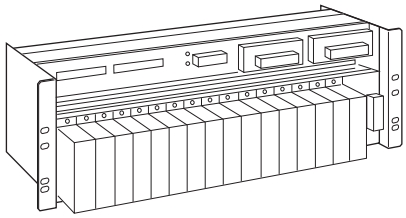
High-density Signal Conditioners 10-RACK

STANDARD RACK

Functions & Features
- Standard 19" rack for 10-RACK signal conditioners
- Line power supplied via the rear rack bus
- Dual-redundant power supply or two independent power sources selectable with AC power supply
- Supply pressure at manifold plug
- Direct interface to various DCS with the rack connector



MODEL: 10BXC-[1][2]-[3][4]

ORDERING INFORMATION

- Code number: 10BXC-[1][2]-[3][4]

Specify a code from below for each of [1] through [4].
(e.g. 10BXC-12-K2/Q)
- Specify the specification for option code /Q
(e.g. /C01)

[1] FUNCTION

1: Power distribution
2: Power distribution & pressure supply

[2] CONNECTOR

0: None
1: Fujitsu FCN type I/O connector
2: Yokogawa DCS connector (MAC2 dual redundant system use)
3: Nippon Shokubai DCS connector
4: Azbil DCS AI connector
5: Azbil DCS AO connector
6: Azbil DCS AI connector (ELCO connector)
7: Azbil DCS AO connector (ELCO connector)
8: Yokogawa DCS connector (VMx/PM1 dual redundant system use)
E3: Toshiba DCS SAIN1 card use
(Panasonic AXM220001 used)
(DISCONTINUED; replace with code "E3A".)
E3A: Toshiba DCS SAIN1 card supported
(Omron XG4A-2031 used)
H1: Hitachi DCS connector
H2: Hitachi DCS EX-CDL cable connector
We guarantee the connecting section.

[3] POWER SUPPLY UNIT

AC Power
K: 85 – 132 V AC; single power source
(Operational voltage range 85 – 132 V, 47 – 63 Hz)
K2: 85 – 132 V AC; dual-redundant power supply
(Operational voltage range 85 – 132 V, 47 – 63 Hz)
KK: 85 – 132 V AC; two independent power sources
(Operational voltage range 85 – 132 V, 47 – 63 Hz)
L: 170 – 264 V AC; single power source
(Operational voltage range 170 – 264 V, 47 – 63 Hz)
L2: 170 – 264 V AC; dual-redundant power supply
(Operational voltage range 170 – 264 V, 47 - 63 Hz)
DC Power
R: 24 V DC; no power supply unit
(Operational voltage range 24 V ±10 %, ripple 10 %p-p max.)
AC/DC Power
KR: 85 – 132 V AC / 24 V DC; two independent power sources
(85 – 132 V, 47 – 63 Hz or 24V ±10 %, ripple 10 %p-p max.)
(Redundant or independent power sources are recommended for long time use without interruption.)

[4] OPTIONS

blank: none
/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

COATING (For the detail, refer to our web site.)
Power supply and signal conditioner side of the main PWB are not coated.
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating

RELATED PRODUCTS

- Blank filler plate (model: P-101)
- Connector terminal block (model: CNT)
- Special cable with 40-pin connector (model: FCN)

GENERAL SPECIFICATIONS

Construction: Metal plates assembly
Capacity: 16 positions
Connection
•**Power input**: M4 screw terminals (torque 0.8 N·m)
Screw terminal: Nickel-plated steel
•**Power alarm**: M4 screw terminals (torque 0.8 N·m)
Screw terminal: Nickel-plated brass
•**Pneumatic**: Rc 3/8" female (torque ≤ 12 N·m)
Screw terminal: Nickel-plated brass
Manifold: Aluminium alloy
Isolation: I/O connector to alarm output to power to FG
Power alarm output: N.C. contact turns off at power failure

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or failure of power units. Supplied only with dual-redundant power supply or two independent power sources

Power RUN LED: Light turns on in normal conditions (supplied only with dual-redundant power supply or two independent power sources)

OUTPUT SPECIFICATIONS

■ **Alarm Output**

(Supplied only with dual-redundant power supply or two independent power sources)

Rated load: 250 V AC @ 3 A (cos ø = 1)
30 V DC @ 3 A (resistive load)

Maximum switching voltage: 250 V AC or 125 V DC

Maximum switching power: 750 VA or 60 W

Minimum load: 5 V DC @ 100 mA

Mechanical life: 5×10^6 cycles (rate 180 cycles/min.)

