User's Manual

JUXTA

D Series
Nests and Signal Conditioners

IM 77J05A00-01EN

YOKOGAWA
Yokogawa Electric Corporation

IM 77J05A00-01EN
7th Edition

Foreword

Thank you for purchasing the JUXTA D series of signal conditioners (hereinafter referred to as “D series”).
This manual describes the installation, wiring, and setting method of the D series. Please read though this user’s manual carefully before using the product.

■ **Target Readers**

This manual is intended for those who have work experiences as maintenance staffs, engineers, and operators of instrumentation and control.

■ **Notice**

- The contents of this manual are subject to change without notice as a result of continuing improvements to the instrument’s performance and functions.
- Every effort has been made to ensure accuracy in the preparation of this manual. Should any errors or omissions come to your attention, however, please inform YOKOGAWA Electric’s sales office or sales representative.
- Under no circumstances may the contents of this manual, in part or in whole, be transcribed or copied without our permission.

■ **Trademarks**

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Safety Precautions

To use the instrument properly and safely, observe the safety precautions described in this user's manual when operating it. Use of the instrument in a manner not prescribed herein may compromise protection features inherent in the device. We assume no liability for or warranty on a fault caused by users’ failure to observe these instructions.

■ **Notes on the User’s Manual**

- This user’s manual should be readily accessible to the end users so it can be referred to easily. It should be kept in a safe place.
- Read the information contained in this manual thoroughly before operating the product.
- The purpose of this user's manual is not to warrant that the product is well suited to any particular purpose, but rather to describe the functional details of the product.

■ **Safety, Protection, and Modification of the Product**

The following symbols are used in the product and user’s manuals to indicate safety precautions:

“Handle with Care” (This symbol is attached to the part(s) of the product to indicate that the user’s manual should be referred to in order to protect the operator and the instrument from harm.)

Protective grounding terminal

Functional grounding terminal (Do not use this terminal as a protective grounding terminal.)

Alternating current

Direct current

ON (power)

OFF (power)

- In order to protect the system controlled by this product and the product itself, and to ensure safe operation, observe the safety precautions described in this user’s manual. Use of the instrument in a manner not prescribed herein may compromise the product's functions and the protection features inherent in the device.
  We assume no liability for safety, or responsibility for the product's quality, performance or functionality should users fail to observe these instructions when operating the product.
- Installation of protection and/or safety circuits with respect to a lightning protector; protective equipment for the system controlled by the product and the product itself; foolproof or failsafe design of a process or line using the system controlled by the product or the product itself; and/or the design and installation of other protective and safety circuits are to be appropriately implemented as the customer deems necessary.
- Be sure to use the spare parts approved by YOKOGAWA when replacing parts or consumables.
- This product is not designed or manufactured to be used in critical applications that directly affect or threaten human lives. Such applications include nuclear power equipment, devices using radioactivity, railway facilities, aviation equipment, air navigation facilities, aviation facilities, and medical equipment. If so used, it is the user’s responsibility to include in the system additional equipment and devices that ensure personnel safety.
- Modification of the product is strictly prohibited.

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WARNING

- **Power Supply**
  Ensure that the instrument's supply voltage matches the voltage of the power supply before turning ON the power.
- **Protective Grounding**
  To prevent electric shock, always confirm that protective grounding is connected before turning ON the instrument's power supply.
- **Necessity of Protective Grounding**
  Do not cut off the internal or external protective grounding wire or disconnect the wiring of the protective grounding terminal. Doing so renders the protective functions of the instrument invalid and poses a potential shock hazard.
- **Defects in Protective Functions**
  If protective functions such as grounding are suspected to be defective, do not operate the instrument. Ensure that all protective functions are in working order before operating the instrument.
- **Do Not Use in an Explosive Atmosphere**
  Do not operate the instrument in locations with combustible or explosive gases or steam. Operation in such environments constitutes an extreme safety hazard. Use of the instrument in environments with high concentrations of corrosive gas (H_2S, SOx, etc.) for extended periods of time may cause a failure.
- **External Connection**
  Ensure that protective grounding is connected before connecting the instrument to the device under measurement or to an external control circuit.
- **Damage to the Protective Construction**
  Operation of the instrument in a manner not specified in this user's manual may damage its protective construction.

■ **Warning and Disclaimer**

- YOKOGAWA makes no warranties regarding the product except those stated in the WARRANTY that is provided separately.
- The product is provided on an "as is" basis. YOKOGAWA assumes no liability to any person or entity for any loss or damage, direct or indirect, arising from the use of the product or from any unpredictable defect of the product.

Handling Precautions for the Main Unit

- The instrument comprises many plastic components. To clean it, wipe it with a soft, dry cloth. Do not use organic solvents such as benzene or thinner for cleaning, as discoloration or deformation may result.
- Keep electrically charged objects away from the signal terminals. Not doing so may cause the instrument to fail.
- Do not apply volatile chemicals to the display area, operation keys, etc. Do not leave the instrument in contact with rubber or PVC products for extended periods. Doing so may result in failure.
- If the equipment emits smoke or abnormal smells or makes unusual noises, turn OFF the instrument's power switch immediately and unplug the device. In such an event, contact your sales representative.

Symbols Used in This Manual

This symbol is used on the instrument. It indicates the possibility of injury to the user or damage to the instrument, and signifies that the user must refer to the user's manual for special instructions. The same symbol is used in the user's manual on pages that the user needs to refer to, together with the term "WARNING" or "CAUTION."

WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and indicates that precautions should be taken to prevent such occurrences.

CAUTION

Calls attention to actions or conditions that could cause injury to the user or damage to the instrument or property and indicates precautions that should be taken to prevent such occurrences.

Note

Identifies important information required to operate the instrument.

▶

Indicates related operations or explanations for the user's reference.

Checking the Contents of the Package

Unpack the box and check the contents before using the product. If the product is different from that which you have ordered, if any parts or accessories are missing, or if the product appears to be damaged, contact your sales representative.

Check the model and suffix codes inscribed on the nameplate to confirm that the product received is that which was ordered.

- For the model and suffix codes of the JUXTA D series nests, refer to the section 1.1. The nameplate is on the upside of the nest.
- For the model and suffix codes of the JUXTA D series signal conditioners, refer to the section 2.1. The nameplate is on the rear side of the front door of a signal conditioner.

No. (Instrument number)

When contacting your sales representative, inform them of this number too.

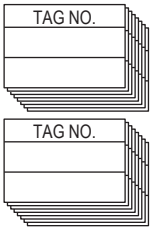
Accessories

Check that none of them are missing or damaged.

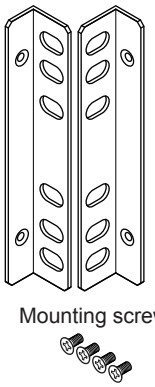
- The following accessories are included with the JUXTA D series nests.
  (1) Nest Tag Number Label: 1
  (2) Signal Conditioner Tag Number Label: 16
  (3) Nest Mounting Bracket: 1 set
  Mounting Screw: M3 screw x 4
  (4) Plate: 16
  Mounting Screw: M3 screw x 32
  The plates corresponding to the unused slots are included only if the additional specification "/AS" (Signal conditioner embedded type) is ordered. (The plates are attached on the unused slots.)

(1) Nest tag number label

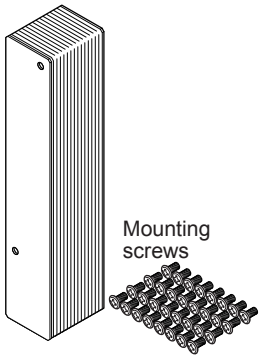
(2) Tag number labels for signal conditioners



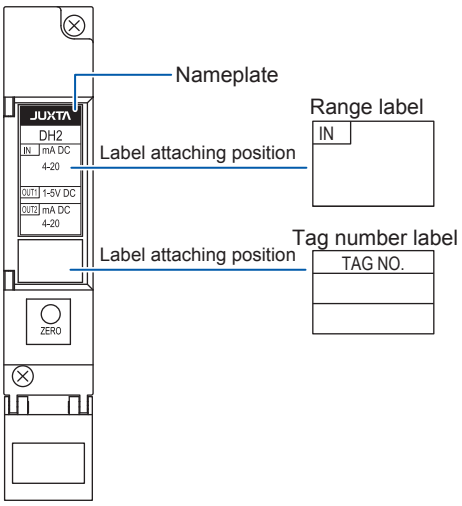
(3) Nest mounting brackets



(4) Plate



- The following accessories are included with the JUXTA D series signal conditioners.
  (1) Signal Conditioner Tag Number Label: 1
  This label is included in the order for signal conditioners only.
  (2) Range Label:1
  This label is included with the following models only. (It is used when the range is changed.)
  DH2, DM1, DT5, DR5, DRU, DS1, DP3, DQ0



D series Lineups

D series consists of DCS-supported signal conditioners and the nests for mounting these signal conditioners.

D series of Nests

Model	Description
DCE	Nest for Input/Output cards (Electric, E/P Mixture Mounting Type)
DCP	Nest for Input/Output cards (Electric, E/P, P/E Mixture Mounting Type)
DME	Nest for Control Input/Output (Electric, E/P Mixture Mounting Type)
DMP	Nest for Control Input/Output (Electric, E/P, P/E Mixture Mounting Type)

D series of Signal Conditioners

Model	Description
DH1	Isolator
DH2	Isolator (Free Range Type)
DH5	Isolator (with Square Root Extractor)
DM1	Isolator (2-output, mV Input Type)
DC0	Output Isolator (Current I / O Type)
DC7	Output Isolator (Current I / O Type) (with HART Communication)
DA0	Output Isolator (Voltage Input / Current Output Type)
DH0	Output Isolator (Voltage I / O Type)
DT5	Thermocouple Converter (Free Range Type)
DR5	RTD Converter (Free Range Type)
DRU	Cryogenic Temperature Converter
DS1	Potentiometer Converter (Free Range Type)
DP1	Pulse Repeater
DP3	Pulse to Analog Converter (Free Range Type)
DQ0	Analog to Pulse Converter (Free Range Type)
DA1	Distributor
DA5	Distributor (with Square Root Extractor)
DA2	Distributor (with Communication Function)
DA7	Distributor (with HART Communication)
DG1	PT Converter (RMS)
DB1	CT Converter (RMS)
DD1	Tachometer Converter
DF1	Pneumatic to Electric Converter
DF0	Electric to Pneumatic Converter
DSK	Limit Alarm
DX1	Input/Output Through Card
DXT	Extention Card
DSC2	Communication Interface Card

Notes on Description

This manual explains the cases where the D series connects with DCS (CENTUM CS3000, CS1000, etc.) of Yokogawa Electric Corporation.

The following products used for this manual are the DCS-related products of Yokogawa Electric Corporation.

Model	Description
AAV141/K4A00	Analog Input Module (with KS cable adapter)
AAB141/K4A00	Analog Input Module (with KS cable adapter)
AAB841/V4A00	Analog I/O Module (with VM2 compatible adapter)
AAB842/V4A00	Analog I/O Module (with VM2 compatible adapter)
AAB841/M4A00	Analog I/O Module (with MAC2 compatible adapter)
AAB842/M4A00	Analog I/O Module (with MAC2 compatible adapter)
AAV542/K4A00	Analog Output Module (with KS cable adapter)
AAP149	Pulse Input Module (PM1 compatible)
AAP849	Pulse Input/Analog Output Module (PAC compatible)
AMM12C	Voltage Input Multiplexer Module
AMC80	Multipoint Control Analog I/O Module
VM1	Multipoint Analog Input Card
VM2	Multipoint Analog Input/Output Card
VM4	Multipoint Analog Output Card
PM1	Multipoint Pulse Train Input Card
MAC2	Multipoint Analog Control Input/Output Card
PAC	Multipoint Pulse Train Input/Analog Output Card
KS1	Signal Cable
KS2	Signal Cable
TE16	Terminal Block

Related Documents

Refer to General Specifications (GS) for the specifications of signal conditioners and the nests.

Nest

Model	Document No.	Model	Document No.
DCE	GS 77J05Y51-01E	DME	GS 77J05Y53-01E
DCP	GS 77J05Y52-01E	DMP	GS 77J05Y54-01E

Signal Conditioner

Model	Document No.	Model	Document No.
DH1	GS 77J05H01-01E	DA1	GS 77J05A01-01E
DH2	GS 77J05H02-01E	DA5	GS 77J05A05-01E
DH5	GS 77J05H05-01E	DA2	GS 77J05A02-01E
DM1	GS 77J05M01-01E	DA7	GS 77J05A07-01E
DC0	GS 77J05C10-01E	DG1	GS 77J05G01-01E
DC7	GS 77J05C17-01E	DB1	GS 77J05B01-01E
DA0	GS 77J05A10-01E	DD1	GS 77J05D01-01E
DH0	GS 77J05H10-01E	DF1	GS 77J05F01-01E
DT5	GS 77J05T05-01E	DF0	GS 77J05F10-01E
DR5	GS 77J05R05-01E	DSK	GS 77J05S21-01E
DRU	GS 77J05R11-01E	DX1	GS 77J05X01-01E
DS1	GS 77J05S01-01E	DSC2	GS 77J05S31-01E
DP1	GS 77J05P01-01E		
DP3	GS 77J05P03-01E		
DQ0	GS 77J05Q10-01E		

Contents

Chapter 6 JHT200 Handy Terminal

Revision Information

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1.1 Model and Suffix Codes

Model	Suffix code				Description
DCE					Nest for input/output
DCP					Nest for input/0output (E/P mixed mounting type)
DME					Nest for control input/output
DMP					Nest for control input/output (E/P mixed mounting type)
Power supply	-3				24 V DC±10%
Communication		0			None
		2			Available (with DSC2 card)
Style			*A		Style A
Additional specification				/AS	Signal conditioner embedded type

DCE and DCP Nests for Input/Output

The DCE and DCP are the nests for signal conditioners. They can be mounted on an EIA/JIS-standard 19-inch rack or directly on the wall.

- The DCE and DCP nests can mount 16 signal conditioners of D series and a DSC2 Communication Interface Card.
- The DCP nest can mount E/P converter.
- The table below shows connectable I/O modules of DCS.

	CENTUM		
	VP/CS3000	CS3000/CS1000	XL/µXL/V
	FIO module	RIO module	I/O card
Analog input	AAV141/K4A00	AMM12C	VM1
Analog input (with HART Communication)	AAB141/K4A00		
Analog input/output	AAB841/V4A00		VM2
Analog input/output (with HART Communication)	AAB842/V4A00		
Analog output	AAV542/K4A00		VM4
Pulse train input	APP149		PM1

DME and DMP Nests for Control Input/Output

The DME and DMP are the nests for signal conditioners. They can be mounted on an EIA/JIS-standard 19-inch rack or directly on the wall.

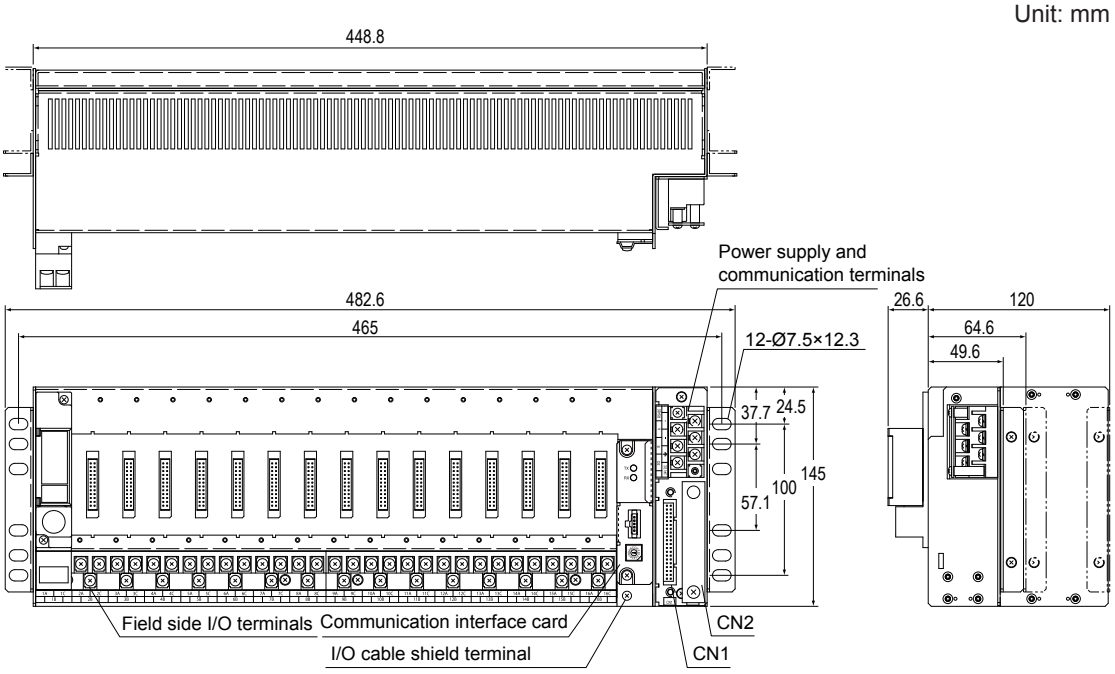
- The DME and DMP nests can mount 16 signal conditioners of D series and a DSC2 Communication Interface Card.
- The DMP nest can mount E/P converters.
- In order to protect duplication of the DCS connection module, two DCS connection connectors are furnished.
- Both nests also have connectors for the SPBD(*) standby manual station, for the backup of the manipulated outputs during the maintenance or replacement of output type signal conditioners. (* SPBD is not available for the DA7.)
- The table below shows connectable I/O modules of DCS.

	CENTUM		
	CS3000/CS1000	CS3000/CS1000	XL/µXL
	FIO module	RIO module	I/O card
Analog input/output	AAB841/M4A00	AMC80	MAC2
Analog input/output (with HART Communication)	AAB842/M4A00		
Pulse train input/Analog output	AAP849		PAC

1.2 External Dimensions

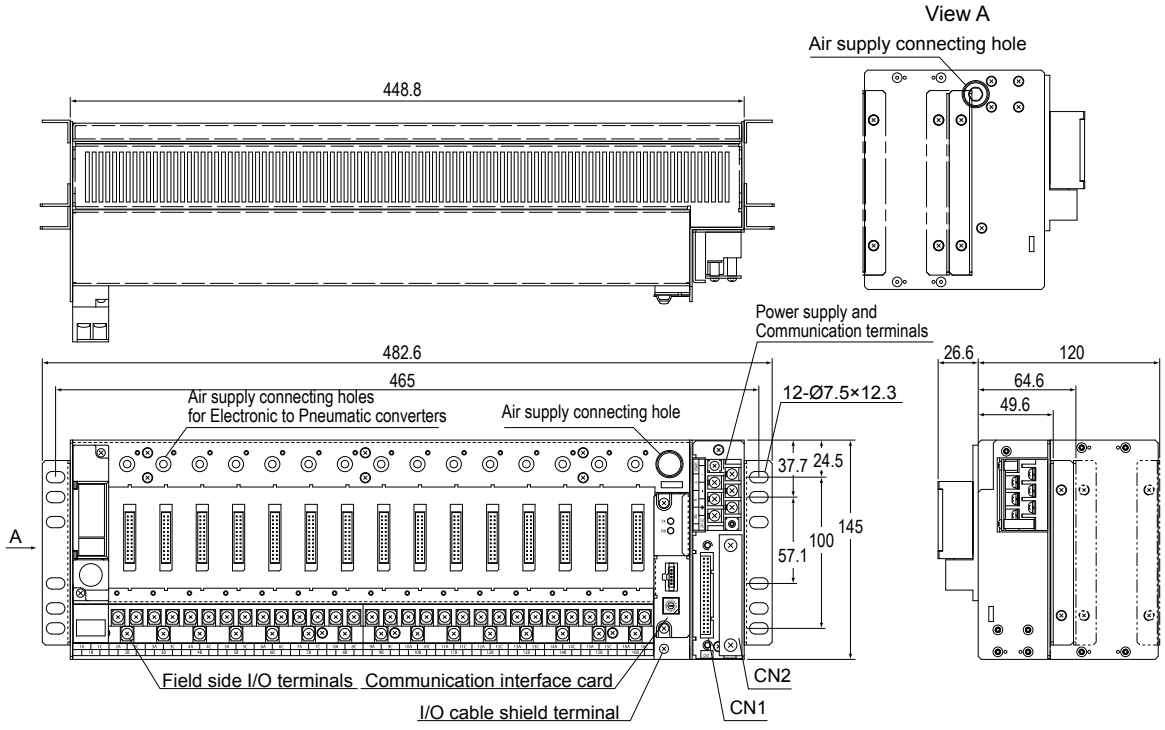
DCE Nest for Input/Output (Electric, and P/E Mixed Mounting Type)

