinyl Insulated Wire (UL 1007).

(2) Alarm Wire
Nominal Cross-sectional Area: 0.5 to 1.25 mm^2.
Examples of Suitable Wire:
600 V PVC Cord (IV) Twisted-pair Wire (JIS C 3307).
Vinyl Insulated Cord (KIV) Twisted-pair Wire for Electrical Equipment (JIS C 3316).
Heat-resistant Vinyl Insulated Wire (UL 1007).

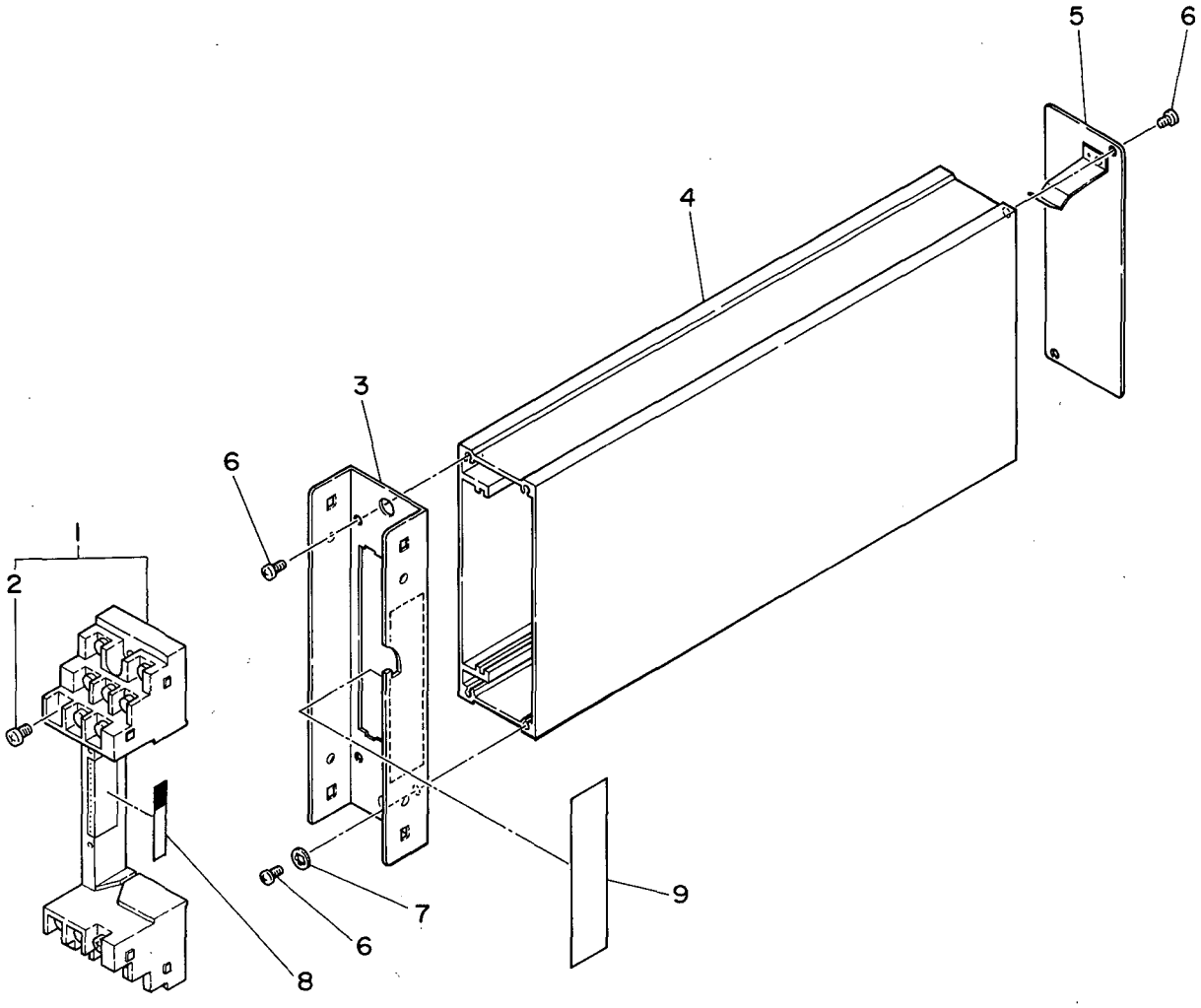
(3) Power and Ground Wire
Nominal Cross-sectional Area: 2.0 mm^2 *.
Examples of Suitable Wires:
600 V PVC Cord (IV) Twisted Wire (JIS C 3307).
Vinyl Insulated Cord (KIV) Twisted-pair wire (JIS C 3316).