INSTALLATION

Supply pressure: Refer to the data sheet for I/P transducers (power distribution & pressure supply type)

Power consumption

•**AC**: 130 VA min.

•**DC**: 2.5 A min.

Operating temperature: -5 to +55°C (23 to 131°F) 0 to 50°C (32 to 122°F) for AC power

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: JIS or EIA standard rack

Weight

Single power supply w/o power units:
3.0 kg (6.6 lb) with DC power type
3.5 kg (7.7 lb) with AC power type

Dual-redundant or two independent power sources:
3.5 kg (7.7 lb) with AC/DC power type
4.0 kg (8.8 lb) with AC/AC power type

Add 2 kg (4.4 lb) for air manifold type.

PERFORMANCE

Insulation resistance: ≥ 100 MΩ with 500 V DC

Dielectric strength: 500 V AC @ 1 minute (I/O connector to alarm output to power)
1500 V AC @ 1 minute (power to FG)
500 V AC @ 1 minute (I/O connector or alarm output to FG, 1000 AC with power input code R)

Maximum supply pressure: 196 kPa
(2 kgf/cm^2, 1.96 bar, 28 psig)

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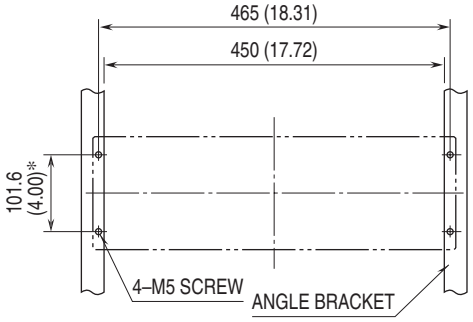
MOUNTING REQUIREMENTS

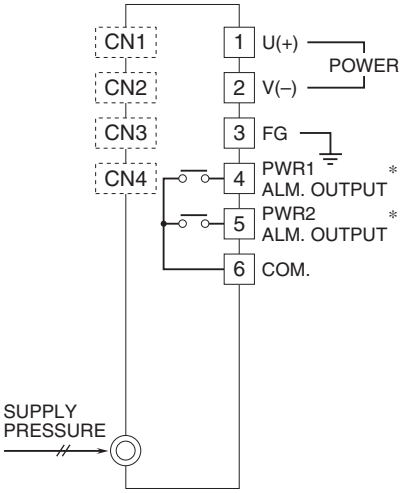


Observe an appropriate wiring space below.
*100 (3.94) for JIS standard

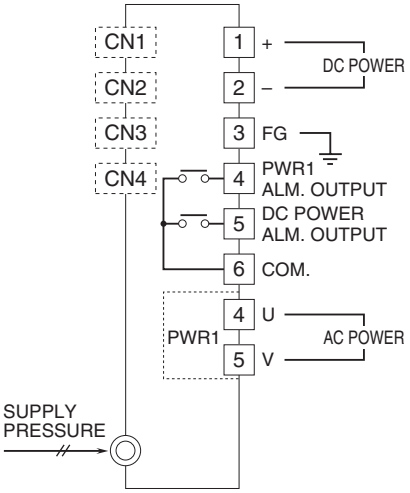
CONNECTION DIAGRAM

Remark 1: No.s of connectors may change with model suffix code.
Remark 2: Supply pressure connection provided only for 10BXC-2.

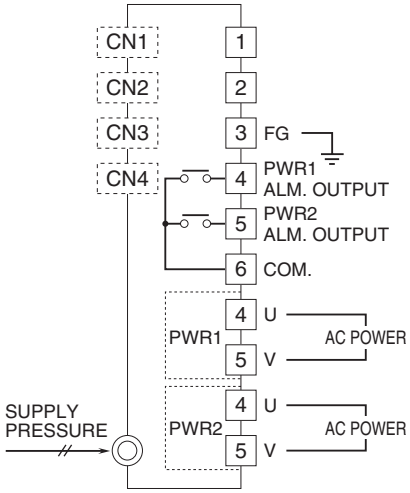
■ **Single Power Source, Dual-redundant Power Supply**



■ **Two Independent Power Sources, DC/AC Power Supply**



■ **Two Independent Power Sources, AC/AC Power Supply**



*Alarm output not provided for single power supply.