Unit: mm



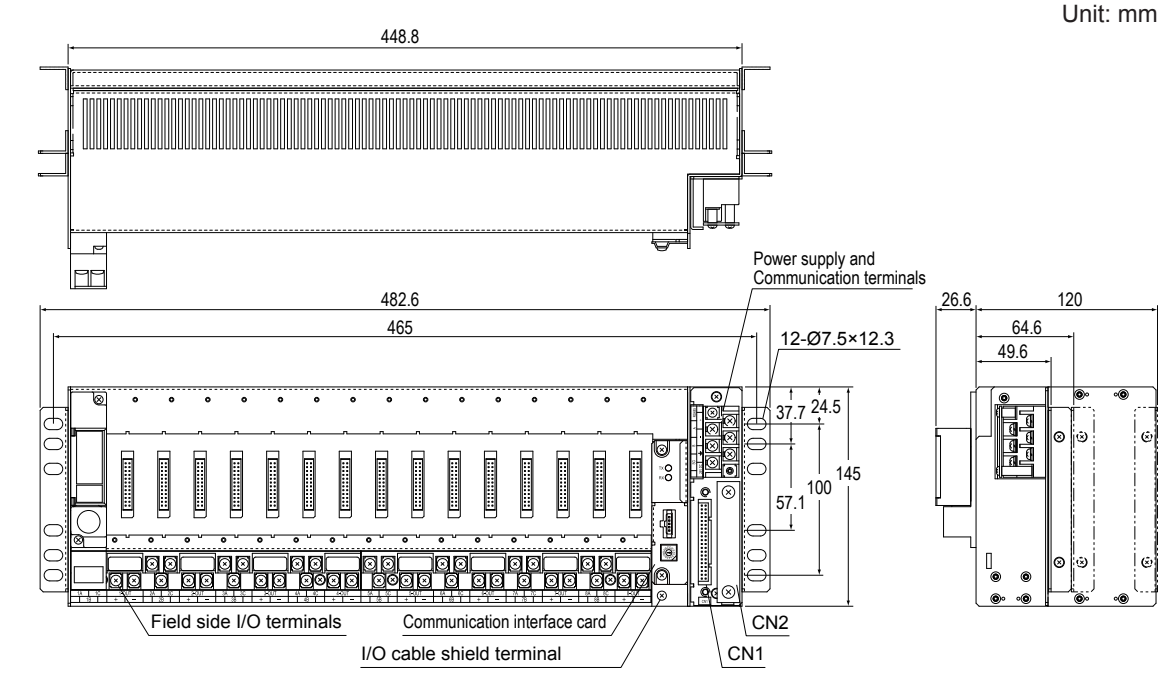
DCP Nest for Input/Output (Electric, P/E, and E/P Mixed Mounting Type)

Unit: mm



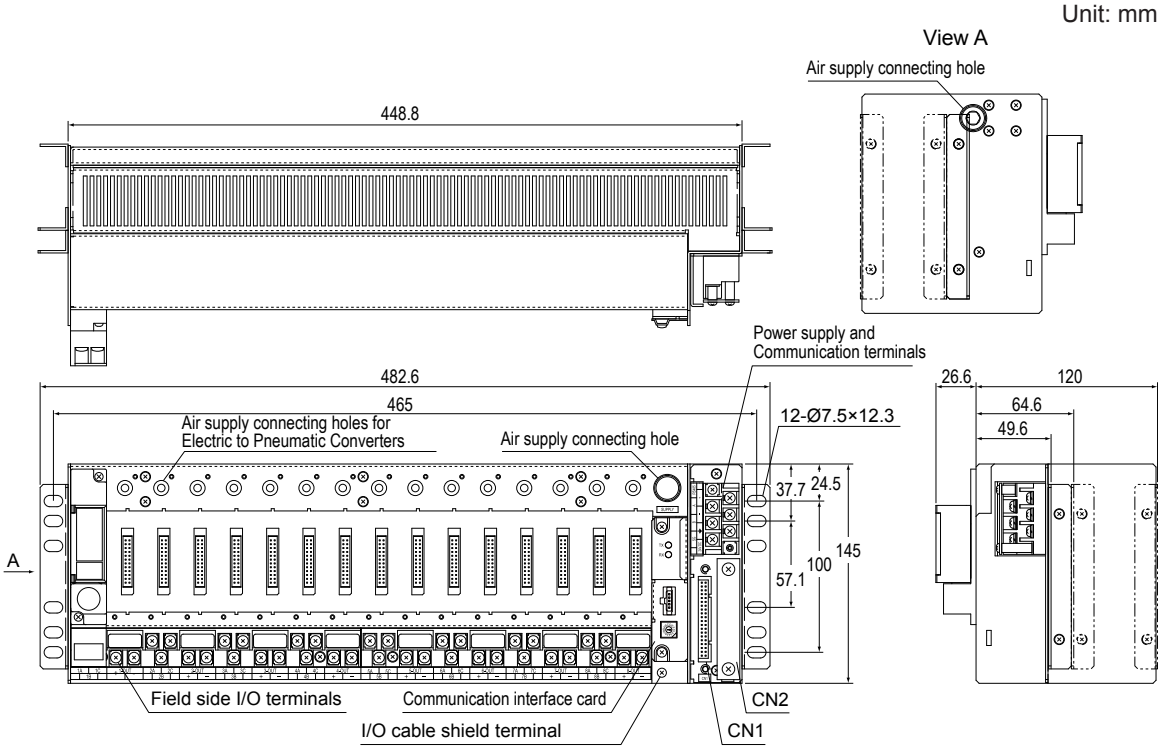
DME Nest for Control Input/Output (Electric, and P/E Mixed Mounting Type)

Unit: mm



DMP Nest for Control Input/Output (Electric, P/E, and E/P Mixed Mounting Type)

Unit: mm



1.3 Mounting Place of Signal Conditioner

The I/O module of connected side (DCS side) differs according to the model of nest. Also, the model of mountable signal conditioner and its mounting place differ according to the model of I/O module of connected side.

Nest		I/O module of connected side	Mountable signal conditioner and mounting place
DCE DCP	AAV141/K4A00 (Note)	Analog input module (with KS cable adapter)	Page 1-5
	AAB141/K4A00 (Note)	Analog input module (with KS cable adapter)	
	AMM12C	Voltage input multiplexer module	
	VM1	Multipoint analog input card	
	AAB841/V4A00 (Note)	Analog I/O module (with VM2 compatible adapter)	Page 1-6
	AAB842/V4A00 (Note)	Analog I/O module (with VM2 compatible adapter)	
	VM2	Multipoint analog I/O card	
	AAV542/K4A00 (Note)	Analog output module (with KS cable adapter)	Page 1-7
	VM4	Multipoint analog output card	
	APP149	16-channel pulse input module (PM1 compatible)	Page 1-8
	PM1	Multipoint pulse train input card	
DME DMP	AAB841/M4A00	Analog I/O module (Non-isolated)	Page 1-9
	AAB842/M4A00	Analog I/O module (with MAC2 compatible adapter)	
	AMC80	Multipoint control analog I/O module	
	MAC2	Multipoint analog control I/O card	
	AAP849	8-channel pulse input and 8-channel current output module (PAC compatible)	Page 1-10
	PAC	Multipoint pulse train input/analog output card	

(Note) Unavailable for duplex configuration which used two modules.

Connecting DCE, DCP to AAV141/K4A00, AAB141/K4A00, AMM12C, VM1

Nest slot number. / Signal Conditioner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Note
DH1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DH2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DH5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DM1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DC0																	
DC7																	
DA0																	
DH0																	
DT5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DR5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DRU	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DS1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DP3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DQ0																	
DA1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DA5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DA2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DA7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Note 1
DG1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DB1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DD1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DF1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DF0																	
DP1																	
DSK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Note 2
DX1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

✓: Available to mount

Note 1: This signal conditioner can be mounted when I/O module is AAB141/K4A00.

Note 2: The DSK cannot be connected to I/O module of connected side via connector. The slot where the DSK is mounted cannot send or receive signals via connector (CN1/CN2).

Connecting DCE, DCP to AAB841/V4A00, AAB842/V4A00, VM2

Nest slot number / Signal Conditioner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Note
DH1	✓	✓	✓	✓	✓	✓	✓	✓									
DH2	✓	✓	✓	✓	✓	✓	✓	✓									
DH5	✓	✓	✓	✓	✓	✓	✓	✓									
DM1	✓	✓	✓	✓	✓	✓	✓	✓									
DC0																	
DC7																	
DA0									✓	✓	✓	✓	✓	✓	✓	✓	
DH0									✓	✓	✓	✓	✓	✓	✓	✓	
DT5	✓	✓	✓	✓	✓	✓	✓	✓									
DR5	✓	✓	✓	✓	✓	✓	✓	✓									
DRU	✓	✓	✓	✓	✓	✓	✓	✓									
DS1	✓	✓	✓	✓	✓	✓	✓	✓									
DP3	✓	✓	✓	✓	✓	✓	✓	✓									
DQ0									✓	✓	✓	✓	✓	✓	✓	✓	
DA1	✓	✓	✓	✓	✓	✓	✓	✓									
DA5	✓	✓	✓	✓	✓	✓	✓	✓									
DA2	✓	✓	✓	✓	✓	✓	✓	✓									
DA7	✓	✓	✓	✓	✓	✓	✓	✓									(Note 1)
DG1	✓	✓	✓	✓	✓	✓	✓	✓									
DB1	✓	✓	✓	✓	✓	✓	✓	✓									
DD1	✓	✓	✓	✓	✓	✓	✓	✓									
DF1	✓	✓	✓	✓	✓	✓	✓	✓									
DF0									✓	✓	✓	✓	✓	✓	✓	✓	(Note 2)
DP1																	
DSK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 3)
DX1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 4)

✓: Available to mount

Note 1: This signal conditioner can be mounted when I/O module is AAB842/V4A00.

Note 2: The DF0 can be mounted only to the DCP nest.

Note 3: The DSK cannot be connected to I/O module of connected side via connector. The slot where the DSK is mounted cannot send or receive signals via connector (CN1/CN2).

Note 4: The DX1-21N*A and DX1-31N*A (when 250 Ω is selected) cannot be mounted to the nest slots from No.9 to No.16.

Connecting DCE, DCP to AAV542/K4A00, VM4

Nest slot number / Signal Conditioner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Note
DH1																	
DH2																	
DH5																	
DM1																	
DC0																	
DC7																	
DA0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DH0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DT5																	
DR5																	
DRU																	
DS1																	
DP3																	
DQ0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DA1																	
DA5																	
DA2																	
DA7																	
DG1																	
DB1																	
DD1																	
DF1																	
DF0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 1)
DP1																	
DSK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 2)
DX1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 3)

✓: Available to mount

Note 1: The DF0 can be mounted only to the DCP nest.

Note 2: The DSK cannot be connected to I/O module of connected side via connector. The slot where the DSK is mounted cannot send or receive signals via connector (CN1/CN2).

Note 3: The DX1-21N*A and DX1-31N*A (when 250 Ω is selected) cannot be mounted.

Connecting DCE, DCP to APP149, PM1

Nest slot number / Signal Conditioner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Note
DH1																	
DH2																	
DH5																	
DM1																	
DC0																	
DC7																	
DA0																	
DH0																	
DT5																	
DR5																	
DRU																	
DS1																	
DP3																	
DQ0																	
DA1																	
DA5																	
DA2																	
DA7																	
DG1																	
DB1																	
DD1																	
DF1																	
DF0																	
DP1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
DSK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 1)
DX1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 2)

✓: Available to mount

Note 1: The DSK cannot be connected to I/O module of connected side via connector. The slot where the DSK is mounted cannot send or receive signals via connector (CN1/CN2).

Note 2: The DX1-21N*A and DX1-31N*A (when 250 Ω is selected) cannot be mounted.

Connecting DME, DMP to AAB841/M4A00, AAB842/M4A00, AMC80, MAC2

Nest slot number / Signal Conditioner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Note
DH1	✓		✓		✓		✓		✓		✓		✓		✓		
DH2	✓		✓		✓		✓		✓		✓		✓		✓		
DH5	✓		✓		✓		✓		✓		✓		✓		✓		
DM1	✓		✓		✓		✓		✓		✓		✓		✓		
DC0		✓		✓		✓		✓		✓		✓		✓		✓	
DC7		✓		✓		✓		✓		✓		✓		✓		✓	(Note 1)
DA0																	
DH0																	
DT5	✓		✓		✓		✓		✓		✓		✓		✓		
DR5	✓		✓		✓		✓		✓		✓		✓		✓		
DRU	✓		✓		✓		✓		✓		✓		✓		✓		
DS1	✓		✓		✓		✓		✓		✓		✓		✓		
DP3	✓		✓		✓		✓		✓		✓		✓		✓		
DQ0																	
DA1	✓		✓		✓		✓		✓		✓		✓		✓		
DA5	✓		✓		✓		✓		✓		✓		✓		✓		
DA2	✓		✓		✓		✓		✓		✓		✓		✓		
DA7	✓		✓		✓		✓		✓		✓		✓		✓		(Note 1)
DG1	✓		✓		✓		✓		✓		✓		✓		✓		
DB1	✓		✓		✓		✓		✓		✓		✓		✓		
DD1	✓		✓		✓		✓		✓		✓		✓		✓		
DF1	✓		✓		✓		✓		✓		✓		✓		✓		
DF0		✓		✓		✓		✓		✓		✓		✓		✓	(Note 2)
DP1																	
DSK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 3)
DX1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 4)

✓: Available to mount

Note 1: This signal conditioner can be mounted when I/O module is AAB842/M4A00.

Note 2: The DF0 can be mounted only to the DMP nest.

Note 3: The DSK cannot be connected to I/O module of connected side via connector. The slot where the DSK is mounted cannot send or receive signals via connector (CN1/CN2).

Note 4: The DX1-21N*A and DX1-31N*A (when 250 Ω is selected) cannot be mounted to the even-numbered nest slots.

Connecting DME, DMP to AAP849, PAC

Nest slot number / Signal Conditioner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Note
DH1																	
DH2																	
DH5																	
DM1																	
DC0		✓		✓		✓		✓		✓		✓		✓		✓	
DC7																	
DA0																	
DH0																	
DT5																	
DR5																	
DRU																	
DS1																	
DP3																	
DQ0																	
DA1																	
DA5																	
DA2																	
DA7																	
DG1																	
DB1																	
DD1																	
DF1																	
DF0		✓		✓		✓		✓		✓		✓		✓		✓	(Note1)
DP1	✓		✓		✓		✓		✓		✓		✓		✓		
DSK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 2)
DX1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	(Note 3)

✓: Available to mount

Note 1: The DF0 can be mounted only to the DMP nest.

Note 2: The DSK cannot be connected to I/O module of connected side via connector. The slot where the DSK is mounted cannot send or receive signals via connector (CN1/CN2).

Note 3: The DX1-21N*A and DX1-31N*A (when 250 Ω is selected) cannot be mounted to the even-numbered nest slots.

2.1 Model and Suffix Codes

Isolator

DH1-□6□*B

Model

Input Signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
H : 10 to 50 mA DC	0 : (Custom order)
Z : (Custom order) Current signal	Voltage signal

Output 1 Signal

6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order) Current signal	0 : (Custom order) Voltage signal

Power supply: 24 V DC±10%

Isolator (Free Range Type)

DH2-□6□*B

Model

Input Signal

A : 0 to 50 mA DC, span is 1 mA or more
B : 0 to 20 mA DC, span is 0.1 mA or more
Z : (Cutom order) Current signal
1 : -10 to +10 V DC, span is 0.1 V or more
2 : -2 to +2 V DC, span is 10 mV or more
0 : (Custom order) Voltage signal

Output 1 Signal

6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order) Current signal	0 : (Custom order) Voltage signal

Power supply: 24 V DC±10%

Isolator (with Square Root Extractor)

DH5-66□*B

Model

Input Signal

6 : 1 to 5 V DC

Output 1 Signal

6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order) Current signal	0 : (Custom order) Voltage signal

Power supply: 24 V DC±10%

Isolator (mV Input Free Range Type)

DM1-16□*B/B□

Model

Input Signal

1 : mV DC potentional difference signal
Input signal range: -100 to +150 mV DC
Input span: 3 mV or more

Output 1 Signal

6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order) Current signal	0 : (Custom order) Voltage signal

Burnout

U : UP
D : DOWN
N : OFF

Power supply: 24 V DC±10%

Output Isolator (Current I/O Type)

DC0-A□N*B

Model

Input Signal
A : 4 to 20 mA DC

Output signal
A : 4 to 20 mA DC
H : 10 to 50 mA DC

Power supply: 24 V DC±10%

Output Isolator (Current I/O Type) (with HART Communication)

DC7-AAN

Model

Input Signal
A : 4 to 20 mA DC

Output signal
A : 4 to 20 mA DC

Power supply: 24 V DC±10%

Output Isolator (Voltage Input/Current Output Type)

DA0-6□N*B

Model

Input Signal
6 : 1 to 5 V DC

Output signal
A : 4 to 20 mA DC
H : 10 to 50 mA DC
Z : (Custom order)
Current signal

Power supply
24 V DC±10%

Output Isolator (Voltage I/O Type)

DH0-6□N*B

Model

Input Signal
6 : 1 to 5 V DC

Output Signal
1 : 0 to 10 mV DC
2 : 0 to 100 mV DC
3 : 0 to 1 V DC
4 : 0 to 10 V DC
5 : 0 to 5 V DC
6 : 1 to 5 V DC
0 : (Custom order)
Voltage signal

Power supply
24 V DC±10%

Thermocouple Converter (Free Range Type)

DT5-□6□*B/B□/□

Model

Input Signal
IEC/JIS specifications thermocouple
1 : K (CA) 6 : S
2 : T (CC) 7 : B (RH)
3 : E (CRC) 8 : N
4 : J (IC) 0 : Custom order
5 : R

Output 1 Signal
6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order) Current signal	0 : (Custom order) Voltage signal

Burnout
U : UP
D : DOWN
N : OFF

Optional specification
DF: Fahrenheit display function

Power supply 24 V DC ±10%

RTD Converter (Free Range Type)

DR5-□6□*B/B□/□

Model

Input Signal
IEC/JIS specifications RTD
1 : Pt100 (IPTS-68: JIS'89)
2 : JPt100 (JIS'89)
3 : Pt50 (JIS'81)
4 : Pt100 (ITS-90: JIS'97)
0 : Custom order

Output 1 Signal
6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal	Voltage signal

Burnout
U : UP
D : DOWN
N : OFF

Optional specification
DF: Fahrenheit display function

Power supply 24 V DC ±10%

Cryogenic Temperature Converter

DRU-□66*A/B□/□

Model

Input Signal
1 : 4-wire type RTD for cyogenic
0 : (Custom order)
Other 4-wire type RTD

Output 1 Signal
6 : 1 to 5 V DC

Output 2 signal
6 : 1 to 5 V DC

Burnout
U : UP
D : DOWN
N : OFF

Optional specification
DF : Fahrenheit display function

Power supply: 24 V DC±10%

Potentiometer Converter (Free Range Type)

DS1-□6□*B/B□

Model

Input Signal
1 : Total resistance=Within 100 Ω to 2 kΩ
0 : (Custom oder)
Total resistance=More than 2 kΩ to 30 kΩ

Output 1 Signal
6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal	Voltage signal

Burnout
U : UP
D : DOWN
N : OFF

Power supply: 24 V DC±10%

Pulse to Analog Converter (Free Range Type)

DP3-□6□*A

Model

Transmitter power supply
1 : Transmitter power supply (12 V ±10%)
2 : Transmitter power supply (24 V ±10%)

Output 1 Signal
6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal	Voltage signal

Power supply
24 V DC±10%

Analog to Pulse Converter (Free Range Type)

DQ0-□1N*A

Model

Input Signal
- A : 4 to 20 mA DC
- 6 : 1 to 5 V DC

Output signal
- 1 : Open collector

Power supply
- 24 V DC±10%

Note: This instrument may output a pulse when the power is turned on/off.
Depending on the connected devices, this pulse output is counted as "one pulse."

Distributor

DA1-A6□*B

Model

Input Signal
- A : 4 to 20 mA DC (Transmitter power supply: 25 to 28 V DC)

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal

Current signal	Voltage signal
A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)

Power supply
- 24 V DC±10%

Distributor (with Square Root Extractor)

DA5-A6□*B

Model

Input Signal
- A : 4 to 20 mA DC (Transmitter power supply: 25.25±0.25 V DC)

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal

Current signal	Voltage signal
A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)

Power supply
- 24 V DC±10%

Distributor (with Communication Function)

DA2-A66*B

Model

Input Signal
- A : 4 to 20 mA DC (Transmitter power supply: 25 to 28 V DC)

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal
- 6 : 1 to 5 V DC

Power supply
- 24 V DC±10%

Distributor (with HART Communication)

DA7-AA6

Model

Input Signal
- A : 4 to 20 mA DC (Transmitter power supply: 25.25±0.25 V DC)

Output 1 Signal
- A : 4 to 20 mA DC

Output 2 Signal
- 6 : 1 to 5 V DC (Can be output only from terminal (3)-(4).)

Power supply
- 24 V DC±10%

Note1: When using with the following Yokogawa model, it is necessary to change the position of a switch for HART communication.
Temperature Transmitter YTA (Style 1 and 2) which was shipped before 2003
Vortex flowmeter DY, DYA which were shipped before 2003
Magnetic flowmeters AM11, AE, AE14, SE, SE14

Note2: HART communication does not work properly when using in combination with Yokogawa analytical EXA202 series (PH202G, PH202S, SC202G, SC202S, ISC202G, ISC202S, DO202G, and DO202S). The succession model, FLXA21 can be worked properly.