Note: * The power wiring must be selected according to the current rating of the instrument. However, the nominal cross-sectional area of conductor must be at least 1.25 mm^2.

Customer Maintenance Parts List

Model SHUR
Case(Rack Mounting)

YEWSERIES 80



Item	Part No.	Qty	Description
1	E9713AF	1	Terminal Assembly
2	Y9406LB	16	B.H. Screw, M4 x 6
—	E9713AQ	1	Case Assembly (items 3 through 7)
3	E9713AR	1	Bracket
4	E9713AS	1	Case
5	E9713AT	1	Plate Assembly
6	G9306ZC	6	Self-tapping Screw
7	Y9401WL	2	Toothed Lockwasher
8	Y9422NP	1-4	Tag No. Label
9	E9713GA	1	Label

Instruction Manual

/TB
Power Supply Terminal Connections for Rack-mounted Instruments(Option)

YEWSERIES 80

1. GENERAL.

If you specify the terminal board to which the power source is directly connected (suffix code /TB), the external wiring to the terminal board is necessary; therefore, drawing out of the inner chassis requires previous turning off of the power source and disconnection of the wiring from the terminal board.

2. APPLICABLE INSTRUMENTS.

Model	Description
STED	Emf- and RTS-to-Voltage Converter
SKYD	Alarm Unit
SALD	Emf- and RTS-Input Alarm Unit
SPLR	Programmable Computing Unit
SIND	Integrator
SISD	Isolator
SDBT	Power Distributor
SDBS	Power Distributor
SDBU-21	Power Distributor