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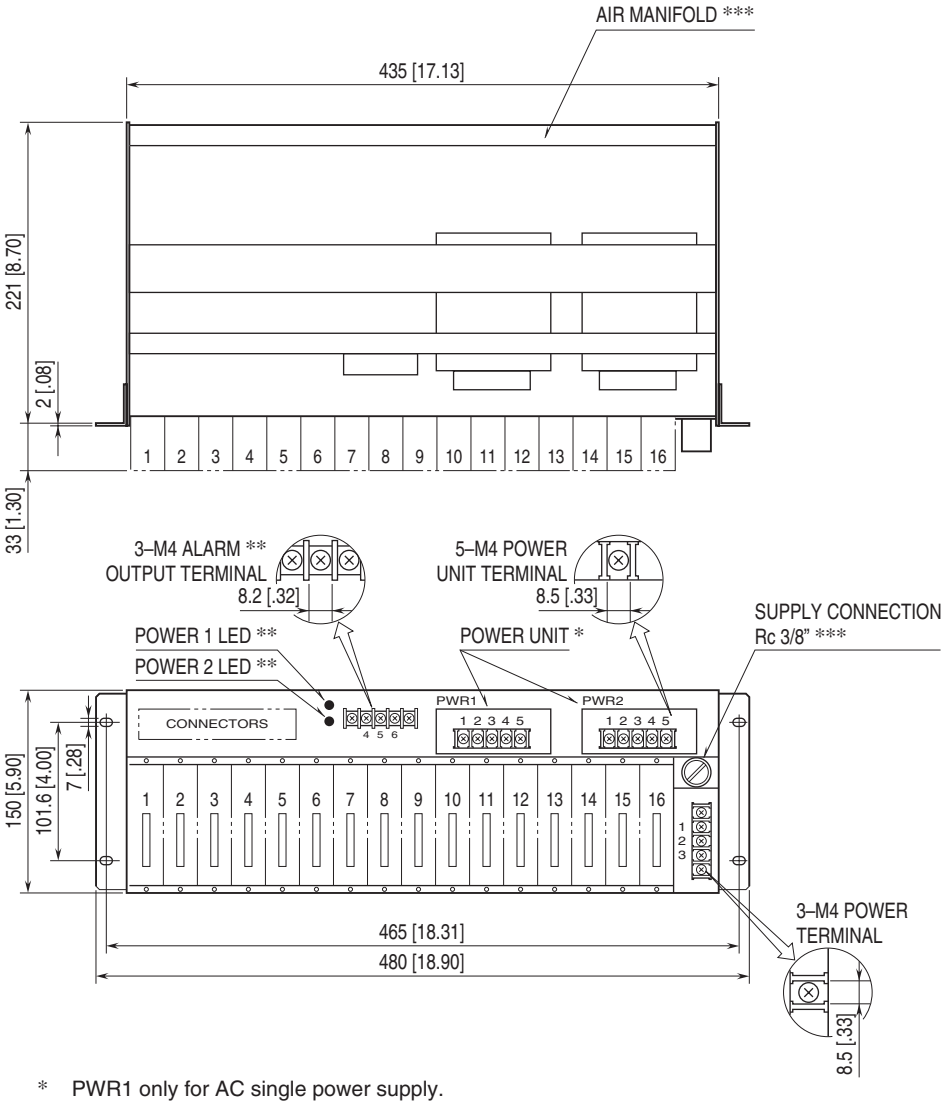
DIMENSIONS unit: mm (inch)



* PWR1 only for AC single power supply.
** Alarm output provided only for dual-redundant power supply or two independent power sources.
***Pneumatic connection provided only for model 10BXC-2.

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I/O CONNECTOR PIN ASSIGNMENT

• Fujitsu FCN type I/O connector

Connector Pin Assignment

CN1: OTAX N364P040AU
(Fujitsu FCN-364P040-AU...discontinued)

The input or output 2 (output 1 with single output type) is connected to the connector.