PT Converter (RMS)

DG1-□6□*A

Model

Input Signal
- 1 : 0 to 110 V AC
- 2 : 0 to 150 V AC
- 0 : (Custom order) Voltage signal

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal	Voltage signal

Power supply
- 24 V DC±10%

CT Converter (RMS)

DB1-□6□*A

Model

Input Signal
- A : 0 to 1 A AC
- B : 0 to 5 A AC
- Z : (Custom order) Current signal

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal	Voltage signal

Power supply
- 24 V DC±10%

Tachometer Converter

DD1-16□*A

Model

Input Signal
- 1 : AC voltage signal

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal (24 mA or less)	Voltage signal (±10 V or less)

Power supply
- 24 V DC±10%

Pneumatic to Electric Converter

DF1-□6□*A

Model

Input Signal
- 1 : 0.2 to 1.0 kgf/cm^2
- 2 : 3 to 15 psi
- 3 : 20 to 100 kPa
- 4 : 19.6 to 98.1 kPa

Output 1 Signal
- 6 : 1 to 5 V DC

Output 2 signal

A : 4 to 20 mA DC	1 : 0 to 10 mV DC
B : 2 to 10 mA DC	2 : 0 to 100 mV DC
C : 1 to 5 mA DC	3 : 0 to 1 V DC
D : 0 to 20 mA DC	4 : 0 to 10 V DC
E : 0 to 16 mA DC	5 : 0 to 5 V DC
F : 0 to 10 mA DC	6 : 1 to 5 V DC
G : 0 to 1 mA DC	7 : -10 to +10 V DC
Z : (Custom order)	0 : (Custom order)
Current signal	Voltage signal

Power supply
- 24 V DC±10%

Electric to Pneumatic Converter

DF0-☐☐N*A

Model

Input Signal
- A : 4 to 20 mA DC
- 6 : 1 to 5 V DC

Output Signal
- 1 : 0.2 to 1.0 kgf/cm^2
- 2 : 3 to 15 psi
- 3 : 20 to 100 kPa
- 4 : 19.6 to 98.1 kPa

Power supply
- 24 V DC±10%

Pulse Repeater

DP1-☐11*B

Model

Transmitter power supply
- 1 : Transmitter power supply (12 V ±10%)
- 2 : Transmitter power supply (24 V ±10%)

Output 1 Signal
- 1 : Open collector

Output 2 signal
- 1 : Open collector

Power supply
- 24 V DC±10%

Note: This instrument may output a pulse when the power is turned on/off.
Depending on the connected devices, this pulse output is counted as "one pulse."

Limit Alarm

DSK-☐11

Model

Input Signal
- A : 4 to 20 mA DC 6 : 1 to 5 V DC
- Z : (Custom order) 0 : (Custom order)
- Current signal Voltage signal

Output 1 Signal
- 1 : Alarm output (Relay contact)

Output 2 signal
- 1 : Alarm output (Relay contact)

Input/Output Through Card

DX1-☐1N*A

Model

Input Signal
- 1 : Without input resistance 250 Ω
- 2 : With input resistance 250 Ω
- 3 : With changeover switch of input resistance 250 Ω

Output 1 Signal
- 1 : Direct connection of input and output

Extension Card

DXT*A

Model

Communication Interface Card

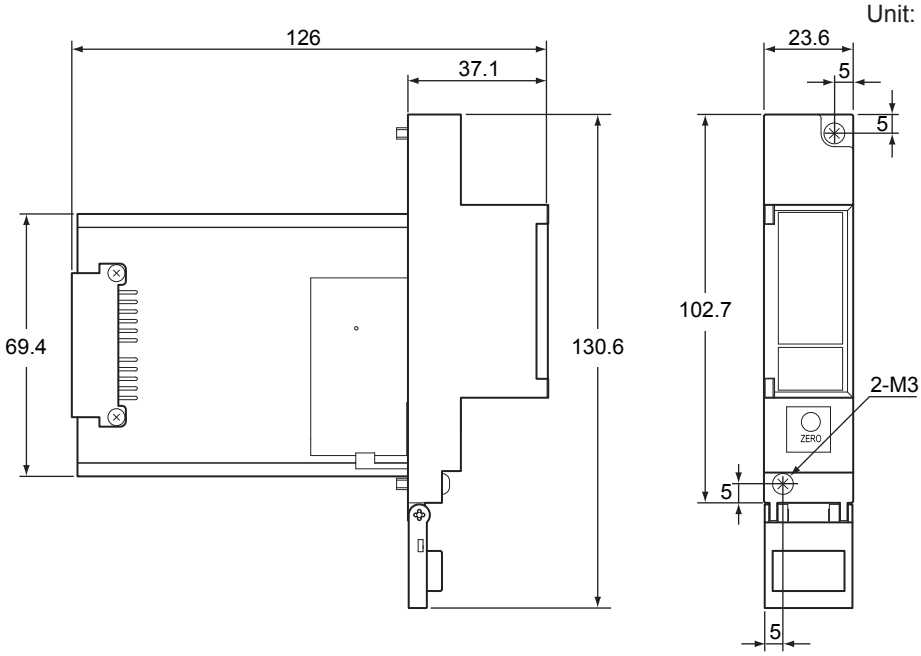
DSC2

Model

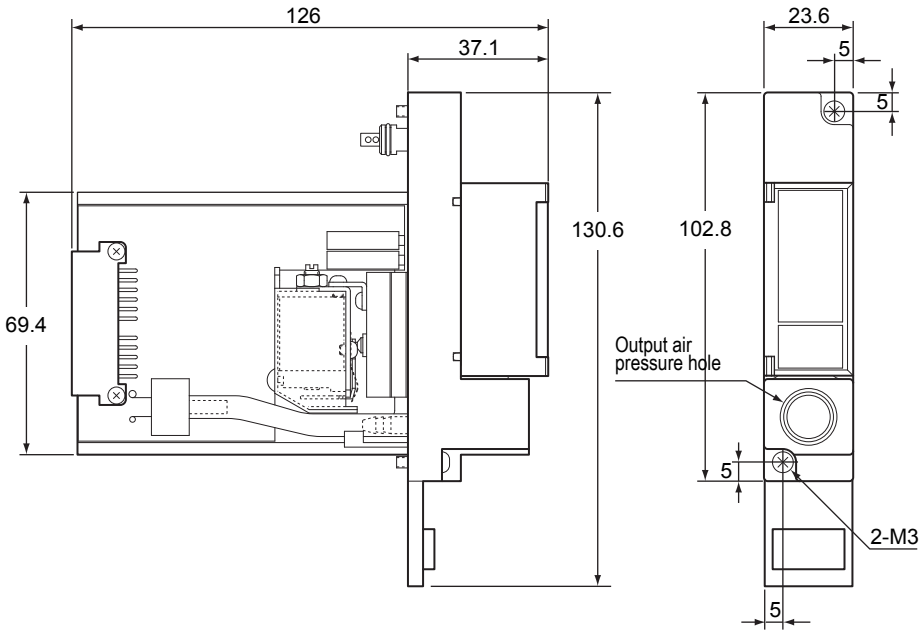
2.2 External Dimensions

Signal Conditioners other than DF0 and DF1

Unit: mm

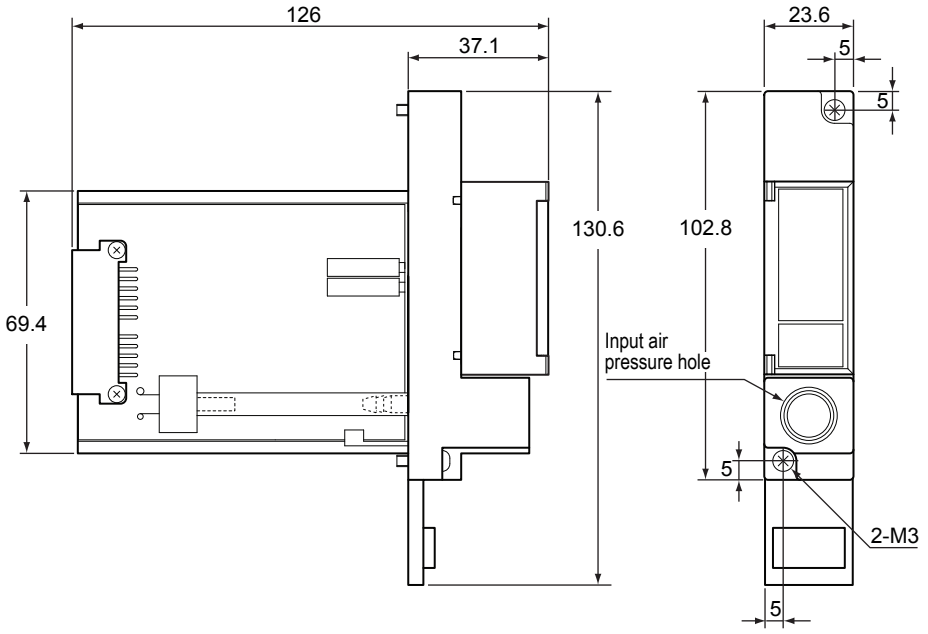


DF0 Electric to Pneumatic Converter

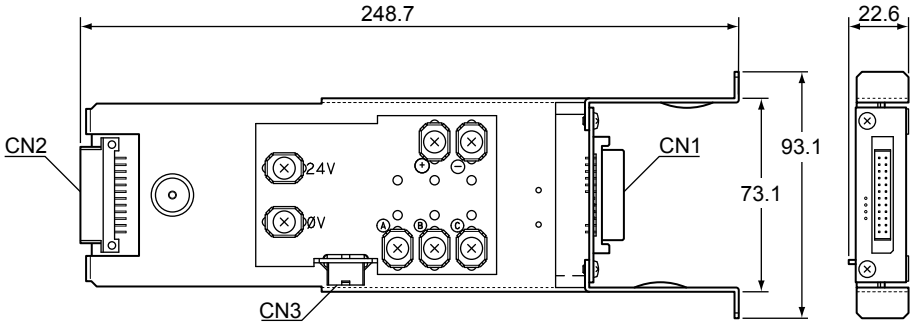


Unit: mm

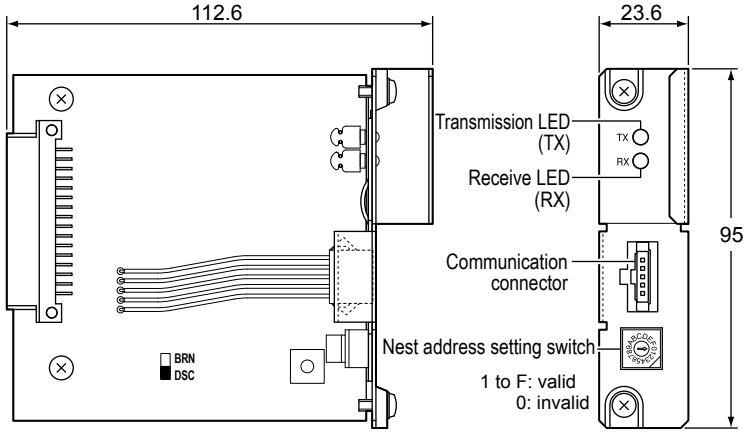
DF1 Pneumatic to Electric Converter



DXT Extension Card

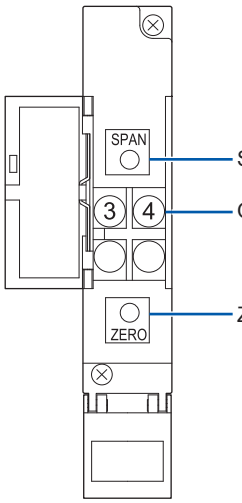


DSC2 Communication Interface Card



2.3 Terminal Assignments

DH1, DA1, DA2, and DA7



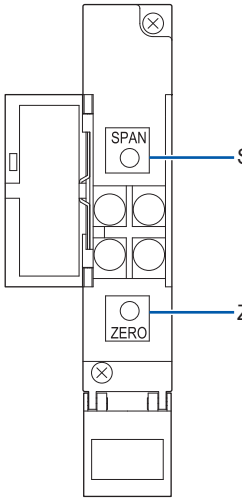
Span adjustment trimmer

Output-2 terminal

Zero adjustment trimmer

Terminal	Signal	Connection
③	Output-2 (+)	M4×0.7 screw
④	Output-2 (–)	

DA0, DC7 and DH0

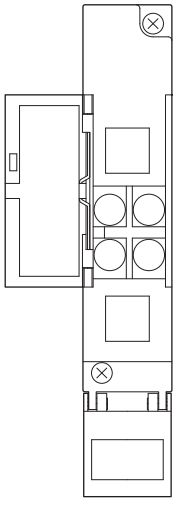


Span adjustment trimmer

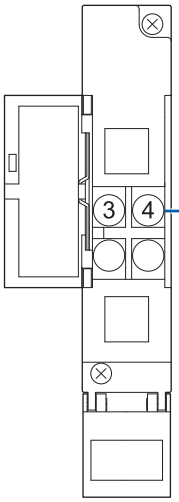
Zero adjustment trimmer

DC0, DQ0, and DX1

No input/output front terminals and adjustment trimmers.

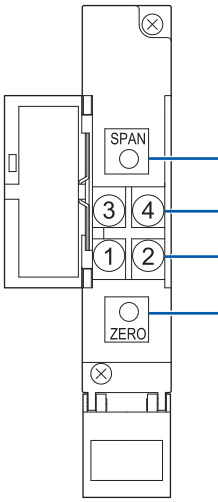


DH2, DH5, DM1, DT5, DR5, DS1, DP3, DA5, and DP1



Terminal	Signal	Connection
③	Output-2 (+)	M4×0.7 Screw
④	Output-2 (–)	

DG1, DD1, and DB1



Terminal Arrangement of DG1 and DD1

Terminal	Signal	Connection
①	Input (V)	M4×0.7 screw
②	Input (±)	
③	Output 2 (+)	
④	Output 2 (–)	

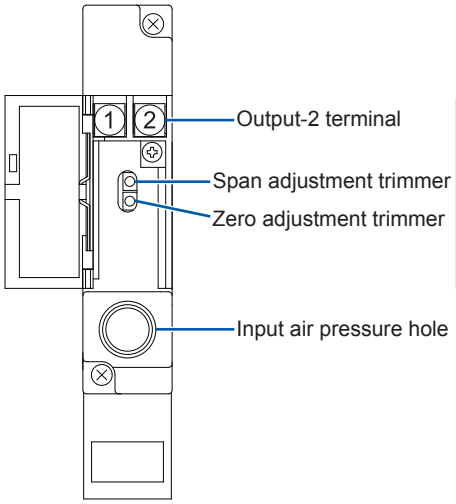
Terminal Arrangement of DB1

Terminal	Signal	Connection
①	Input (A)	M4×0.7 screw
②	Input (±)	
③	Output 2 (+)	
④	Output 2 (–)	

CAUTION

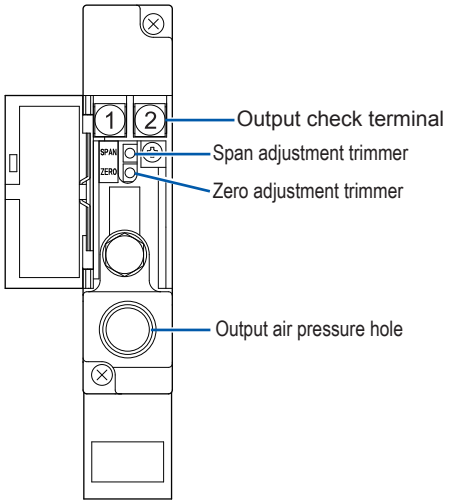
Connect the input signal line to the front terminals ① and ② of the signal conditioner. An incorrect connection to the field side terminals of the nest may cause overheating or burning of the nest.

DF1



Terminal	Signal		Connection
①	Output-2	(+)	M4×0.7 screw
②	Output-2	(–)	
	Input		Rc1/4

DF0



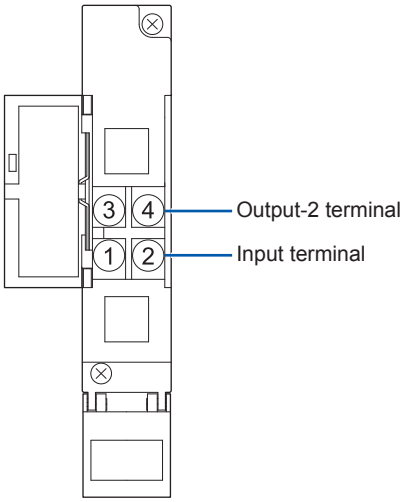
Terminal	Signal	Connection
①	For output check (+)	M4×0.7 screw
②	For output check (–)	
	Output	Rc1/4

The 1 to 5 V DC signal proportional to the output air signal is outputted between output check terminals 1 and 2. (Accuracy: ±1%)

CAUTION

When removing the DF0 from the nest, pull the DF0 about 15 mm from the nest, then disconnect the output piping. Pulling about 15 mm makes the auto-sealing valve function of the nest work to prevent air leak.

DRU

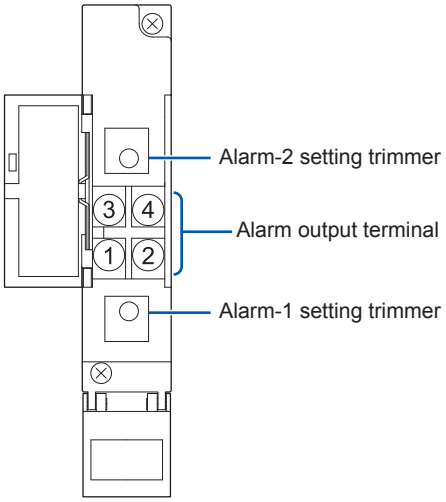


Terminal	Signal	Connection
①	Input (A)	M4×0.7 screw
②	Input (B)	
③	Output-2 (+)	
④	Output-2 (–)	

Note

Input wiring for the DRU is 4-wire type. Field side terminals Ⓐ and Ⓒ of the nest are used in addition to the input terminals ① and ② of the DRU.

DSK



Terminal	Signal	Connection
①	Alarm-1 output (NO/NC)	M4×0.7 screw
②	Alarm-1 output (COM)	
③	Alarm-2 output (NO/NC)	
④	Alarm-2 output (COM)	

3.1 Installation

The DCE, DCP, DME, and DMP nests can be mounted horizontally on an EIA/JIS-standard 19-inch rack or on the wall. Maximum 5 nests can be mounted on one side of the cabinet on the installation conditions mentioned on the next page.

Environmental Conditions

(1) Ambient temperature and humidity

The following ambient temperature and humidity ranges are applied during operation of the units.
0 to 50°C, 5 to 90%RH (no condensation)

(2) Vibration condition

Desirable vibration of installation location is 2 m/s^2 (about 0.2 G) or less at 10 to 150 Hz.

(3) Air purity

Desirable indoor dust is 0.2 mg/m^3 or less.
Especially, corrosive gases and conductive dusts, such as, for example, a hydrogen sulfide, sulfurous acid gas, chlorine, iron, and carbon should not be present.

Installation Conditions

(1)Secure spaces above and below the nest for heat protection.
- Apart 100 mm or more from the floorboard.
- Apart 100 mm or more from the top of the panel. Make air vent hole and set air cooling fan at the top of the panel.
- Apart 60 mm or more from back wall for air ventilation in case of rack mounting.

(2)Sufficient spaces are required for front and side of the nest since they are wiring, piping, and maintenance area.

(3)When storing the nest in the cabinet, make compulsory air cool to prevent raise of temperature.

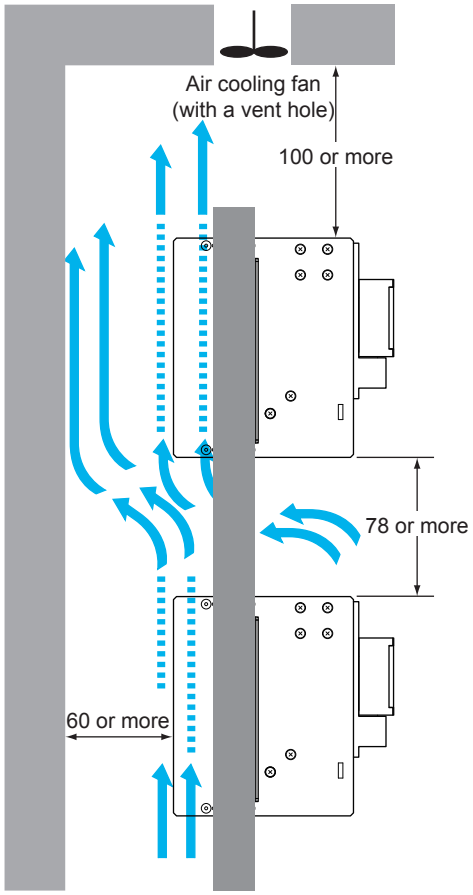
(4)Do not place the nest on heat generation materials.