3. EXTERNAL VIEW AND NAMES OF COMPONENTS.

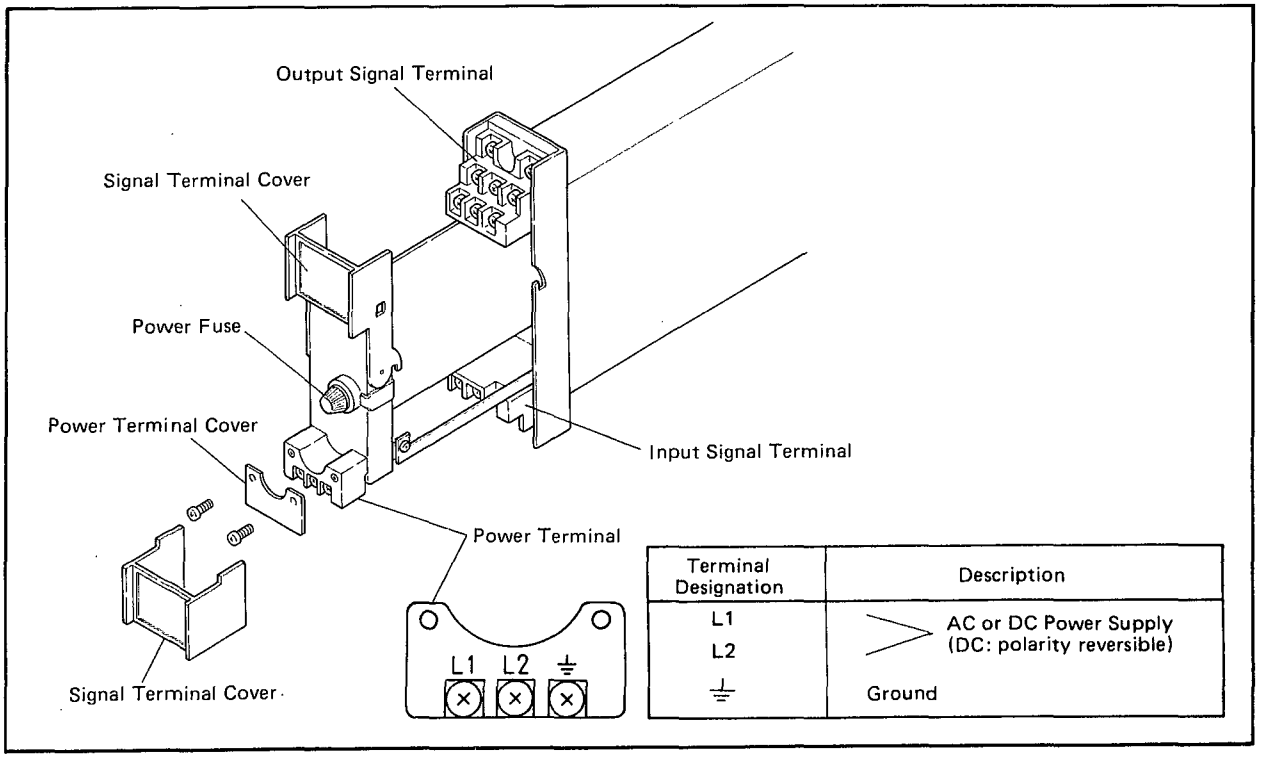
4. POWER SUPPLY AND GROUND WIRING.

(1) All cable ends must be furnished with crimp-on type solderless lugs (for 4 mm screw).

(2) Examples of applicable cables.
Cross-sectional area of the cable conductor: 2.0 mm^2.*
Applicable cable:
600 V vinyle insulated cable (IV), conforming to JIS C3307.
Vinyle sheathed cables for electric appliances (KIV), conforming to JIS C3316.
Note *: Power supply cables should be determined from the instrument power consumption – they must have conductors with cross-sectional area of at least 1.25 mm^2.

(3) Wirings to power supply and ground terminals should be made after completion of signal terminal wirings. (To facilitate connecting input signal, pull the internal instrument module approximately half way out of the housing. Do not remove the power terminal block.)

(4) After completing the power supply and ground wiring, mount the power terminal cover.