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
A 1	ch. 1 +	B 1	ch. 1 –
A 2	ch. 2 +	B 2	ch. 2 –
A 3	ch. 3 +	B 3	ch. 3 –
A 4	ch. 4 +	B 4	ch. 4 –
A 5	ch. 5 +	B 5	ch. 5 –
A 6	ch. 6 +	B 6	ch. 6 –
A 7	ch. 7 +	B 7	ch. 7 –
A 8	ch. 8 +	B 8	ch. 8 –
A 9	ch. 9 +	B 9	ch. 9 –
A10	ch.10 +	B10	ch.10 –
A11	ch.11 +	B11	ch.11 –
A12	ch.12 +	B12	ch.12 –
A13	ch.13 +	B13	ch.13 –
A14	ch.14 +	B14	ch.14 –
A15	ch.15 +	B15	ch.15 –
A16	ch.16 +	B16	ch.16 –
A17 – A20, B17 – B20: Unused			

• Yokogawa DCS connector

Location

I/O connector: PS-40PE-D4T1-PN1

CN1: MAC2 / PAC card use*

CN2: MAC2 / PAC card use* for redundancy

CN3: VMx / PM1 card use**

The input or output 2 (output 1 with single output type) is connected to the connector.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VM1/PM1/VM4 CARD INPUT or OUTPUT CN3															
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
VM2 CARD INPUT NO. CN3								VM2 CARD OUTPUT NO. CN3							
1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
i	o	i	o	i	o	i	o	i	o	i	o	i	o	i	o
MAC2/PAC CARD I/O (i = input, o = output) CN1, CN2															

*MAC2 card (uses KS1 cable)
I/O card used for control I/O. Composed of 8 inputs and 8 outputs. Input and output are paired. (Replace with pulse inputs for PAC card.)
**VMx / PM1 card (uses KS2 cable)
VM1: analog input 16 points
VM2: analog input 8 points / analog output 8 points
VM4: analog output 16 points
PM1: pulse input 16 points

• Nippon Shokubai DCS connector

Location

CN1: HIF3F-34PA-2.54DSA

The input or output 2 (output 1 with single output type)is connected to the connector.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
NIPPON SHOKUBAI DCS LOCATION NO.															

• Connector Pin Assignment

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	No Connection	19	ch. 8 –
2	No Connection	20	ch. 8 +
3	ch.16 –	21	ch. 7 –
4	ch.16 +	22	ch. 7 +
5	ch.15 –	23	ch. 6 –
6	ch.15 +	24	ch. 6 +
7	ch.14 –	25	ch. 5 –
8	ch.14 +	26	ch. 5 +
9	ch.13 –	27	ch. 4 –
10	ch.13 +	28	ch. 4 +
11	ch.12 –	29	ch. 3 –
12	ch.12 +	30	ch. 3 +
13	ch.11 –	31	ch. 2 –
14	ch.11 +	32	ch. 2 +
15	ch.10 –	33	ch. 1 –
16	ch.10 +	34	ch. 1 +
17	ch. 9 –		
18	ch. 9 +		

• Azbil DCS AI connector

I/O cable: J-RSL / J-RSK
J-RRL / J-RRK

Location

Input connector: 57GE-40500-751

CN1, CN2: J-HAM50 / J-HMM00 module use

The output 2 (output 1 with single output type) is connected to the connector. The CN1 and CN2 are connected in parallel.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AZBIL DCS AI CONNECTOR															

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•Azbil DCS AO connector
I/O cable: J-RSL / J-RSK
J-RRL / J-RRK
Location
Output connector: 57GE-40500-751
CN1, CN2: J-AOM10 module use
The input is connected to the connector. The CN1 and CN2 are connected in parallel.
Install the Extender Module (model: 10BW) to unused channels in order to close the circuit.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AZBIL DCS AO CONNECTOR															

•Azbil DCS AI connector
I/O cable: J-SSL / J-SSK
J-SRL / J-SRK
Location
Input connector: 00-8016-056-296-707V
CN1, CN2: J-HAM50 / J-HMM00 module use
The output 2 (output 1 with single output type) is connected to the connector. The CN1 and CN2 are connected in parallel.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AZBIL DCS AI CONNECTOR															

•Azbil DCS AO connector
I/O cable: J-SSL / J-SSK
J-SRL / J-SRK
Location
Output connector: 00-8016-056-296-707V
CN1, CN2: J-AOM10 module use
The input is connected to the connector. The CN1 and CN2 are connected in parallel.
Install the Extender Module (model: 10BW) to unused channels in order to close the circuit.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
AZBIL DCS AO CONNECTOR															