(5)When mounting the nest one above another, provide space above and below the nest as shown below

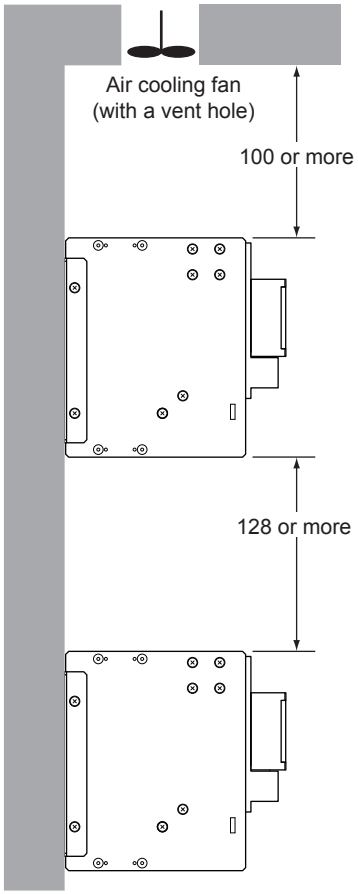
Nest Mounting Methods

Unit: mm

● 19-inch Rack Mounting

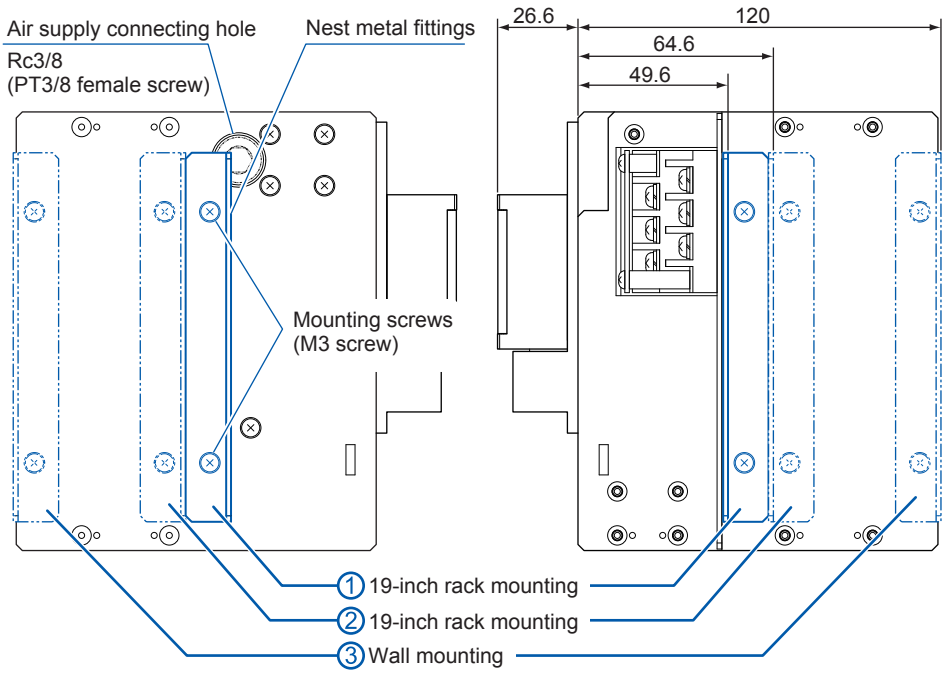


● Wall Mounting



Mounting of Nest Metal Fittings

Screw holes for three types of mounting places are provided on both sides of the nest as shown below. Mount the nest metal fittings in either of them according to the nest mounting place.



Note

When two air supply connecting holes are used, mount the nest metal fittings in either ② or ③.

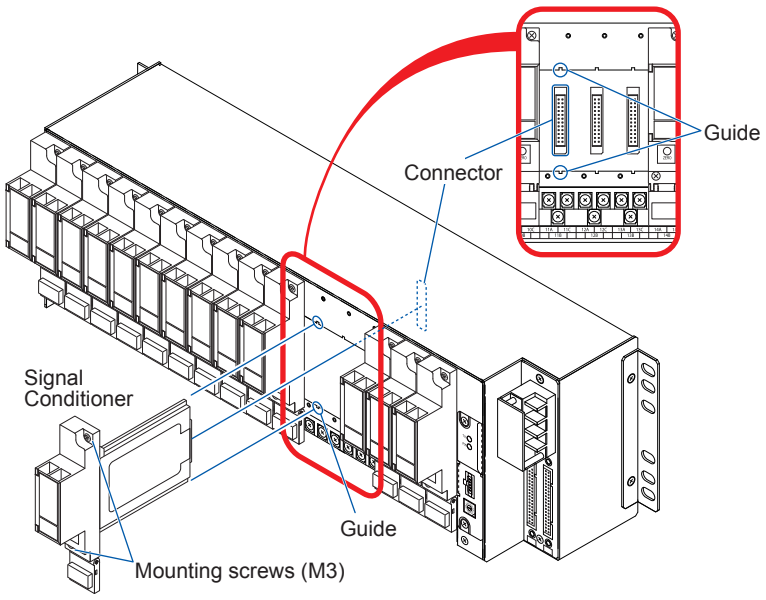
Mounting and Removal of Signal Conditioners

Mounting

1. Place the signal conditioner so that the edge fit into the guides of the nest and insert it.
2. Push the signal conditioner so that the connectors are connected certainly, and fix it by mounting screws (upper and lower sides).

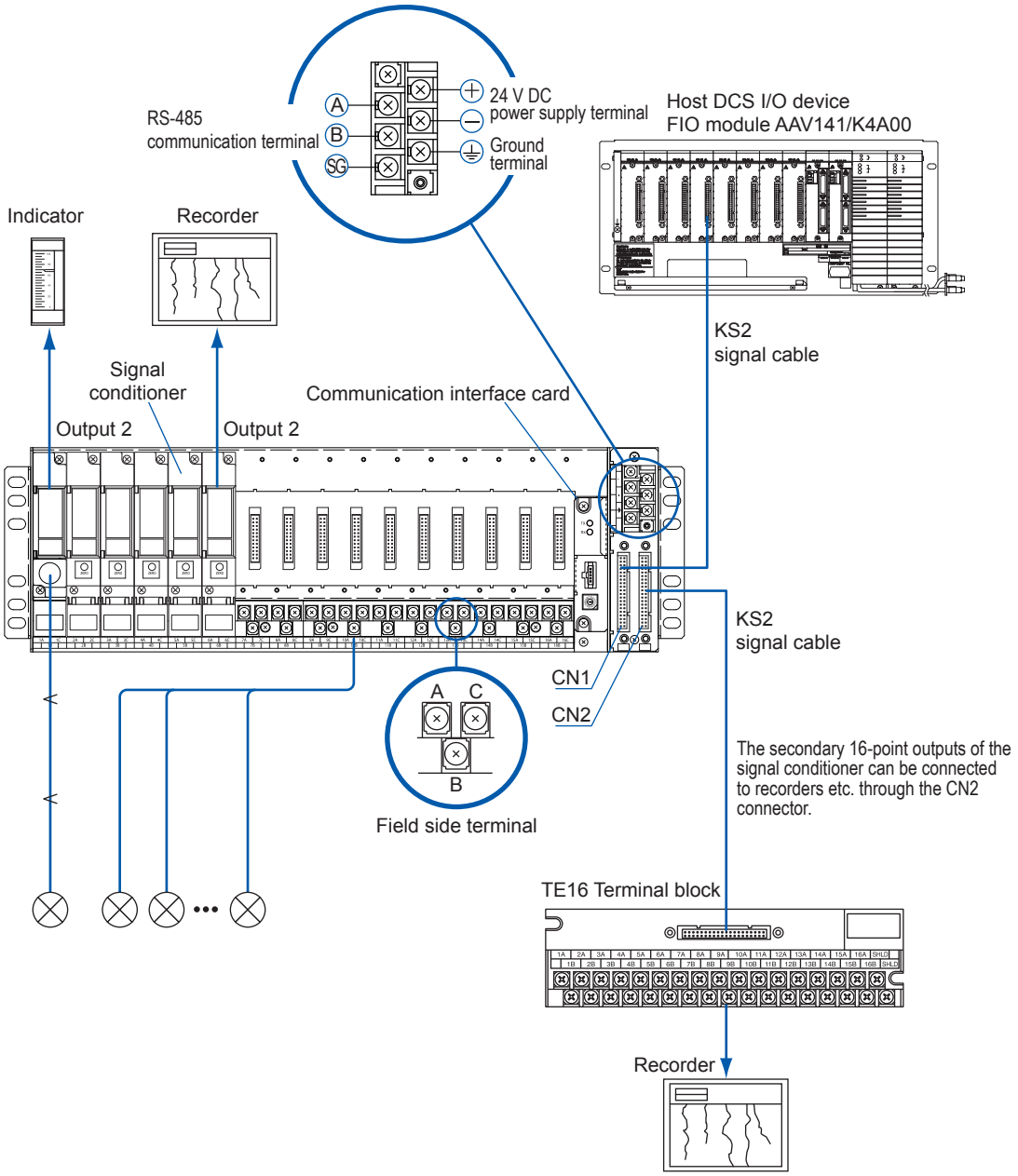
Removal

Loosen the mounting screws of the upper and lower sides, and draw out a signal converter to the front.



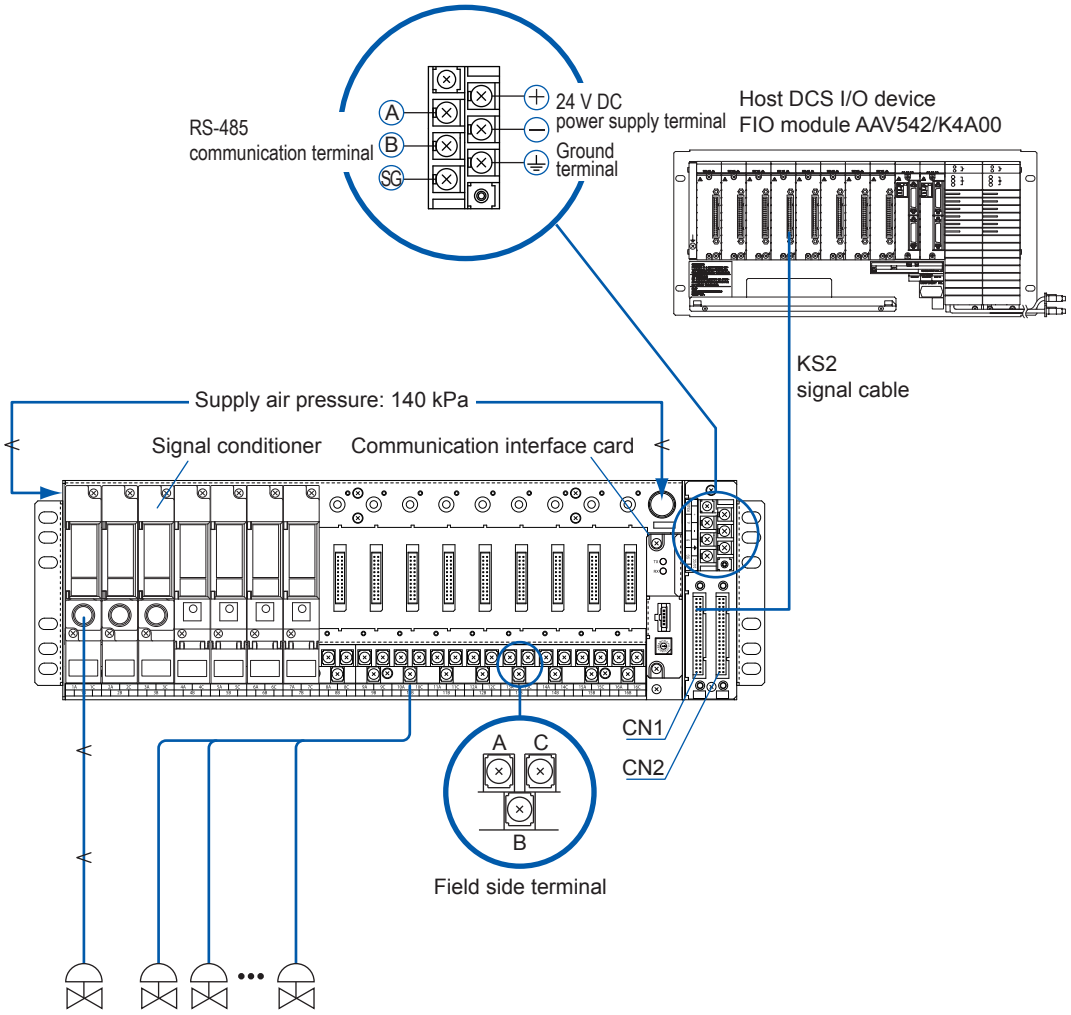
3.2 Example of I/O Connection

DCE Nest: Example of Connection to AAV141/K4A00



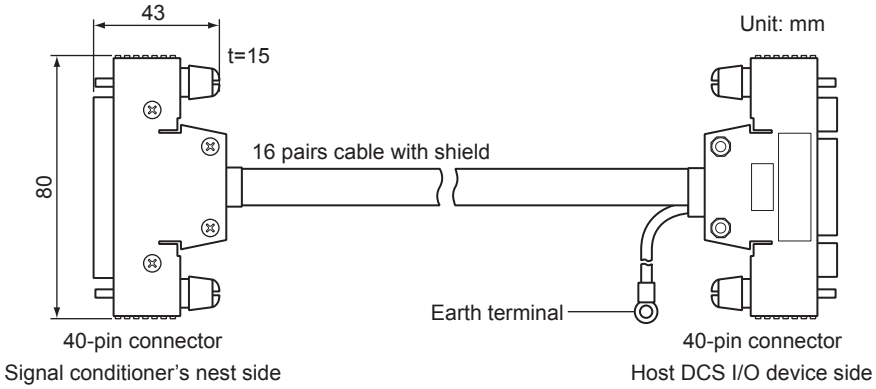
► The figure above is the example of connection to the multipoint analog input module. For the signal conditioners mountable to the nest, see the section 1.3 in this manual.

DCP Nest: Example of Connection to AAV542/K4A00

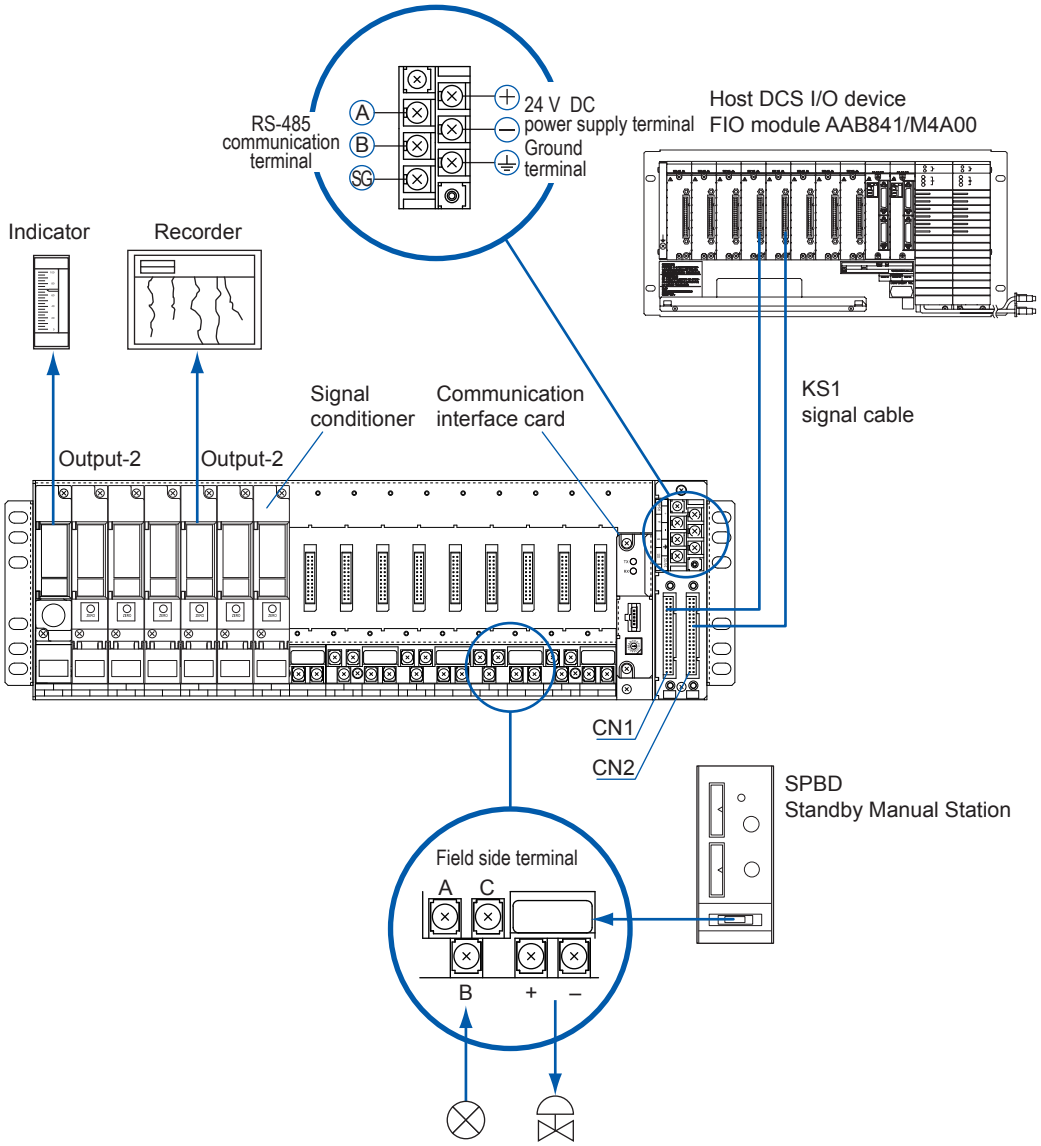


► The figure above is the example of connection to the multipoint analog output module. For the signal conditioners mountable to the nest, see the section 1.3 in this manual.

KS2 Cable

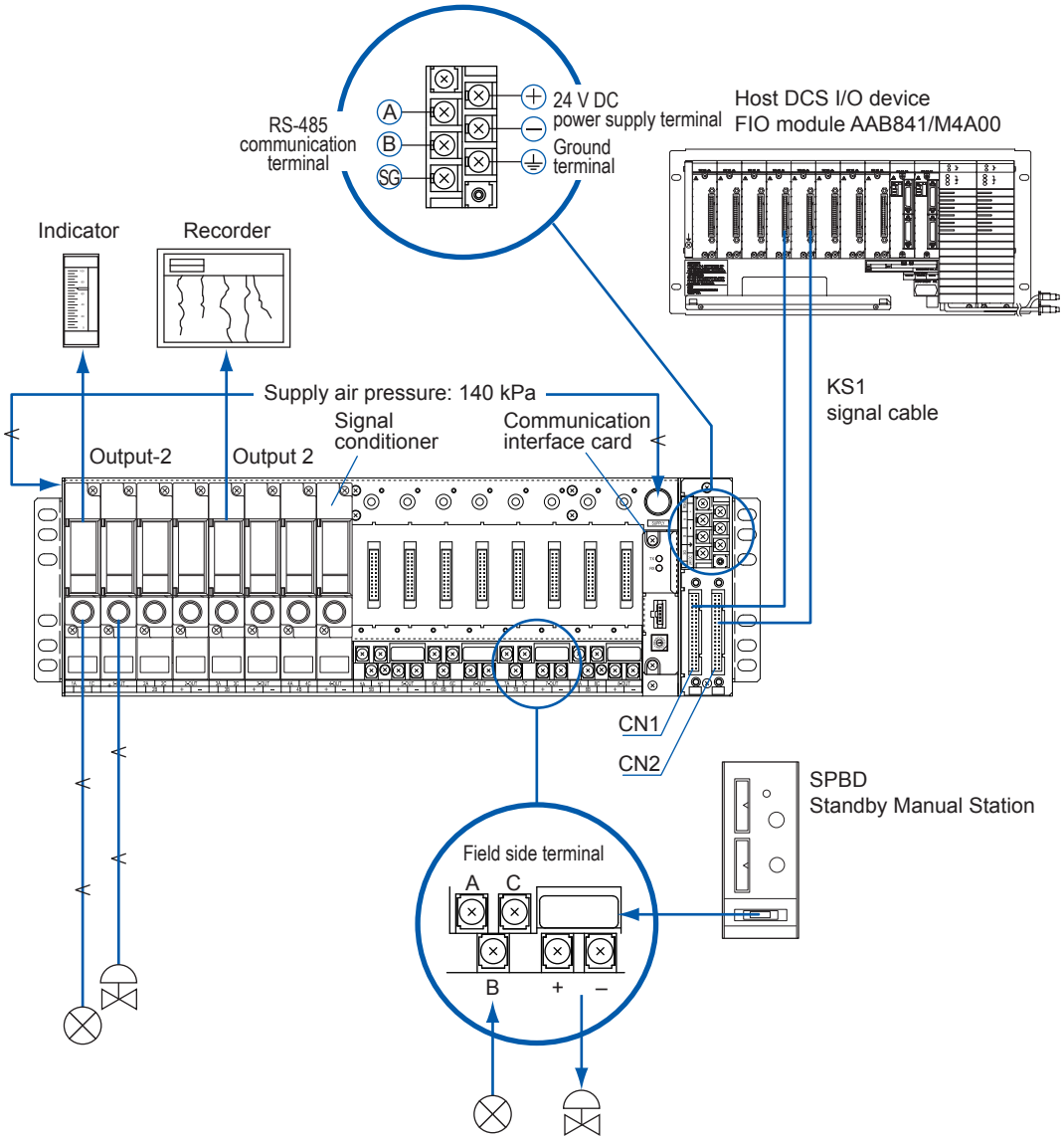


DME Nest: Example of Connection to AAB841/M4A00



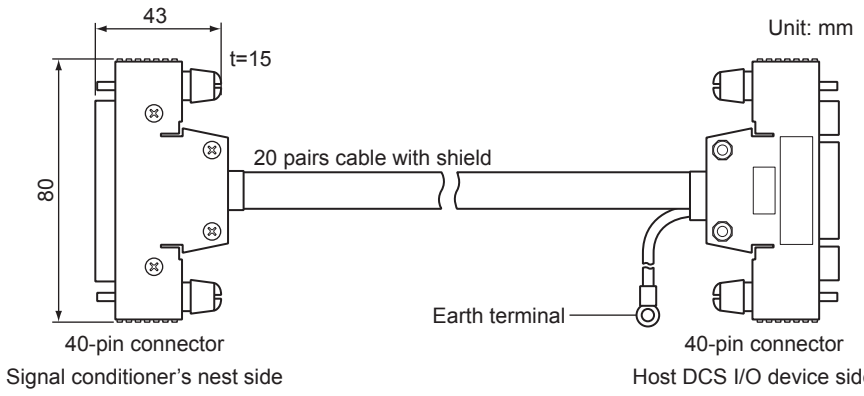
► The figure above is the example of connection to the multipoint analog I/O module. For the signal conditioners mountable to the nest, see the section 1.3 in this manual.