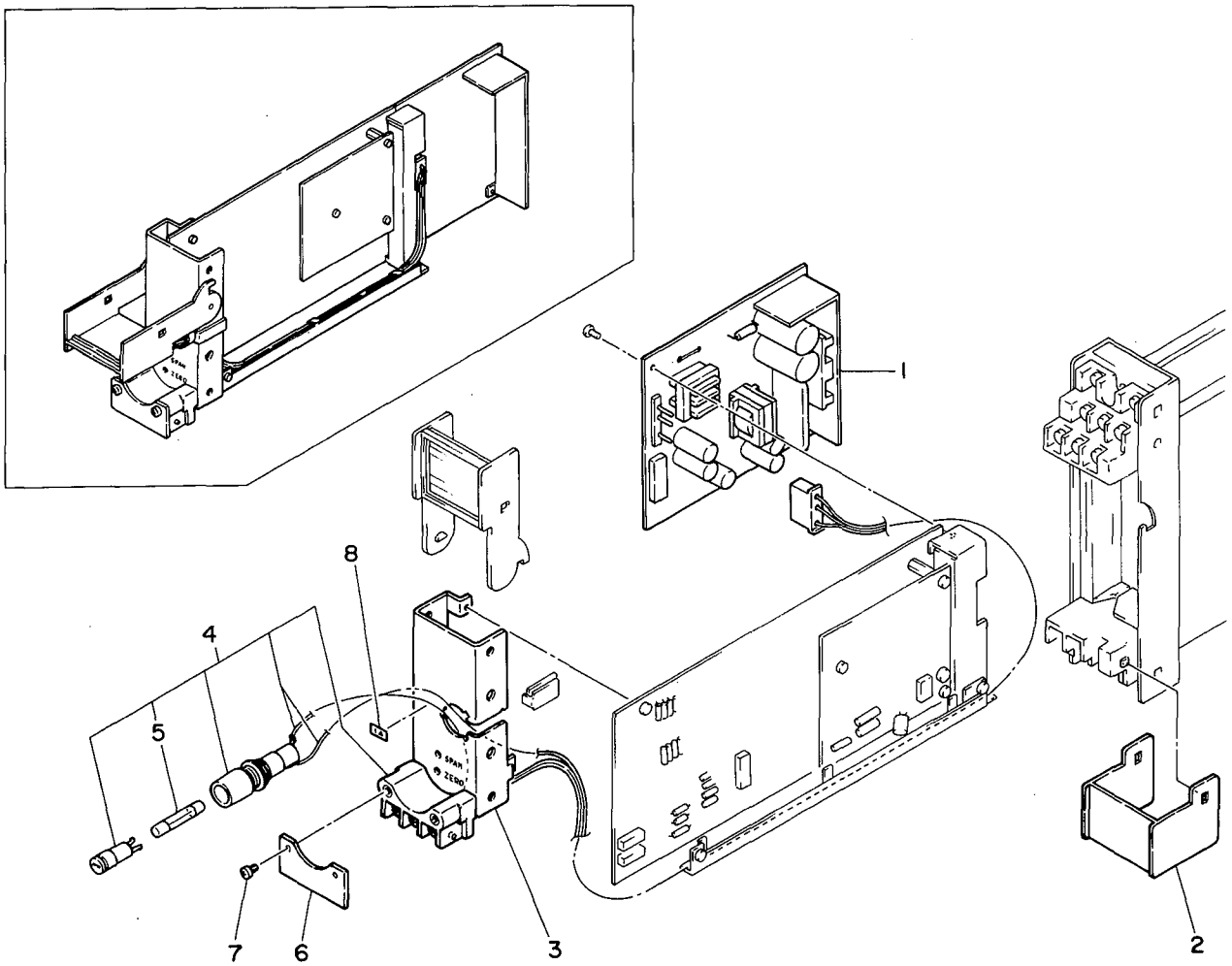


Terminal Designation	Description
L1 L2	AC or DC Power Supply (DC: polarity reversible)
⏚	Ground

Customer Maintenance Parts List

/TB
Power Supply Terminals For Rack-Mounted Instruments (Option)

YEWSERIES 80



Item	Part No.	Qty	Description
1	—	1	Power Supply Unit (see Table 1)
2	E9713CJ	1	Cover
3	—	1	Bracket (see Table 2)
4	E9713ET	1	Terminal Assembly
5	S9510VK	1	Fuse (1 A)
6	E9713CV	1	Cover
7	Y9306JB	2	Pan H. Screw, M3 x 6
8	G9325EM	1	Label (1 A)

Table 1. Power Supply Unit Part Number.

Applicable Instruments Model	Power Supply Unit Part No.	
	100 V Version	220 V Version
SPLR, SIND	E9715YH	W9092JM
STED, SKYD, SALD SISD, SDBT	E9715YJ	W9092JN
SDBS	E9715YK	W9092JP
SDBU-21	E9715YK	—
SPCM	E9715YL	W9092SK

Table 2. Bracket Part Number.

Applicable Instruments Model	Bracket Part No.
STED	E9713DS
SKYD, SPLR	E9713DN
SKYD-100	E9713DP
SALD	E9713DT
SDBT, SIND, SISD SDBU-21	E9713DL
SDBS	E9713DR
SPCM	E9714KB

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