•Yokogawa DCS connector
Location
I/O connector: PS-40PE-D4T1-PN1
CN1: VMx / PM1 card use (uses KS2 cable)
CN2: VMx / PM1 card use for redundancy
The input or output 2 (output 1 with single output type) is connected to the connector.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
VM1/PM1/VM4 CARD INPUT or OUTPUT CN1, CN2															
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
VM2 CARD INPUT NO. CN1, CN2								VM2 CARD OUTPUT NO. CN1, CN2							

•Connector Pin Assignment

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
40	ch. 1 +	24	ch. 9 +
39	ch. 1 –	23	ch. 9 –
38	ch. 2 +	22	ch.10 +
37	ch. 2 –	21	ch.10 –
36	ch. 3 +	20	ch.11 +
35	ch. 3 –	19	ch.11 –
34	ch. 4 +	18	ch.12 +
33	ch. 4 –	17	ch.12 –
32	ch. 5 +	16	ch.13 +
31	ch. 5 –	15	ch.13 –
30	ch. 6 +	14	ch.14 +
29	ch. 6 –	13	ch.14 –
28	ch. 7 +	12	ch.15 +
27	ch. 7 –	11	ch.15 –
26	ch. 8 +	10	ch.16 +
25	ch. 8 –	9	ch.16 –
1 – 8: Unused			

VM1: analog input 16 points
VM2: analog input 8 points / analog output 8 points
VM4: analog output 16 points
PM1: pulse input 16 points

• Toshiba DCS SAIN1 card use
Location
Input connector: Omron XG4A-2031
CN1: SAIN1 (ch.1 – ch.8)
CN2: SAIN1 (ch.1 – ch.8) for redundancy
CN3: SAIN1 (ch.9 – ch.16)
CN4: SAIN1 (ch.9 – ch.16) for redundancy
The output 2 (output 1 with single output type) is connected to the connector.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
CN1, CN2								CN3, CN4							
SAIN1 INPUT POINT NO.															

Toshiba DCS SAMP1 uses Panasonic AXM220001. As connector is discontinued, Omron XG4A-2031 is used as an alternative. (Replace cable side.)

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• Hitachi DCS connector

Location

CN1, CN2: DN20B-36S

The input or output 2 (Output 1 with single output type) is connected to the connector.

RACK LOCATION NO.															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
HITACHI DCS CONNECTOR															

Connector Pin Assignment

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	ch. 1 +	9	ch. 9 +
19	ch. 1 –	27	ch. 9 –
2	ch. 2 +	10	ch.10 +
20	ch. 2 –	28	ch.10 –
3	ch. 3 +	11	ch.11 +
21	ch. 3 –	29	ch.11 –
4	ch. 4 +	12	ch.12 +
22	ch. 4 –	30	ch.12 –
5	ch. 5 +	13	ch.13 +
23	ch. 5 –	31	ch.13 –
6	ch. 6 +	14	ch.14 +
24	ch. 6 –	32	ch.14 –
7	ch. 7 +	15	ch.15 +
25	ch. 7 –	33	ch.15 –
8	ch. 8 +	16	ch.16 +
26	ch. 8 –	34	ch.16 –

• Hitachi DCS EX-CDL cable connector

Location

CN1: 57GE-40360-751 (D7A)

The input or output 2 (output 1 with single output type) is connected to the connector.

PIN NO.	ASSIGNMENT	PIN NO.	ASSIGNMENT
1	ch. 1 +	9	ch. 9 +
19	ch. 1 –	27	ch. 9 –
2	ch. 2 +	10	ch.10 +
20	ch. 2 –	28	ch.10 –
3	ch. 3 +	11	ch.11 +
21	ch. 3 –	29	ch.11 –
4	ch. 4 +	12	ch.12 +
22	ch. 4 –	30	ch.12 –
5	ch. 5 +	13	ch.13 +
23	ch. 5 –	31	ch.13 –
6	ch. 6 +	14	ch.14 +
24	ch. 6 –	32	ch.14 –
7	ch. 7 +	15	ch.15 +
25	ch. 7 –	33	ch.15 –
8	ch. 8 +	16	ch.16 +
26	ch. 8 –	34	ch.16 –

⚠ Specifications are subject to change without notice.

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