DMP Nest: Example of Connection to AAB841/M4A00



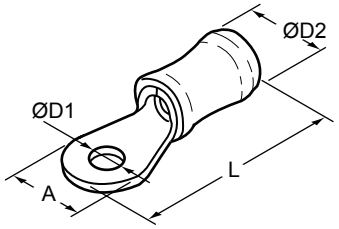
► The figure above is the example of connection to the multipoint analog I/O module. For the signal conditioners mountable to the nest, see the section 1.3 in this manual.

KS1 Cable



3.3 Cables for Field Side Wiring and Wiring of Power Supply and Ground

Flexible twisted cables and durable round crimp-on terminals (JIS C 2805) are recommended to be used.



Nominal cross-sectional area	Screw (mm)	øD1 Hole diameter (mm)	A Terminal diameter (mm)	L Terminal length (mm)	øD2 Insulating cover (mm)
0.75mm^2 0.9mm^2 1.25mm^2	4	4.3 or more	8.7 or less	About 21	3.6 or less
2mm^2	4	4.3 or more	8.7 or less	About 21	3.9 or less

(1) Signal wiring cable
Nominal cross-sectional area of conductor : 0.75 to 2 mm^2
Example of applicable cable:
Twisted polyvinyl chloride insulated flexible cords (VSF) (JIS C 3306)

(2) Power supply wiring cable and DG1/DB1 input signal wiring cable
Nominal cross-sectional area of conductor : 0.75 to 2 mm^2
Example of applicable cable :
600 V polyvinyl chloride insulated wires (IV) (JIS C 3307)
Polyvinyl chloride insulated wires for electrical apparatus (KIV) (JIS C 3316)

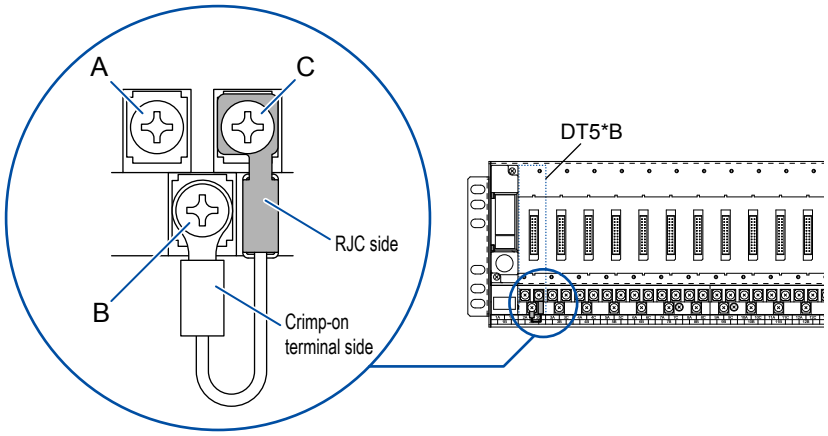
(3) Ground wiring cable
Nominal cross-sectional area of conductor : 2 mm^2
Example of applicable cable:
600 V polyvinyl chloride insulated wires (IV) (JIS C 3307)
Polyvinyl chloride insulated wires for electrical apparatus (KIV) (JIS C 3316)

3.4 Wiring and Piping of Field Side Terminal and Front Terminal of Signal Conditioner

Connection examples on pages from 3-4 to 3-7 show assignments of the field side terminals. The field side terminals are M4 screw terminals. Dedicated cable is used to connect the nest and DCS I/O devices.
The table on page 3-10 shows relationship between the field side terminals of the DCP nest, front terminals of the signal conditioner and I/O signal. The table applies to the DCE nest except only it cannot store the DF0 (Electric to Pneumatic Converter).
The table on page 3-11 shows relationship between the field side terminals of DMP nest, front terminals of the signal conditioner and I/O signal. The table applies to the DME nest except only it cannot store the DF0 (Electric to Pneumatic Converter).
For example, in case of DM1 input, apply "+" signal to the field side terminal A of the nest and apply "–" signal to the terminal C. B shows no wiring.

Connecting the RJC Sensor (DT5*B Thermocouple Converter)

Connect the RJC side of RJC sensor to the field side terminal C of the nest and the other side to the field side terminal B as shown below.



CAUTION

- Connect the RJC sensor together with the input signal line so that the crimp-on terminal of the input signal line overlaps the RJC sensor.
- Handle the RJC sensor lead wire with care to prevent disconnection.
- The RJC sensor of DT5*B has a different structure from that of the former style DT5*A.

Note for the DF0 (Electric to Pneumatic Converter) Mounging as a Spare

Do not remove the white sealing plug of the output air pressure hole for dust prevention when the DF0 is mounted to the nest (DCP/DMP) as a spare without I/O signal.
Also, do not apply input signal while the plug is on the pipe hole. This unloaded condition might cause hunting to occur.

WARNING

Be sure to turn OFF the power supply before wiring to avoid the risk of electric shock. Use a tester or similar device to ensure that no power is being supplied to a cable to be connected.

Wiring and Piping of Field Side Terminal of DCP (DCE) Nest and Front Terminal of Signal Conditioner

Signal Conditioner		Field side I/O Terminal Symbol			Front Terminal Symbol				
		A	B	C	1	2	3	4	AIR
DM1		+	Not Connected	–	Not Connected	Not Connected	+	–	
							For Output 2		
DT5*B		+ RJC –			Not Connected	Not Connected	+	–	
							For Output 2		
DR5		Wiring resistance of A and B should be equal			Not Connected	Not Connected	+	–	
							For Output 2		
DRU		RTD					+	–	
							For Output 2		
DS1		100% CENTER 0% Wiring resistance of A and C should be equal			Not Connected	Not Connected	+	–	
							For Output 2		
DP1 DP3	2-wire type (Voltage contact)	+	Not Connected	–	Not Connected	Not Connected	Not Connected		
	Internal power supply 2-wire type	Signal	Power supply	Not Connected			+	–	
							For Output 2		
	Internal power supply 3-wire type	+	Power supply	–			Not Connected		
DH1, DH2, DH5		+	Not Connected	–	Not Connected	Not Connected	+	–	
							For Output 2		
DA1, DA2, DA5		Available for the combination with BARD + – in case power supply is not necessary			Not Connected	Not Connected	+	–	
							For Output 2		
DA7		For 2-wire transmitter – +					+	–	
							For Output 2		
DH0, DA0, DQ0		+	Not Connected	–	Not Connected	Not Connected	Not Connected		
DX1 (*1)		+	Not Connected	–	Not Connected	Not Connected	Not Connected		
DG1 ⚠		Not Connected	Not Connected	Not Connected	V u v ± U V L N		+	–	
							For Output 2		
DB1 ⚠		Not Connected	Not Connected	Not Connected	A k l ± K L		+	–	
							For Output 2		
DD1 ⚠		Not Connected	Not Connected	Not Connected	V TG ±		+	–	
							For Output 2		
DF1		Not Connected	Not Connected	Not Connected	+	–	Not Connected		IN
					For Output 2				
DF0 (Available for DCP only)		Not Connected	Not Connected	Not Connected	+	–	Not Connected		OUT
					For output signal check				
DSK		+	Not Connected	–	NO/NC	COM	NO/NC	COM	
					Output 1		Output 2		

• I/O screw terminal: M4 x 0.7, I/O air piping: Rc1/4 female screw, Air supply piping: Rc3/8 female screw
• In case the output 2 signal is DC current, it can be output from either “CN2” or from “Front terminal.”
(*1) 250 Ω installed type cannot be used as output card (even-numbered slot.)

CAUTION

- Connect the input signal line of DG1, DB1, and DD1 to the front terminals 1 and 2 of the signal conditioner. An incorrect connection to the field side terminals of the nest may cause overheating or burning of the nest (DCP/DCE.)
- Do not connect anything to the terminal with no instruction in the table above. Operation cannot be guaranteed if the terminal is connected.

WARNING

Be sure to turn OFF the power supply before wiring to avoid the risk of electric shock. Use a tester or similar device to ensure that no power is being supplied to a cable to be connected.

Wiring and Piping of Field Side Terminal of DMP (DME) Nest and Front Terminal of Signal Conditioner

Signal Conditioner		Field side I/O Terminal Symbol			Front Terminal Symbol				
		A	B	C	1	2	3	4	AIR
DM1		+	Not Connected	–	Not Connected	Not Connected	+	–	
							For Output 2		
DT5*B		+ RJC –			Not Connected	Not Connected	+	–	
							For Output 2		
DR5		Wiring resistance of A and B should be equal			Not Connected	Not Connected	+	–	
							For Output 2		
DRU		RTD					+	–	
							For Output 2		
DS1		100% CENTER 0% Wiring resistance of A and C should be equal			Not Connected	Not Connected	+	–	
							For Output 2		
DP1 DP3	2-wire type (Voltage contact)	+	Not Connected	–	Not Connected	Not Connected	Not Connected		
	Internal power supply 2-wire type	Signal	Power supply	Not Connected			+	–	
							For Output 2		
	Internal power supply 3-wire type	+	Power supply	–			Not Connected		
DH1, DH2, DH5		+	Not Connected	–	Not Connected	Not Connected	+	–	
							For Output 2		
DA1, DA2, DA5		Available for the combination with BARD + – in case power supply is not necessary			Not Connected	Not Connected	+	–	
							For Output 2		
DA7		For 2-wire transmitter – +					+	–	
							For Output 2		
DC0, DC7		+	Not Connected	–	Not Connected	Not Connected	Not Connected		
DX1 (*1)		+	Not Connected	–	Not Connected	Not Connected	Not Connected		
DG1 ⚠		Not Connected	Not Connected	Not Connected	V u v ± U V L N		+	–	
							For Output 2		
DB1 ⚠		Not Connected	Not Connected	Not Connected	A k l ± K L		+	–	
							For Output 2		
DD1 ⚠		Not Connected	Not Connected	Not Connected	V TG ±		+	–	
							For Output 2		
DF1		Not Connected	Not Connected	Not Connected	+	–	Not Connected		IN
					For the Output 2				
DF0 (Available for DMP only)		Not Connected	Not Connected	Not Connected	+	–	Not Connected		OUT
					For output signal check				
DSK		+	Not Connected	–	NO/NC	COM	NO/NC	COM	
					For output signal check		Output 2		

• I/O screw terminal: M4 x 0.7, I/O air piping: Rc1/4 female screw, Air supply piping: Rc3/8 female screw
• In case the output 2 signal is DC current, it can be output from either “CN2” or from “Front terminal.”
(*1) 250 Ω installed type cannot be used as output card (even-numbered slot.)

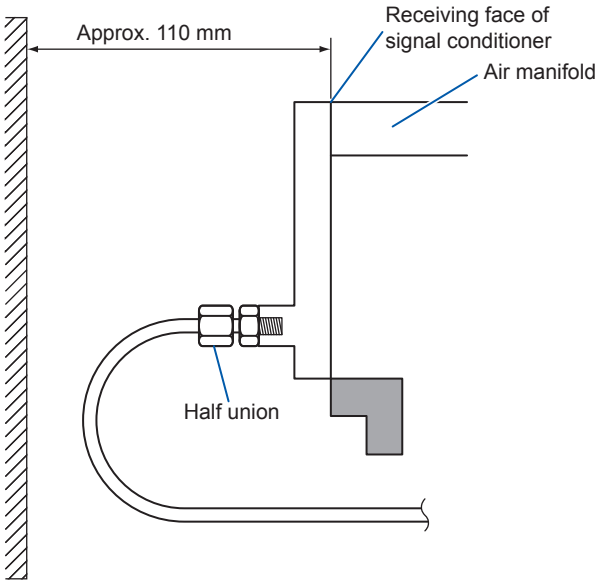
CAUTION

- Connect the input signal line of DG1, DB1, and DD1 to the front terminals 1 and 2 of the signal conditioner. An incorrect connection to the field side terminals of the nest may cause overheating or burning of the nest (DMP/DME.)
- Do not connect anything to the terminal with no instruction in the table above. Operation cannot be guaranteed if the terminal is connected.

3.5 Air Piping

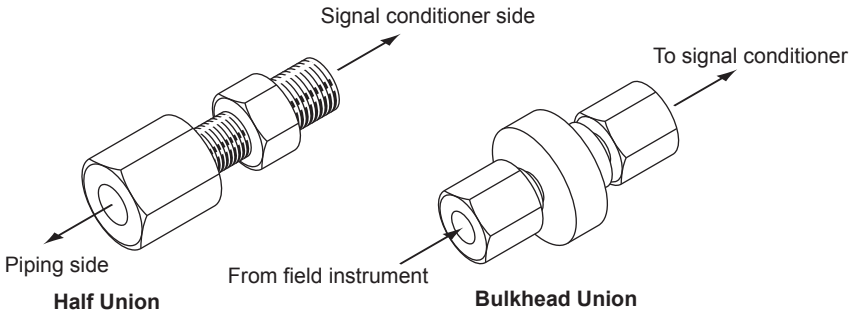
Space of Piping

110 mm or more piping space from the nest's receiving face of signal conditioner is recommended to be secured as shown below.



Materials of Piping

Application / Division	First recommendation	Second recommendation
	Nylon pipe	Hard steel pipe
Harf Union (ø6×Rc1/4)	MH-1062	AH-1062
Bulkhead Union (ø6×ø6)	ME-4060	AE-4060
Piping (ø6×4)	AX-1206 (Black)	C1220T-1/2H (JIS)



Air supply Piping Method

The following method is recommendable for air supply piping in the instrumentation board.

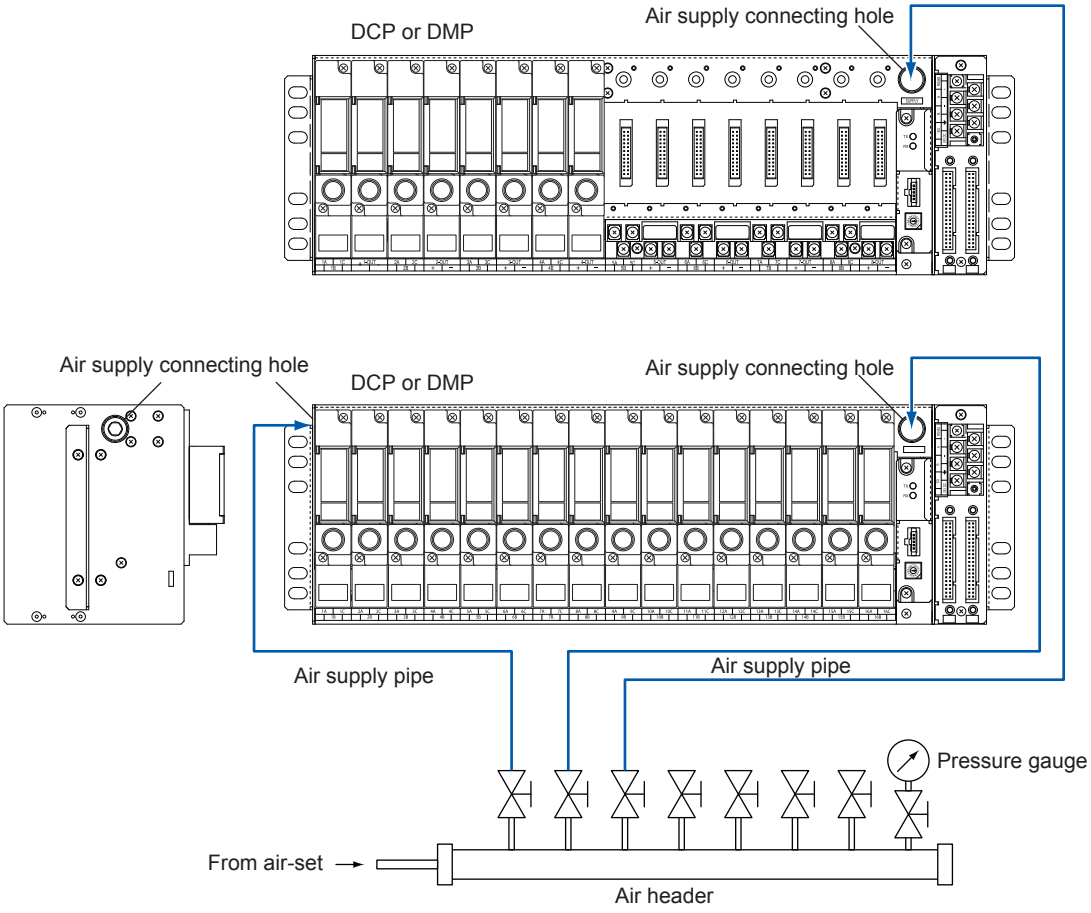
(1) Pipe length
Pipe length from air header to air supply connecting hole of the nest should be within 5 m.

(2) Pipe diamter (ID: Inside Diameter)
Use pipe of ID 8,9, or 10 mm.

(3) Number of air supply connecting holes
Make additional air supply connecting hole if maximum air consumption of overall DCP or DMP nest exceeds 480 Nl/min.
Additional air supply connecting hole is provided on the left side board of the nest as shown below.

- If maximum air consumption is 480 Nl/min or less (corresponding to air consumption of 8 E/P converters), the number of air supply connecting holes is one.
- If maximum air consumption exceeds 480 Nl/min (corresponding to air consumption of 8 E/P converters), the number of air supply connecting holes is two.

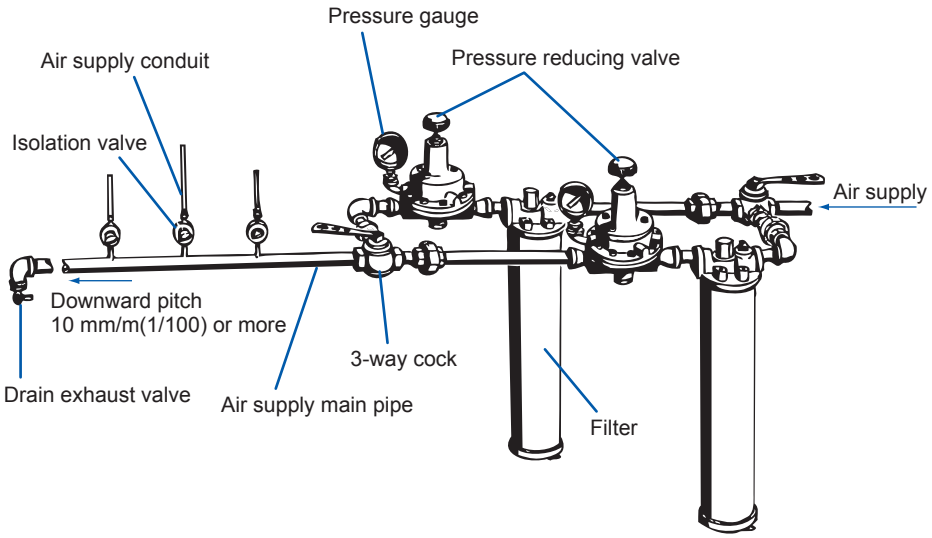
However, the above conditions of (1) and (2) should be satisfied



Air supply System

After-cooler, filter, air dryer should be set following after the compressor so as not to intrude water, oil, and other dirts into E/P converter since E/P converter requires clean and dried air.
The following shows example of air supply system and the notice for its setting.

(1) Example of Air supply System



As shown in the figure above, two pressure reducing valves are recommendable to use in parallel in case of plenty of applicable instruments. Parallel disposition will serve to keep operation in case either one of the valves is clogged. As shown in the figure above, use of 3-way cock can separate either one of the air supply systems when it requires maintenance. Usually, both air supply systems can be operated in parallel. In order to supply clean and dried air to the instruments, water drain, filter, and pipe inclination (1/100 or more) shall be set.

(2) Composition

- Air supply
  Clean and dired air is required. Take out water, oil, and other dirts by after-cooler, filter, air dryer, etc.
- Air supply main pipe (Air header)
  Make inclination of at least 10 mm/m (1/100) on main pipe supplying air to series of instruments so that moisture and oil can be take out from the pipe.
- Air supply conduit pipe
  Conduit pipe should be take out from the upper of the main pipe so as to prevent the moisture. Even in an unavoidable case, take out the conduit pipe from main pipe section. Never take out it from the bottom.
  Isolation valve is recommended to be set on the air supply conduit pipe so as to take out the respective instruments separately.
- Filter
  Filter will serve to take out moisture, oil, and other dirts which can not be eliminated by the main air supply system. Usually, open the bottom cock and drain the moistutre, oil, etc. once or more per day.

The above method and device is only the example. There are other methods and devices. Use suitable methods and devices so as to supply clean and dried air to the instruments.

Air Leakage Check

When air leakage check be made by using check liquid after air piping of input pressure hole of P/E converter and output pressure hole of E/P converter as well as air supply connecting hole of DCP and DMP nests have been completed, utmost care shall be done not to flow the check liquid into converters
The following air leakage check liquids are recommended to be used. Do not use water.

- Liquid Leak Detector "Snoop"
  Manuafactured by Nupro Company
  Sold by Sugimoto Shoji

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4.1 Check Points before Turning On

Check for Power Supply Voltage, Supply-Air Pressure, and Signal Wiring

(1)Rating of the power supply: 24 V DC ± 10%
(2)Rating of the supply-air pressure: 140 kPa ± 10%
(3)Signal wiring
(4)Mounting, Ambient temperature, Ambient humidity, Dusts, Vibration
Be sure to check the above points before turning on the signal conditioners.
The product meets the specified performance in about 5 minutes after turning on.

Check for Burnout Operation and Ranges

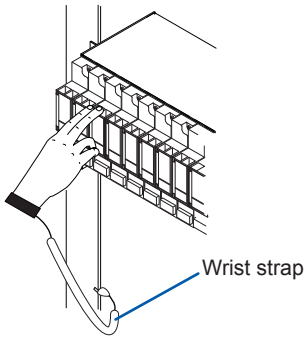
The settings for the burnout operation (UP, DOWN, OFF) and the range are set according to your specification at the time of factory shipments.
Check that the model and specifications indicated on the label attached to inside of the main unit are as ordered.

4.2 Precaution for the Static Electricity

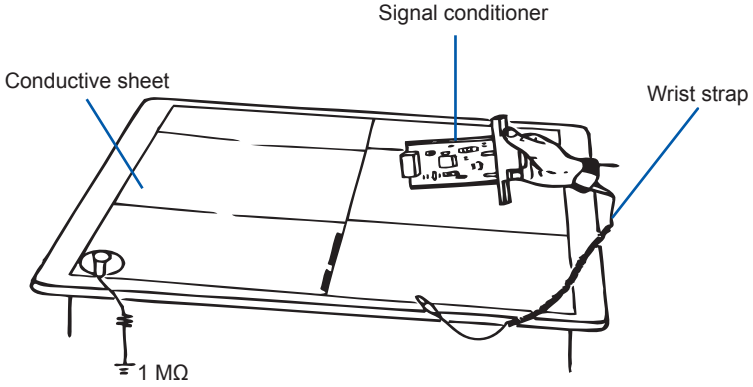
Many semiconductor integrated circuit components are used for the signal conditioner. When handling it for the purpose of the maintenance or settings, it is necessary to be careful enough to the static electricity trouble.
Be careful of the following points in order to avoid the static electricity trouble.

(1)Put the signal conditioner into conductive bag or charge protection bag when storing or carrying separately. (The signal conditioner for single order is shipped put in a conductive bag or charge protection bag from the factory.)

(2)When inserting or pulling out the signal conditioner, use wrist strap with ground conductor through a 1 MΩ resistor. Wrist strap should be connected to ground terminal near the ground conductor or unpainted portion (grounded) of the rack.



(3)In case where the signal conditioner is used on a work bench, etc., place it on the conductive sheet grounded through a 1 MΩ resistor. The worker should wear the wrist strap described in (2). Do not place the plastics electrified easily on the work bench.



(4)Do not touch by hands directly to the electrical parts such as the patterns, connectors or pins without using the wrist strap and conductive sheet.

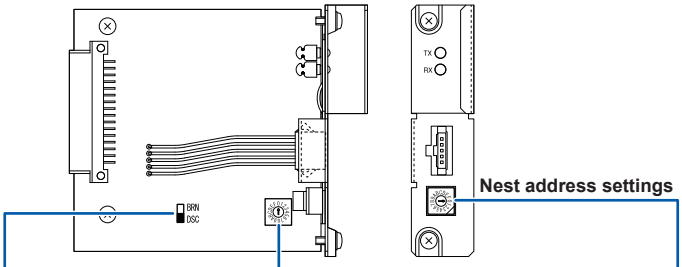
4.3 Signal Conditioners and Interface Card with Setting Means

A part of specification of DCS2 Communication Interface Card, DP1 Pulse Repeater, DP3 Pulse to Analog Converter, DA7 Distributor (with Communication Function) (with HART Communication) and DC7 Output Isolator (Current I / O Type) (with HART Communication) are set by the switch or a short-circuit socket.
The following table shows the setting means and setting method. Refer to the pages from 4-3 to 4-8 for details.

Signal Conditioners and Interface Card with setting means	Setting means	Setting methods
DSC2 Communication Interface Card	Nest address	Rotary switch
	Communication condition	
	Upper communication protocol	Short-circuit socket & Setting pins
DP1 Pulse Repeater	Load resistance for current pulses	Short-circuit socket & Setting pins
	Filter	
DP3 Pulse to Analog Converter	Transmitter power supply voltage	Short-circuit socket & Setting pins
	Load resistance for current pulses	Setting switch
	Filter	
DSK Limit Alarm	Direction of the alarm action	Short-circuit socket & Setting pins
	Output contact (NO/NC)	
DX1 Input/Output Through Card	Setting of 250 Ω input resistance ON/OFF	Short-circuit socket & Setting pins
DA7 Distributor (with HART Communication)	Setting of HART communication ON/OFF	Short-circuit socket & Setting pins
		Slide switch
DC7 Output Isolator (Current I / O Type) (with HART Communication)	Setting of HART communication ON/OFF	Short-circuit socket & Setting pins

Setting of DSC2 Communication Interface Card

Refer to the figure below for the setting.
The setting of communication condition works only if the setting of upper communication protocol is "DSC2 upper communication protocol."



Setting of the upper communication protocol

DSC2 Upper Communication Protocol (Factory default)

BRAIN Communication Protocol

Setting of the communication condition

	Baud rate (bps)	Parity
0	9600	None (Factory default)
1	9600	Odd
2	9600	Even
3	4800	None
4	4800	Odd
5	4800	Even
6	2400	None
7	2400	Odd
8	2400	Even
9	1200	None
A	1200	Odd
B	1200	Even
C	600	None
D	600	Odd
E	600	Even
F	-----	Undefined

	Nest address
0	0 (Factory default)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	15

Setting of DP1 Pulse Repeater

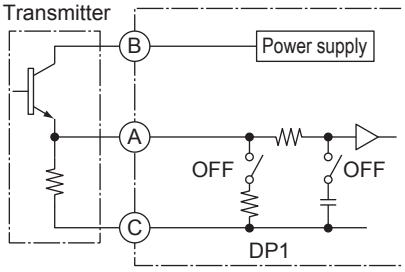
DP1 is a pulse repeater that receives voltage, current, or contact pulses from a field and converts them into an isolated transistor-contact pulse.

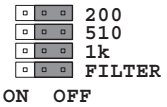
- Since the DP1 has an embedded load resistance, the current pulses transmitted from various flowmeters can be received. The load resistance for current pulses can be set by the combination of a short-circuit socket and setting pins.
- The input filter “ON/OFF” is selectable. It is effective when receiving an input signal including a chattering signal such as from a relay contact.
  The filter "ON/OFF" can be set by the combination of a short-circuit socket and setting pins.

There are four connection methods according to the types of transmitters.

Connection to 3-wire Power Supply Type Transmitter

In this method, supplies the power to the transmitter and receives the output signal of transmitter as a voltage pulse signal.

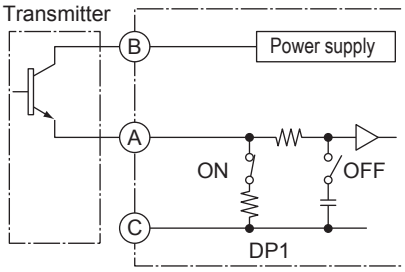


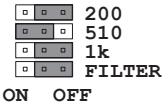


All settings should be OFF

Connection to 2-wire Power Supply Type Transmitter

In this method, supplies the power to the transmitter and receives the output signal of transmitter as a current pulse signal. This current signal is converted into a voltage level pulse by the load resistance for current pulses. (200 Ω, 510 Ω, 1 KΩ selectable)

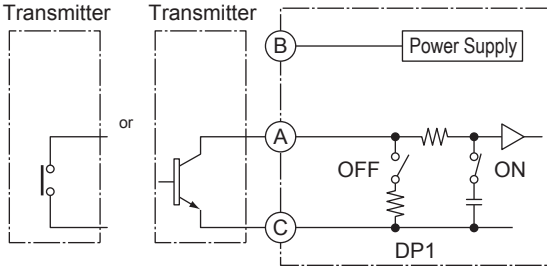


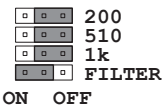


The switch of required resistance should be set to ON position.
(The above example is the setting for 510 Ω)

Connection to Contact Pulse Transmitter

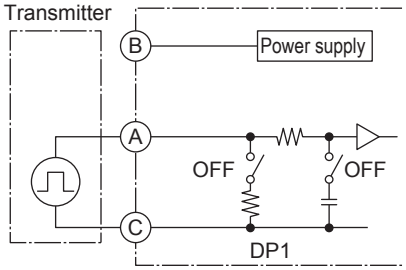
Input signals can be received by both the relay contact and open collector.

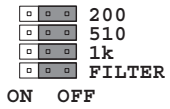




All resistance switches should be OFF.
FILTER switch is set to ON when removing a noise.
(The above example is the setting for FILTER ON.)

Connection to Voltage Pulse Transmitter





All settings should be OFF

Setting of the Load Resistance for Current Pulses

DP1 requires the setting of the load resistance for current pulses according to the connected transmitter. Short 2 setting pins using a short-circuit socket for the setting. The factory default is set to OFF.

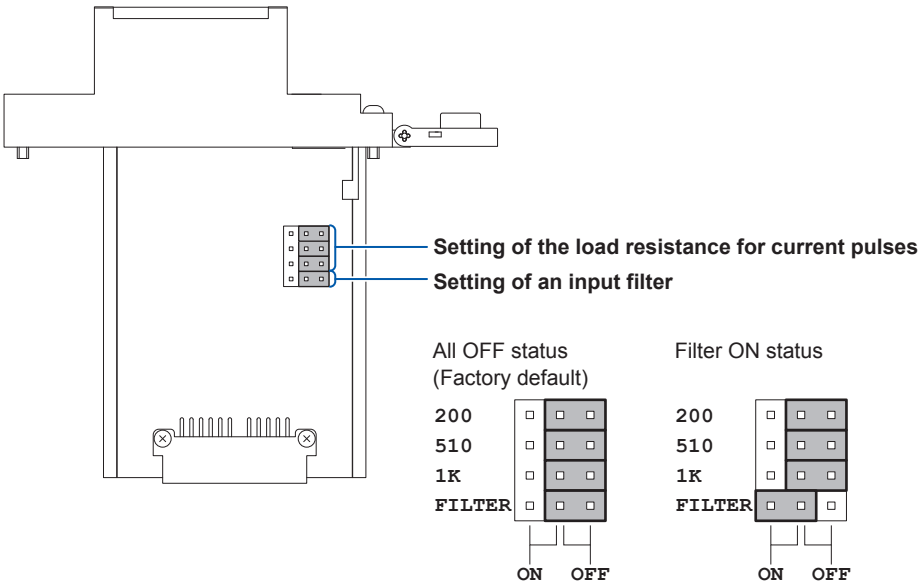
Setting of Input Filter

If the pulse input has chattering noise at dry contact (mechanical relay, etc.) of below 100 Hz, set the input filter to ON to eliminate the noise. ON/OFF pins of the input filter is located at the bottom of setting pins. The factory default is set to OFF.

Setting Method

Note

When taking out or inserting a short-circuit socket, use tweezers, etc., and be careful not to bend a pin.



Relation between Setting pins and the Load Resistance for Current Pulses

Setting pins			Load resistance for current pulses
200	510	1K	
OFF	OFF	**ON**	1 kΩ
OFF	**ON**	OFF	510 Ω
OFF	**ON**	**ON**	338 Ω
ON	OFF	OFF	200 Ω
ON	OFF	**ON**	167 Ω
ON	**ON**	OFF	144 Ω
ON	**ON**	**ON**	126 Ω

Setting of DP3 Pulse to Analog Converter

DP3 receives pulse signals from a field and converts them into isolated DC voltage or DC current signals. Any input can be received from voltage pulses, current pulses, voltage-free contacts, and open collector contacts.

- Transmitter's power supply of either 12 V DC or 24 V DC can be selected by the combination of a short-circuit socket and setting pins.

As the DP1, four (4) connection methods are available according to the type of transmitter.

► Connection methods by each transmitter: Refer to the pages from 4-4 to 4-5.

Setting of Transmitter Power Supply Voltage

Set the power voltage provided to the transmitter.
Either a 12 V DC or a 24 V DC can be selected with the short-circuit socket.
The factory setting is according to the model and suffix codes specified in the order.

Setting of the Load Resistance for Current Pulses

DP3 requires the setting of the load resistance for current pulse according to the connected transmitter. The table on the next page shows the relation between the setting switches and the load resistance for current pulses. The factory default is set to OFF.

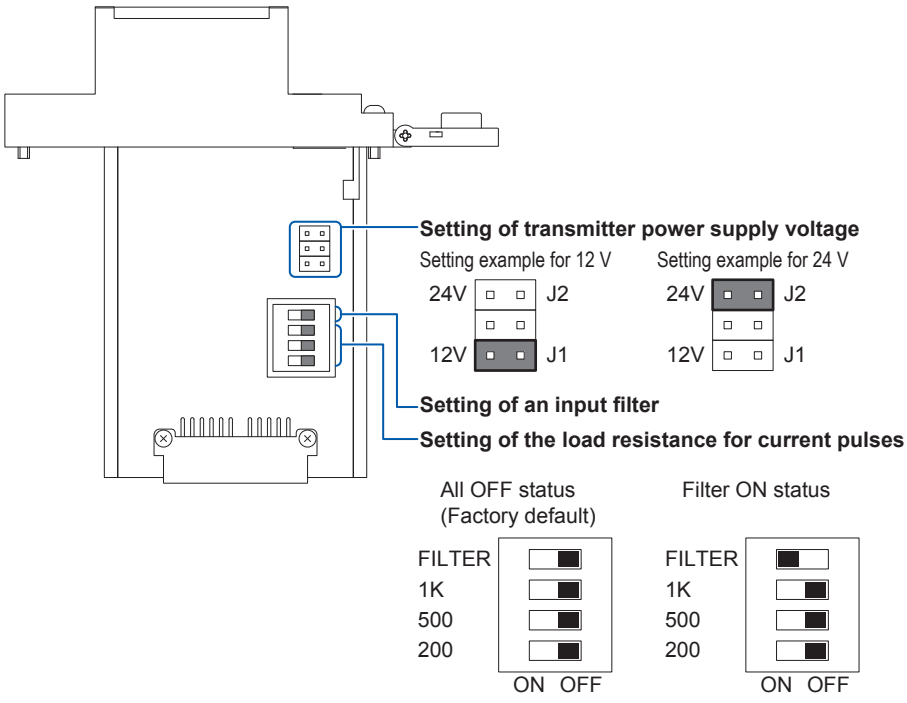
Setting of Input Filter

If the pulse input has chattering noise at dry contact (mechanical relay, etc.) of below 100 Hz, set the input filter to ON to eliminate the noise. ON/OFF switch of the input filter is located at the top of setting switches. The factory default is set to OFF.

Setting Method

Note

When taking out or inserting a short-circuit socket, use tweezers, etc., and be careful not to bend a pin.



Relation between Setting Switches and the Load Resistance for Current Pulses

Setting switches			Load resistance for current pulses
200	500	1K	
ON	OFF	OFF	200 Ω
OFF	**ON**	OFF	500 Ω
OFF	OFF	**ON**	1 kΩ
ON	**ON**	OFF	143 Ω
ON	OFF	**ON**	167 Ω

Setting of DSK Limit Alarm

Setting of Direction of Alarm Action

Set each direction (DIR/RVS) of Alarm 1 and Alarm 2 by SW1 and SW2.

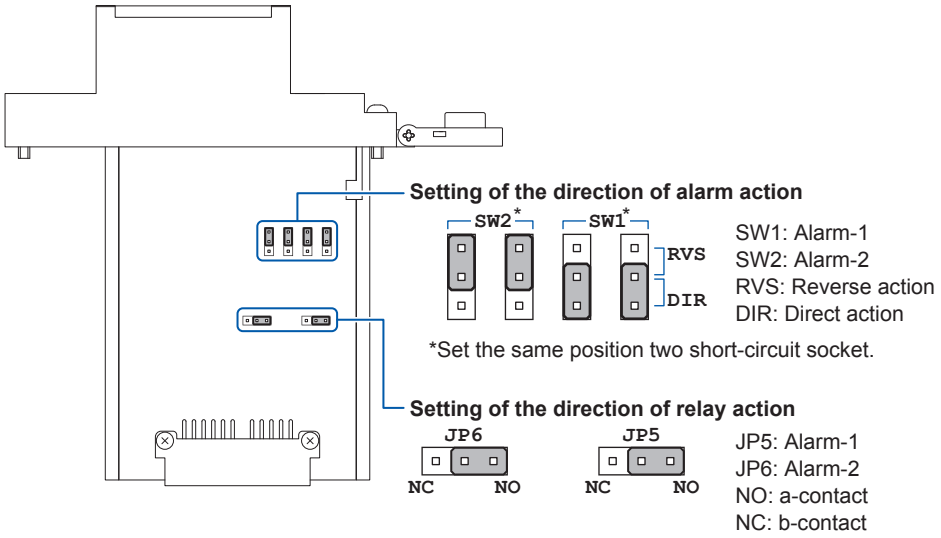
Setting of Output Contact (NO/NC)

When the output contact is de-enegized, set a-contact(NO)/b-contact(NC) by JP5(Alarm-1)/JP6(Alarm-2).

Setting Method

Note

When taking out or inserting a short-circuit socket, use tweezers, etc., and be careful not to bend a pin.



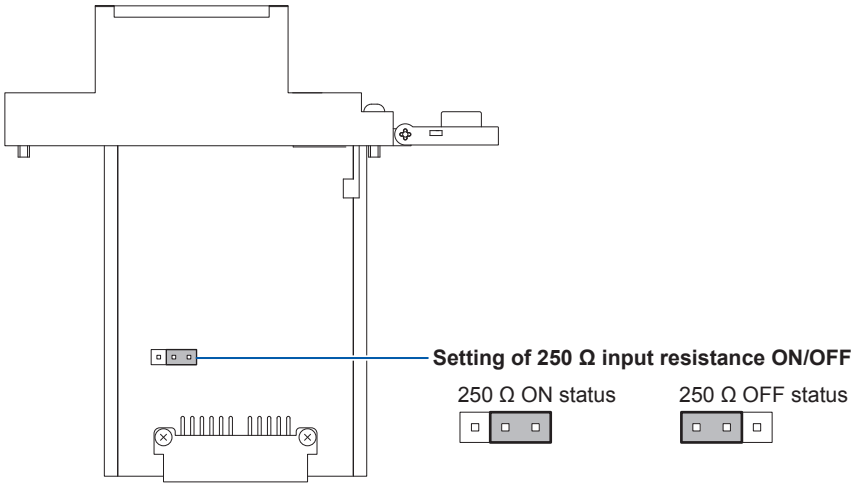
Setting of DX1 Input/Output Through Card

For DX1-31N*A, the ON/OFF of 250 Ω input resistance can be set. Short the 2 setting pins using a short-circuit socket for the setting. The factory default is set to ON.

Setting Method

Note

When taking out or inserting a short-circuit socket, use tweezers etc., and be careful not to bend a pin.



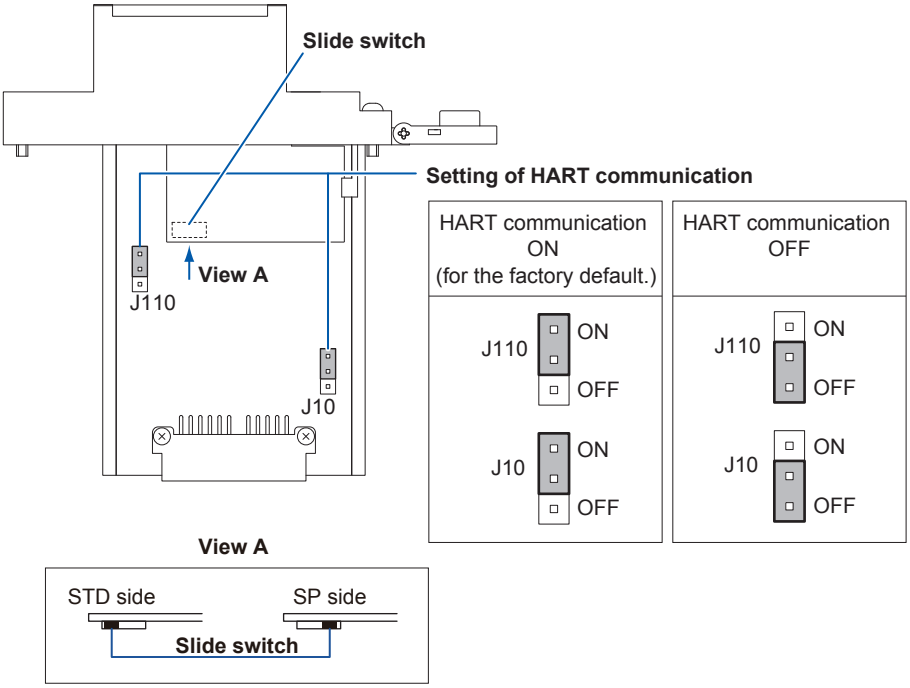
Setting of DA7 Distributor (with HART Communication)

DA7 is available for setting the ON/OFF of HART communication. The setting can be made by short-circuiting two setting pins using a short -circuit socket.
The factory default is set to ON.

Setting Method

Note

- Be careful not to bend the pin when removing or inserting a short-circuit socket. Use a tool such as a tweezer.
- As shown below, set the short-circuit sockets of J110 and J10 to the same position. Proper operation is not guaranteed on the other settings.
- When using with the following Yokogawa model, it is necessary to set the position of the slide switch for SP side.
  (1) Temperature transmitter YTA (Style 1 and 2) which was shipped before 2003.
  (2) Vortex flowmeter DY, DYA which were shipped before 2003.
  (3) Magnetic flowmeters AM11, AE, AE14, SE, and SE14.



Note

HART communication does not work properly when using in combination with Yokogawa analytical EXA202 series (PH202G, PH202S, SC202G, SC202S, ISC202G, ISC202S, DO202G, and DO202S). The succession model, FLXA21 can be worked properly.

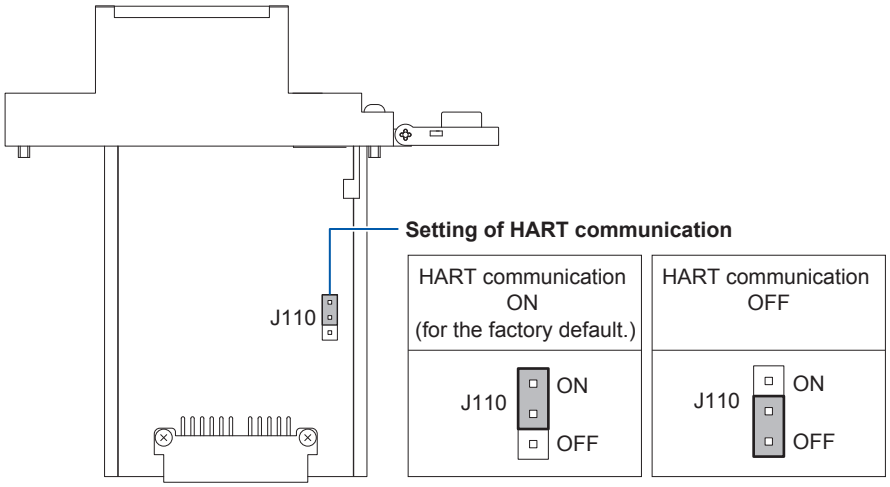
Setting of DC7 Output Isolator (Current I / O Type) (with HART Communication)

DC7 is available for setting the ON/OFF of HART communication. The setting can be made by short-circuiting two setting pins using a short -circuit socket.
The factory default is set to ON.

Setting Method

Note

- Be careful not to bend the pin when removing or inserting a short-circuit socket. Use a tool such as a tweezer.
- As shown below, set the short-circuit sockets of J110 and J10 to the same position. Proper operation is not guaranteed on the other settings.



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5.1 Calibration Apparatus

CAUTION

- Never touch the electronic components (printed circuit boards) of signal conditioners and extension cards during power-on.
- Be careful of static electricity when connecting or disconnecting the signal conditioners. (Refer to Section 4.2)
- Warm the instruments up about 10 to 15 minutes before calibration.

Calibration Apparatus

The following apparatus is necessary for the calibration of signal conditioners.

Calibration Apparatus (1)

Calibration apparatus	DM1 DH1 DH2 DH5	DT5	DR5	DRU	DS1	DA1 DA2 DA5	DA7	DH0	DA0 DC0 DC7	DX1
Digital voltmeter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DC voltage/current generator	✓	✓				✓	✓	✓	✓	✓
6-dial decade resistance box			✓	✓	✓					
Standard resistor							✓	✓	✓	

Calibration Apparatus (2)

Calibration apparatus	DP1	DP3	DH0	DG1 DD1	DB1	DF1	DF0	DSK
Digital voltmeter	✓	✓	✓		✓		✓	✓
DC voltage/current generator	✓	✓	✓			✓		
Standard resistor		✓	✓			✓		
Pulse generator				✓	✓			
Pulse counter				✓		✓		
AC voltage/current generator							✓	✓
Digital pressure gauge								
Standard pressure generator								
DC power supply						✓		
Continuity circuit tester								

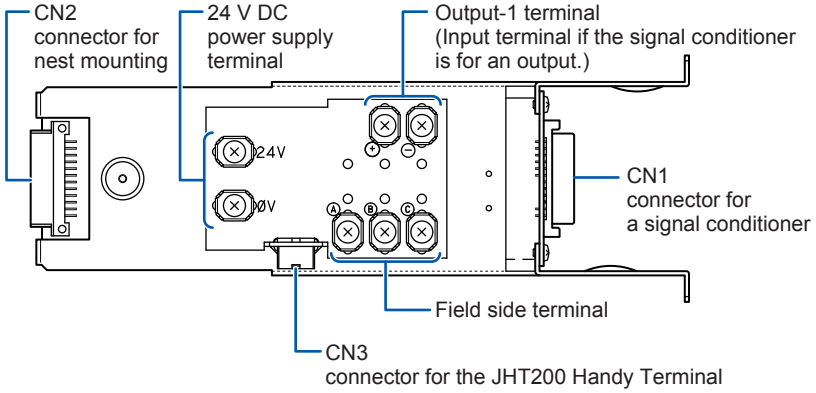
The apparatus with check marks are necessary for the calibration of the corresponding model.

Use the following apparatuses or equivalent for the calibration.

Digital voltmeter	: Model 7562, YOKOGAWA
DC voltage/current generator	: Model 7651, YOKOGAWA
6-dial decade resistance box	: Model 2793 01, YOKOGAWA
Standard resistor	: Model 2792, YOKOGAWA
Pulse generator	: Model FG110, YOKOGAWA
Pulse counter	: Model TC110, YOKOGAWA
AC voltage/current generator	: Model 2558, YOKOGAWA
Digital pressure gauge	: Model MT210, YOKOGAWA
Standard pressure generator	: Model MC100, YOKOGAWA
DC power supply	: 5 V DC
Continuity circuit tester	: (for the check of alarm relay contact output)

DXT Extension Card

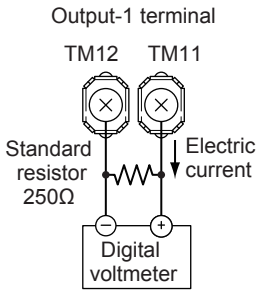
DXT Extension Card is the intermediate board for calibration and check of the signal conditioner. It is equipped with a connector for the handy terminal, and terminals for input/output and power supply. (Microcomputer-based signal conditioners can be calibrated using handy terminals, in case the nest is not specified for communication function.) The signal conditioner can be calibrated by connecting to DXT without using a nest. Loop check and calibration in mounting state are possible by inserting DXT into a nest, and connecting a signal conditioner to it.



Note

When connecting DA7 to DXT and checking the output, the following conditions are required:

- When the DXT is mounted on the nest, verify the output of DA7 with the indicated value on the CRT display of the control system. The output of DA7 cannot be verified with the output-1 terminal (TM11, TM12) of DXT. Do not connect measuring instruments such as voltmeters or ammeters.
- When the DXT is not mounted on the nest, connect the output-1 terminal as shown in the figure below.



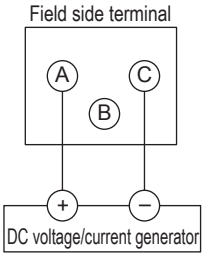
DSC2 Communication Interface Card

DSC2 is used inserting into the dedicated slots of DCE, DCP, DME, and DMP. Communication data of the signal conditioners with communication functions and the transmitters with BRAIN communication can be relayed to the host system through the DSC2. Nest addresses can be set by the rotary switch (hexadecimal) on the front panel. Furthermore, DSC2 has a 5-pin connecter for JHT200 Handy Terminal that enables communication with the signal conditioners and the transmitters with BRAIN communication.

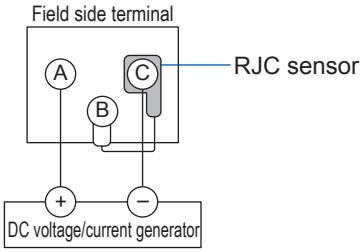
5.2 Connection of Calibration Apparatus

According to the following figures, connect the field side terminals of the nest of which the signal conditioner to be calibrated is mounted, or the DXT Extension Card, with the calibration apparatus.

(1) DM1, DH1, DH2, DH5

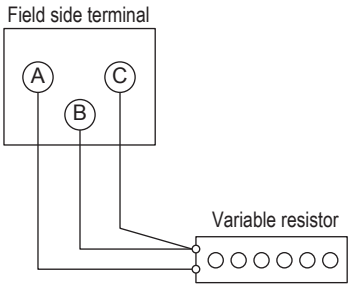


(2) DT5*B



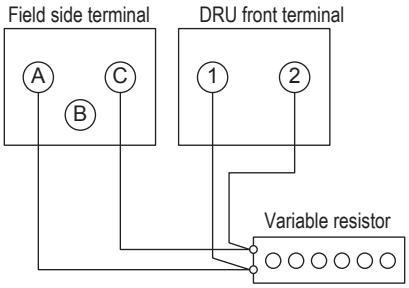
Calibrate DT5*B by
the field side terminal of the nest.

(3) DR5



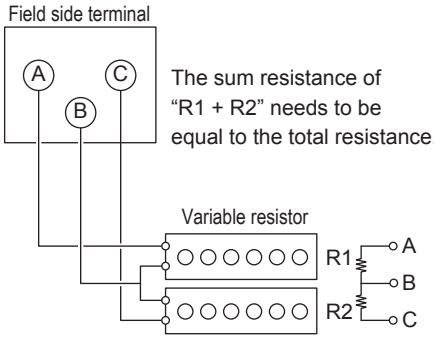
(Note) The wiring resistance should be equial.

(4) DRU



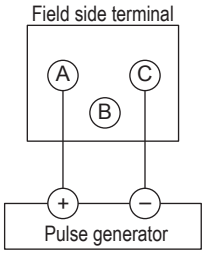
(Note) The wiring resistance should be equal.

(5) DS1



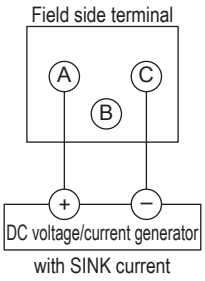
(Note) The wiring resistance should be equal.

(6) DP1, DP3



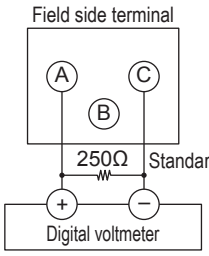
(Note) "B" is used
in cases where the power
is supplied from a converter.
When using two-wire type,
B is the power supply, and
A is the signal.
When using three-wire type,
B is the power supply,
A is "+", and C is "−".

(7) DA1, DA2, DA5, DA7



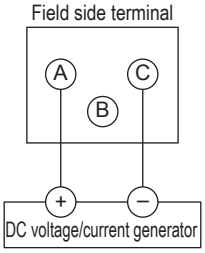
(Note) When not using each internal power supply of DA1, DA2, DA5 and DA7, C is "+", and B is "−".
The left figure shows the combination with two-wire transmitter using internal power supply.

(8) DH0, DA0, DC0, DC7

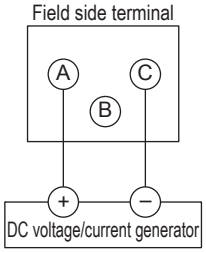


The resistor is added for DA0, DC0 and DC7.

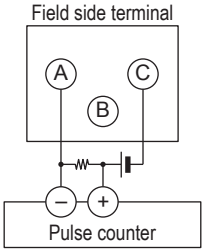
(9) DSK



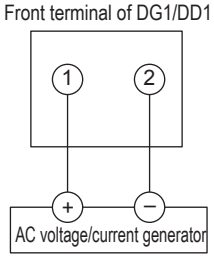
(10) DX1 (with an input resistance)



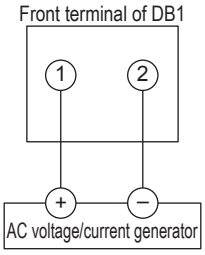
(11) DQ0



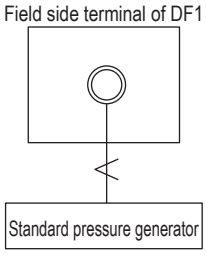
(12) DG1, DD1



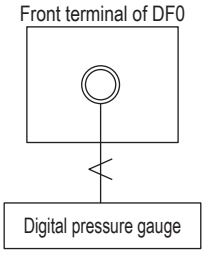
(13) DB1



(14) DF1



(15) DF0



(Note) DF0 should be mounted directly to the nest without using DXT card.

5.3 Calibration Procedure

DM1, DT5, DR5, DRU, DS1

According to the measurement range, apply input signals equivalent to 0%, 25%, 50%, 75%, and 100% of the span through a DC voltage/current generator or a decade resistance box to the converter.
In case of DT5*B, apply the mV signal between the terminals of A(+) and C(-), referring to the thermo-electromotive force list after turning off the RJC in the measurement parameter (C08). (Turn on the RJC after calibration.) Verify that the output-1 of the converter is 1 V, 2 V, 3 V, 4 V, and 5 V respectively and within the specified accuracy rating by the indicated value of the CRT display of a control system or the output terminal of the DXT card. Also, verify that the difference of output-2 and output-1 is within ± 0.2% of the span.
If the output-1 does not satisfy the accuracy, adjust using the JHT200 Handy Terminal. (The output-2 also interlocks.)

► For the adjustment with the JHT200 Handy Terminal, refer to the chapter 6 "JHT200 Handy Terminal" in this manual and the user's manual for JHT200 Handy Terminal (IM JF81-02E).

DA1, DA2, DA5, DH1, DH2, DH5

Apply input signals equivalent to 0%, 25%, 50%, 75%, and 100% of the span through the DC voltage/current generator to the converter. (In case of DA5, DH5: 0%, 6.25%, 25%, 56.25%, and 100%) Verify that the output-1 of the converter is 1 V, 2 V, 3 V, 4 V, and 5 V respectively and within the specified accuracy rating by the indicated value of the CRT display of a control system or the output terminal of the DXT card. Also, verify that the difference of output-2 and output-1 is within ± 0.2% of the span.
If the output-1 does not satisfy the accuracy, adjust it by the front zero/span adjustment trimmer for DA1, DA2, and DH1, by the JHT200 Handy Terminal for DA5, DH2, and DH5. (The output-2 also interlocks.)

► For the adjustment with the JHT200 Handy Terminal, refer to the chapter 6 "JHT200 Handy Terminal" in this manual and the user's manual for JHT200 Handy Terminal (IM JF81-02E).

DA7

Apply input signals equivalent to 0%, 25%, 50%, 75%, and 100% of the span through the DC voltage current generator to the converter.
Verify that the output-1 of the converter is 4 mA, 8 mA, 12 mA, 16 mA and 20 mA, and each value is within the specified accuracy rating with the indicated value on the CRT display of a control system. Also, verify that the difference of output-2 and output-1 is within ± 0.2% of the span.
If the output-1 does not satisfy the accuracy, adjust it by the front zero/span adjustment trimmer. (The output-2 also interlocks.)

► Refer to "5.1 Calibration Apparatus: DXT Extension Card"

DX1

Apply input signals equivalent to 0%, 25%, 50%, 75%, and 100% of the span through the voltage current generator to the converter. Verify that the output-1 of the converter is 0%, 25%, 50%, 75%, and 100% of the span respectively and within the specified accuracy rating by the indicated value of the CRT display of a control system or the output terminal of the DXT card. (DX1 has no adjustment function.)

DP1, DP3

Apply a square wave pulse of arbitrary frequency (6 kHz or less) to DP1 through the pulse generator.
Check the value by the indicated value of the CRT display of a control system or the output terminal of the DXT card.
For DP3, apply a square wave pulse of arbitrary frequency, equivalent to 0%, 25%, 50%, 75%, and 100% of the span, through the pulse generator. Verify that the output-1 of the converter is 1 V, 2 V, 3 V, 4 V, and 5 V respectively and within the specified accuracy rating by the indicated value of the CRT display of a control system or the output terminal of the DXT card. Also, verify that the difference of output-2 and output-1 is within ± 0.2% of the span.
If the output-1 does not satisfy the accuracy, adjust using the JHT200 Handy Terminal. (The output-2 also interlocks.) (DP1 has no adjustment function.)

► For the adjustment with the JHT200 Handy Terminal, refer to the chapter 6 "JHT200 Handy Terminal" in this manual and the user's manual for JHT200 Handy Terminal (IM JF81-02E).

DC0, DC7, DA0, DH0

Input the signals of 0%, 25%, 50%, 75%, and 100% of the span from the CRT display of a control system or the terminal of the DXT card. Verify that the output at that time is 0%, 25%, 50%, 75%, and 100% of the span respectively and within the specified accuracy rating.

(Note) If the data of 0% or 100% is output from the CRT display, the data will be a scaleover. (0% or less/ 100% or more) On the calibration, check that the output is equivalent to 1% or 99% of the input.

If the output signal does not satisfy the accuracy, adjust by the front zero/span adjustment trimmer. (DC0 has no adjustment function.)

DQ0

Input the signals of 0%, 25%, 50%, 75%, and 100% of the span from the CRT display of a control system or the terminal of the DXT card. Verify that the output frequency at that time is 0%, 25%, 50%, 75%, and 100% of the span respectively and within the specified accuracy rating.

(Note) If the data of 0% or 100% is output from the CRT display, the data will be a scaleover. (0% or less/ 100% or more) On the calibration, check that the output is equivalent to 1% or 99% of the input.

If the output frequency does not satisfy the accuracy, adjust using the JHT200 Handy Terminal.

► For the adjustment with the JHT200 Handy Terminal, refer to the chapter 6 "JHT200 Handy Terminal" in this manual and the user's manual for JHT200 Handy Terminal (IM JF81-02E).

DG1, DD1, DB1

Apply input signals equivalent to 0%, 25%, 50%, 75%, and 100% of the span through the AC voltage/current generator to the converter. Verify that the output-1 of the converter is 0%, 25%, 50%, 75%, and 100% of the span respectively and within the specified accuracy rating by the indicated value of the CRT display of a control system or the output terminal of the DXT card. Also, verify that the difference of output-2 and output-1 is within ± 0.2% of the span. If the output-1 signal does not satisfy the accuracy, adjust by the front zero/span adjustment trimmer. (The output-2 also interlocks.)

DF1

Apply input signals equivalent to 0%, 25%, 50%, 75%, and 100% of the span through the standard pressure generator to the converter. Verify that the output-1 of the converter is 0%, 25%, 50%, 75%, and 100% of the span respectively and within the specified accuracy rating by the indicated value of the CRT display of a control system or the output terminal of the DXT card. Also, verify that the difference of output-2 and output-1 is within ± 0.2% of the span. If the output-1 does not satisfy the accuracy, adjust by the front zero/span adjustment trimmer. (The output-2 also interlocks.)

DF0

Input the signals of 0%, 25%, 50%, 75%, and 100% of the span from the CRT display of a control system. Verify that the output air pressure at that time is 0%, 25%, 50%, 75%, and 100% of the output span respectively and within the specified accuracy rating.

(Note) If the data of 0% or 100% is output from the CRT display, the data will be a scaleover. (0% or less/ 100% or more) On the calibration, check that the output is equivalent to 1% or 99% of the input.

If the output signal does not satisfy the accuracy, adjust by the front zero/span adjustment trimmer.

CAUTION

The length of the tube connected to the DF0 and the air pressure measuring instrument should be 10 m or more.

DSK

Apply the input signal equivalent to the alarm point through the DC voltage/current generator. Turn the setting trimmer and set to the action point of the output relay. Alarms have the settings for action directions (DIR: Direct action, RVS: Reverse action). For the direct action (DIR), set the trimmer to the point where the relay is energized by adjusting upward. For the reverse action (RVS), set it to the point where the relay is energized by adjusting downward.

5.4 Change of the Measurement Parameters

Applicable Signal Conditioners

The parameters of signal conditioners are set as you specified for the factory default settings. If the signal conditioner is microcomputer-based (Free Range Type), measurement parameters, such as measuring ranges and input types, can be changed using JHT200 Handy Terminal.
(Sensor parameter setting function of the host system, DCS of Yokogawa Electric Corporation, also enables to set the measurement parameters.)
If the range has been changed, calibrate the signal conditioner according to the section 5.2 and 5.3. Also, write a new range and update the label.

The followings are the signal conditioners in which the measurement parameters can be changed.

Model	Description	
DH2	Isolator (Free Range Type)	(*1)
DH5	Isolator (with Square Root Extractor)	
DM1	Isolator (mV Input Free Range Type)	
DT5	Thermocouple Converter (Free Range Type)	
DR5	RTD Converter (Free Range Type)	
DRU	Cryogenic Temperature Converter	(*1)
DS1	Potentiometer Converter (Free Range Type)	
DP3	Pulse to Analog Converter (Free Range Type)	
DQ0	Analog to Pulse Converter (Free Range Typr)	(*1)
DA5	Distributor (with Square Root Extractor)	
DA2	Distributor (with Communication Function)	(*2)

*1: For DH2, DRU, and DQ0, the measurement parameters can be changed with JHT200 Handy Terminal only. The sensor parameter setting function is not available for these models.
*2: For DA2, its own measurement parameters cannot be set, but the parameters of the transmitters with BRAIN communication can be set.

Connection method with JHT200

Insert the signal conditioner to the nest through DXT Extension Card.
DXT Extention Card has a connector for the connection with JHT200.
Connect the 5-pin connector cable of JHT200 to DXT.
DSC2 Communication Interface Card also has a connector, which is available for the measurement parameter setting of signal conditioners and the transmitters with BRAIN communication.

► Connection method: Refer to the section 6.2 Connection Method with JHT200

Parameter Setting of the Measurement Parameters

For details of the measurement parameter setting, refer to the chapter 6 "JHT200 Handy Terminal".
Note that the following functions of Handy Terminal are not applicable for signal conditioners.

(1) Calling up the diagnostic menu (DIAG key)
(2) Reading out overall data (UPLD key)
(3) Setting for overall data (DNLD key)

6.1 Usage and Features

Usage

JHT200 Handy Terminal is a portable terminal that is used in combination with JUXTA signal conditioners.
It is available for the settings, changes, and display of necessary parameters for operation of each device, such as tag numbers, and the ranges, and burnout by intercommunication.
It also enables the zero/span adjustments and the monitoring of I/O values and self-check results.

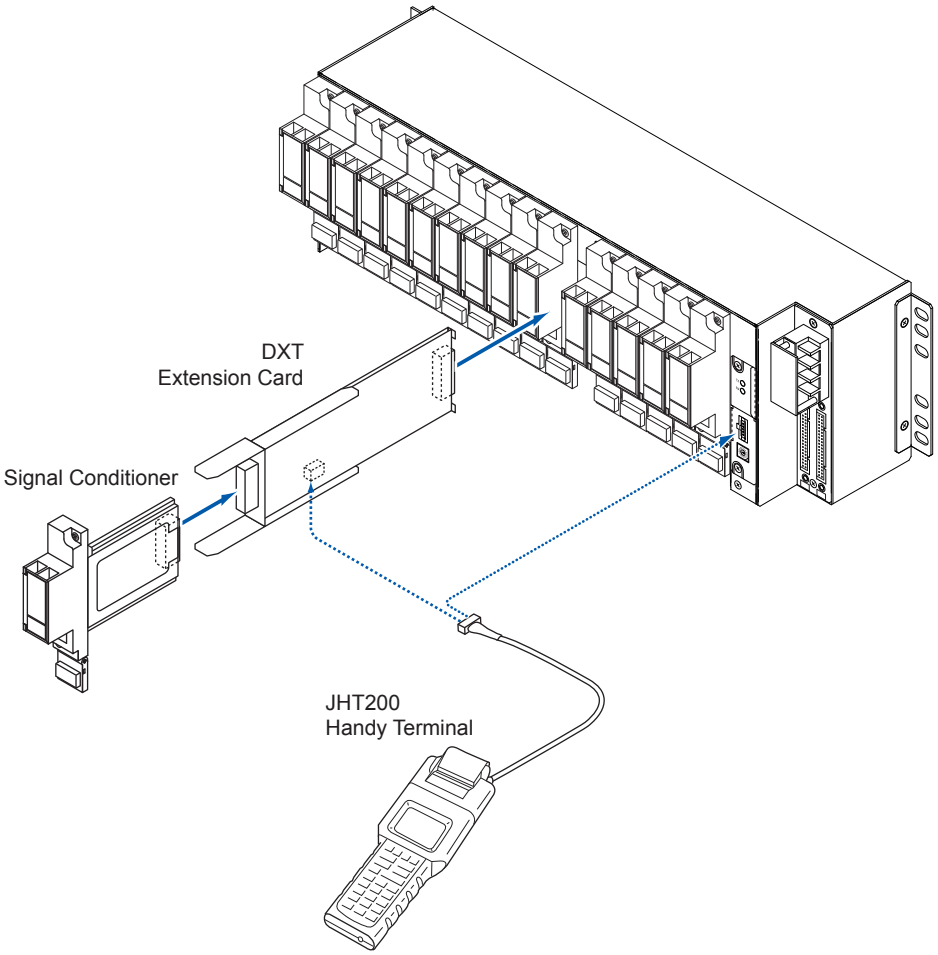
Features

(1)On-line monitoring
The input/output signal of the signal conditioner is not affected by the communication.
(2)High operationality
Easy operational procedure by the adoption of the hierarchical structure menu.
(3)Abundant diagnostic and security functions
- Diagnostic function with error messages
- Low battery alarm function
- Auto power-off function
- Security password

6.2 Connection of JHT200 and Nests

The figure below shows connection to the D series nests (DCE, DCP, DME, and DMP). Use the DXT Extension Card or DSC2 Communication Interface Card for connection. When using the DSC2 Communication Interface Card, it is necessary to designate the slot number of SC card to communicate. The slot numbers correspond to 1, 2, 3,……15, and 16 from the left.

► For the assignment of slots, see the user's manual for JHT200 Handy Terminal (IM JF81-02E)



6.3 Description of Main Parameters

For setting change or I/O adjustment, refer to the user's manual for JHT200 Handy Terminal (IM JF81-02E).

► Refer to "6.4 List of Parameters" for the parameter of each product.

Low Cut (B07:LOW CUT)

This function is available only for DA5, DH5, DP3, and DQ0.

(1)Low input cut point of DA5 and DH5 can be set between 0.3% and the 100%. For the input below the low input cut point, a linear signal to the input is output. If not specified in the order, it will be set at 0.6%.
Hysteresis is fixed at 0.2%.

(2)Low input cut point of DP3 can be set 0.01 Hz and F100 Hz (100% of input range.) The frequency below the low input cut point is equivalent to 0 Hz.
If not specified in the order, it will be set at 0.01 Hz.

(3)Low output cut point of DQ0 can be set between 0.0001 Hz and F100 Hz (100% of output range.) The frequency below the low output cut point is equivalent to 0 Hz. If not specified in the order, it will be set at 0.0001 Hz.

Input Zero Adjustment (C04: ZERO ADJ, C06 for DS1*B, no function for DP3)

This function enables the zero adjustment for input A/D conversion section. Accuracy can be maintained for the range change at customer site and the sensor error can be absorbed.

Input Span Adjustment (C05: SPAN ADJ, C07 for DS1*B, no function for DP3)

This function enables the span adjustment for input A/D conversion section. Accuracy can be maintained for the range change at customer site and the sensor error can be absorbed.

Input Zero Adjustment (C06: ZERO ADJ, for DS1*B)

By adjusting with this parameter, the 0% set point of the input range, parameter **[B10:ZERO]**, is updated automatically. Accuracy can be maintained for the range change at customer site and the sensor error can be absorbed. Since the adjustment procedure differs from **[C04: ZERO ADJ]**, refer to the following procedures:

(1)Set the total resistance of the potentiometer being combined to the parameter **[B08: RESIST]**.

(2)From the potentiometer, input the value equivalent to 0% value of the input range to the DS1*B.

(3)Press **<ENTER>** twice, where **[C06: ZERO ADJ]** is displayed.

- Input zero adjustment is completed and the set point of the parameter **[B10: ZERO]** is updated.

Input Span Adjustment (C07: SPAN ADJ, only for DS1*B)

By adjusting with this parameter, the 100% set point of the input range, parameter **[B11: SPAN]**, is updated automatically. Accuracy can be maintained for the range change at customer site and the sensor error can be absorbed. Since the adjustment procedure differs from **[C05: SPAN ADJ]**, refer to the following procedures:

(1) Set the total resistance of the potentiometer being combined to the parameter **[B08: RESIST]**.

(2) From the potentiometer, input the value equivalent to 100% value of the input range to the DS1*B.

(3) Press **<ENTER>** twice, where **[C07: SPAN ADJ]** is displayed.

- Input span adjustment is completed and the set point of the parameter **[B11: SPAN]** is updated.

Output 0% Adjustment (C01: OUT 0%)

For the adjustment of 0% value of output, refer to the following procedures:

(1) Set the adjustment value 0% in this parameter, and press **<ENTER >** twice. The value equivalent to 0% of the output range will be output, irrespective of the input.

(2) Set the value of reversed polarity to the deviation of an output value(*1), and press **<ENTER>** twice.

*1: If the indicating value deviates to the (+) side, set (−) value equivalent to the deviation; if it deviates to the (−) side, set (+) value equivalent to the deviation for adjusting the output value to 0%.

Output 100% Adjustment (C02: OUT 100%)

The 100% value of output can be adjusted by the same operation as **[C01: OUT 0%]**. Adjust by reading 0% as 100%.

RJC ON/OFF (C08: RJC, only for DT5*B)

The RJC (Reference Junction Compensation) can be stopped by setting "OFF" in this parameter. Set the parameter to "OFF" when the DT5*B is calibrated.

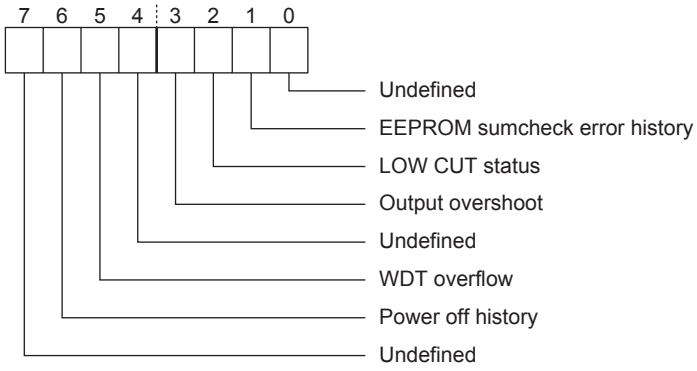
Note

RJC returns to ON mode when the DT5*B is turned off and then on again.

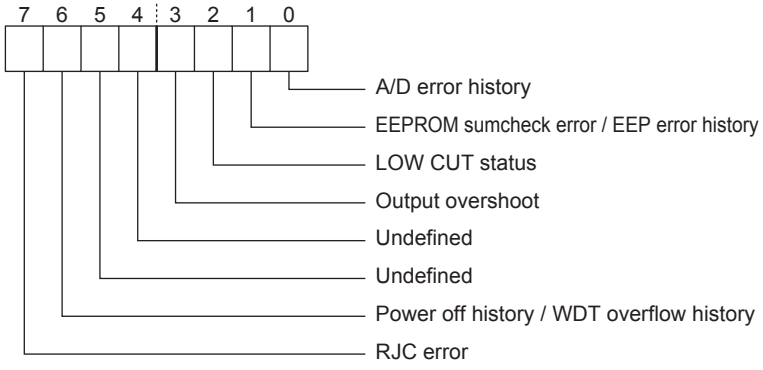
Status (A03: STATUS)

When the "ERROR" is displayed for the self-check item (03:SELF CHK), the error content is displayed in hexadecimal on the STATUS column (A03: STATUS).

Bit Allocation for STATUS of Style A



Bit Allocation for STATUS of Style B



6.4 List of Parameters

DM1, DT5, DR5

Number	Item	Display	Data display for each signal conditioner		
01	Model	MODEL	DM1*B	DT5*B	DR5*B
02	Tag number	TAG NO.	Alphanumeric 16 characters		
03	Self check	SELF CHK	GOOD or ERROR		
A00	**Display item**	**DISPLAY**			
A01	Input value	INPUT	□□□.□□ mV	□□□□.□ degC (*3)	□□□.□ degC (*3)
A02	Output value	OUPUT	□□□.□%		
A03	Status	STATUS	FF(2 digits in hex)		
A04	Rev No.	REV NO.	n.nnn (n: Rev No.)		
B00	**Setting item**	**SET**			
B01	Tag number 1	TAG NO.1	Alphanumeric 8 characters (first half 8 characters)		
B02	Tag number 2	TAG NO.2	Alphanumeric 8 characters (last half 8 characters)		
B03	Comment 1	COMMENT1	Alphanumeric 8 characters (first half 8 characters)		
B04	Comment 2	COMMENT2	Alphanumeric 8 characters (last half 8 characters)		
B05	DR5 Input type	TYPE			PT/JPT/PT100-90/ PT50(*4)
B06	DT5 Input type	TYPE		B/E/J/K/T/R/S/N	
B09	Temperature unit	UNIT		degC/K/degF (*5)	
B10	Zero (0% of input range)	ZERO	□□□.□□ mV	□□□□.□ degC (*3)	
B11	Span (*1)	SPAN	□□□.□□ mV	□□□□.□ degC (*3)	
B12	Burnout	BURN OUT	OFF/UP/DOWN		
C00	**Adjustment Item**	**ADJUST**			
C01	0% Output adjustment	OUT0%	±10.00%		
C02	100% Output adjustment	OUT100%	±10.00%		
C03	Wire resistance compensation (*2)	WIRING R	EXECUTE/RESET	EXECUTE/RESET	
C04	Input zero adjustment	ZERO ADJ	□□□.□□□ mV RST/INC/DEC	□□□.□□□ mV RST/INC/DEC	□□□.□□□ Ω RST/INC/DEC
C05	Input span adjustment	SPAN ADJ	□□□.□□□ mV RST/INC/DEC	□□□.□□□ mV RST/INC/DEC	□□□.□□□ Ω RST/INC/DEC
C08	RJC On/Off	RJC		ON/OFF (*6)	

*1 The measurable data is within the range described in the General Specifications.(GS)

*2 Wire resistance compensation is the function to correct the errors that occurs when the external conductor resistance is high. (Necessary for the combination with BARD Safety Barrier)

*3 The temperature unit to be displayed is the setting in the parameter [B09: UNIT].

*4 PT=Pt100 (IPTS-68, JIS'89), JPT=JPt100 (JIS'89), PT100-90=Pt100 (ITS-90, JIS'97), PT50=Pt50 (JIS'81)

*5 Fahrenheit (deg F) is the optional specification for DT5*B and DR5*B. It is displayed only in cases where it is specified.

*6 The RJC becomes effective after the power is turned off and then on again.

DS1, DA5, DH5

Number	Item	Display	Data display for each signal conditioner		
01	Model	MODEL	DS1*B	DA5*B	DH5*B
02	Tag number	TAG NO.	Alphanumeric 16 characters		
03	Self check	SELF CHK	GOOD or ERROR		
A00	**Display item**	**DISPLAY**			
A01	Input value	INPUT	□□□□□.□ OHM	□□□.□%	□□□.□%
A02	Output value	OUPUT	□□□.□%		
A03	Status	STATUS	FF (2 digits in hex)		
A04	Rev No.	REV NO.	n.nnn (n: Rev No.)		
B00	**Setting item**	**SET**			
B01	Tag number 1	TAG NO.1	Alphanumeric 8 characters (first half 8 characters)		
B02	Tag number 2	TAG NO.2	Alphanumeric 8 characters (last half 8 characters)		
B03	Comment 1	COMMENT1	Alphanumeric 8 characters (first half 8 characters)		
B04	Comment 2	COMMENT2	Alphanumeric 8 characters (last half 8 characters)		
B07	Low cut	LOW CUT		0.3 to 100%	
B08	Total resistance	RESIST	□□□□□.□ OHM(*2)		
B10	Zero (0% of input range)	ZERO	□□□□□.□ OHM		
B11	Span (*1)	SPAN	□□□□□.□ OHM		
B12	Burnout	BURN OUT	OFF/UP/DOWN		
C00	**Adjustment Item**	**ADJUST**			
C01	0% Output adjustment	OUT0%	±10.00%		
C02	100% Output adjustment	OUT100%	±10.00%		
C04	Input zero adjustment	ZERO ADJ		□□□.□□□% RST/INC/DEC	
C05	Input span adjustment	SPAN ADJ		□□□.□□□% RST/INC/DEC	
C06	Input zero adjustment	ZERO ADJ	□□□.□□□ OHM		
C07	Input span adjustment	SPAN AD	□□□.□□□ OHM		

*1 The measurable data is within the range described in the General Specifications(GS).

*2 The standard specification is 100 to 2000 Ω, but up to 30 kΩ is available by the custom order specification.

DH2, DP3, DQ0

Number	Item	Display	Data display for each signal conditioner		
01	Model	MODEL	DH2*B	DP3*A	DQ0*A
02	Tag number	TAG NO.	Alphanumeric 16 characters		
03	Self check	SELF CHK	GOOD or ERROR		
A00	**Display item**	**DISPLAY**			
A01	Input value	INPUT	□□□.□ V(*2)	□.□□□□□ Hz	□□□.□%
A02	Output value	OUPUT	□□□.□%	□□□.□%	□.□□□□□ Hz
A03	Status	STATUS	FF (2 digits in hex)		
A04	Rev No.	REV NO.	n.nnn (n: Rev No.)		
B00	**Setting item**	**SET**			
B01	Tag number 1	TAG NO.1	Alphanumeric 8 characters (first half 8 characters)		
B02	Tag number 2	TAG NO.2	Alphanumeric 8 characters (last half 8 characters)		
B03	Comment 1	COMMENT1	Alphanumeric 8 characters (first half 8 characters)		
B04	Comment 2	COMMENT2	Alphanumeric 8 characters (last half 8 characters)		
B07	Low cut	LOW CUT		□.□□□□□ Hz	□.□□□□□ Hz
B10	Zero (0% of input range)	ZERO	□□□.□ V(*2)	□.□□□□□ Hz	
B11	Span (*1)	SPAN	□□□.□ V(*2)	□.□□□□□ Hz	
B15	Zero (0% of output range)	OUT ZERO			□.□□□□□ Hz
B16	Output span	OUT SPAN			□.□□□□□ Hz
B17	Pulse width	P.W.TYPE			50%/ON/OFF
B18	Pulse width fixation time	P.W.TIME			□□□.□ ms
C00	**Adjustment Item**	**ADJUST**			
C01	0% Output adjustment	OUT0%	±10.00%	±10.00%	
C02	100% Output adjustment	OUT100%	±10.00%	±10.00%	
C04	Input zero adjustment	ZERO ADJ	□□□.□□□% RST/INC/DEC		□□□.□□□% RST/INC/DEC
C05	Input span adjustment	SPAN ADJ	□□□.□□□% RST/INC/DEC		□□□.□□□% RST/INC/DEC

*1 The measurable data is within the range described in the General Specifications(GS).

*2 The unit (V, mV, mA) to be displayed is different by the input specification code.

DRU

Number	Item	Display	Data display for each signal conditioner
01	Model	MODEL	DRU*A
02	Tag number	TAG NO.	Alphanumeric 16 characters
03	Self check	SELF CHK	GOOD or ERROR
A00	**Display item**	**DISPLAY**	
A01	Input value	INPUT	□□□□.□ degC (*2)
A02	Output value	OUPUT	□□□.□%
A03	Status	STATUS	FF (2 digits in hex)
A04	Rev No.	REV NO.	n.nnn (n: Rev No.)
B00	**Setting item**	**SET**	
B01	Tag number 1	TAG NO.1	Alphanumeric 8 characters (first half 8 characters)
B02	Tag number 2	TAG NO.2	Alphanumeric 8 characters (last half 8 characters)
B03	Comment 1	COMMENT1	Alphanumeric 8 characters (first half 8 characters)
B04	Comment 2	COMMENT2	Alphanumeric 8 characters (last half 8 characters)
B05	Input type	TYPE	J263*B
B09	Temperature unit	UNIT	degC/K/degF(*3)
B10	Zero (0% of input range)	ZERO	□□□□.□ degC(*2)
B11	Span (*1)	SPAN	□□□□.□ degC(*2)
B12	Burnout	BURN OUT	OFF/UP/DOWN
C00	**Adjustment Item**	**ADJUST**	
C01	0% Output adjustment	OUT0%	±10.00%
C02	100% Output adjustment	OUT100%	±10.00%
C04	Input zero adjustment	ZERO ADJ	□□□.□□□ Ω RST/INC/DEC
C05	Input span adjustment	SPAN ADJ	□□□.□□□ Ω RST/INC/DEC

*1 The measurable data is within the range described in the General Specifications(GS).

*2 The temperature unit to be displayed is the setting in the parameter [B09: UNIT].

*3 Fahrenheit (deg F) is the optional specification for DRU. It is displayed only in cases where it is specified.

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Jan. 2008/1st Edition
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Oct. 2010/2nd Edition
DA7 and DC7 added

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Explanatory note addition of DA7

Sep. 2014/4th Edition
Switch change of DSK
Style change of DA0, DA1, DA2, DA7, DH1, and DH0
Support the dual output of DA7

Nov. 2014/5th Edition
Fahrenheit (deg F) option is added to DRU.

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Style change of DC0.

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Style change of DP1.

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