General Specifications

Signal Conditioner Nests
Signal Conditioner Nest Fan Unit

CENTUM VP

GS 33J60H70-01EN

[Release 6]

■ GENERAL

The Signal Conditioner Nests are 19”-rack-type nests for mounting I/O signal conditioner cards.

Model MHM nest for control I/O cards and model MHC nest for general I/O cards are available. AC power supply unit can be redundant.

■ STANDARD SPECIFICATIONS

● Model MHC Signal Conditioner Nest

Model MHC is a signal conditioner nest for mounting Multipoint Analog Input Module.

Input card EA7 can only be used with I/O module AAB141 or AAB842.

Number of Signal Conditioner Card Slots: 16

Signal Connection:
For field: 16 sets of M4 screw
For I/O card: One connector
For recorder: One connector
Cable: KS2 Cable

Power Supply:
90 to 125 V AC (50/60 Hz ±3 Hz)
198 to 254.4 V AC (50/60 Hz ±3 Hz) (AC: Dual-redundant power supply unit is available)
24 V DC ±10 % (DC: Directly supplied to each card)

Power Consumption:
120 VA (100 V AC)
150 VA (220 V AC)
1.6 A (24 V DC)
Depends on kind and load of cards

Power/Alarm/Ground Connection:
M4 screw

Power Supply Alarm Output:
Only for AC supply
A contact output opens if power supply unit or power fails.
If dual-redundant power supply units are used, the contact output opens if one unit fails.
Contact rating: 30 V DC, 300 mA max.

Weight:
Approx. 6.0 kg (when AC power is dual-redundant; without signal conditioner cards).

● Model MHM Signal Conditioner Nest

Model MHM is a signal conditioner nest for Multipoint Control Analog I/O Module.

Number of Signal Conditioner Card Slots:
For Input: 8 cards (installed in odd-number slots)
For Output: 8 cards (installed in even-number slots)

Limits for Signal Conditioner Card Installation:
For connecting to an analog I/O module (AAB841 or AAB842), input cards other than pulse train input card (EP1) can be installed in odd-number slots.
For connecting to a pulse input/analog output module for compatible PAC (AAP849), only pulse train input card (EP1) can be installed in odd-number slots.
EC0, EC7, and EX1 output cards can be installed in even-number slots.
Input card EA7 and Output card EC7 can only be installed when I/O module AAB842 is connected.

Signal Connection:
For field: 16 sets of M4 screw
For I/O card: Two connectors; KS1 cable is used
For recorder: One connector; KS4 cable is used

Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
GS 33J60H70-01EN

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Power Supply:
90 to 125 V AC (50/60 Hz ±3 Hz)
198 to 254.4 V AC (50/60 Hz ±3 Hz) (AC: Dual-redundant power supply unit is available)
24 V DC ±10 % (DC: Directly supplied to each card)

Power Consumption:
120 VA (100 V AC)
150 VA (220 V AC)
1.6 A (24 V DC)
Depends on kind land loaf of cards

Power/Alarm/Ground Connection:
M4 screw

Power Supply Alarm Output:
Only for AC supply
A contact output opens if power supply unit or power fails.
If dual-redundant power supply units are used, the contact output opens if one unit fails.
Contact rating: 30 V DC, 300 mA max.

Weight:
Approx. 6.0 kg (when AC power is dual-redundant; without signal conditioner cards).

● Model SCFAN1 Signal Conditioner Nest Fan Unit

Power Supply:
24 V DC ±10 %

Current Consumption:
1.0 A

Connection:
M4 screw

Alarm Output:
A contact output open if fan fails.
Contact rating: max. 30 V DC, 300 mA

Withstanding Voltage:
1000 V AC/min. (between power supply terminals (24 V +,–) and ground)

Isolation Resistance:
More than 100 MΩ (500 V DC) (between power supply terminals (24 V +,–) and ground)

Weight:
Approx. 2.3 kg

Color:
Black

■ OPERATING ENVIRONMENT

- Ambient Temperature: 0 to 50 °C
- Ambient Humidity: 5 to 90 %RH (non-condensing)

■ INSTALLING MHM AND MHC

Signal conditioner nests are available both for AC and DC power supply.

● Signal Conditioner Nest with AC power adapter

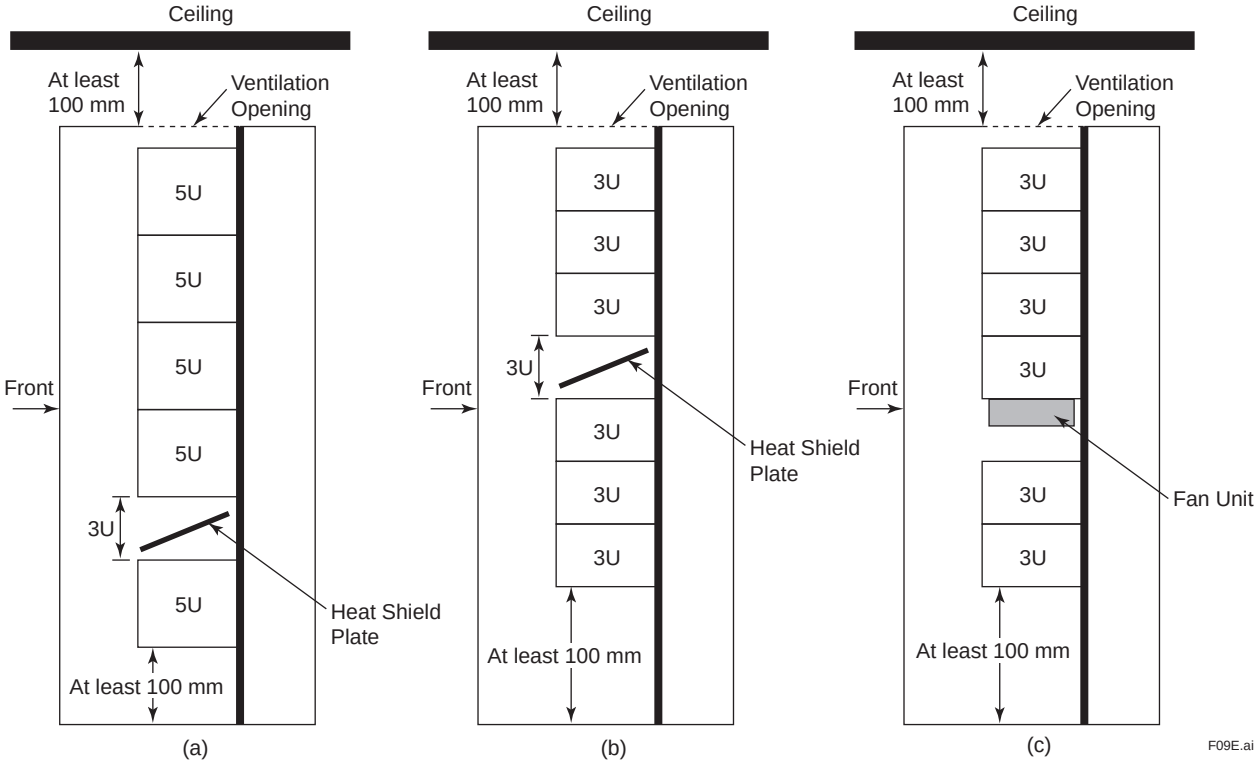
Model: MHM-1, MHM-2, MHM-5, MHM- 6,
MHC-1, MHC-2, MHC-5, and MHC-6
Height: 5U (Unit: 1U = 44.45 mm)

● Signal Coditioner Nest with DC power adapter

Model: MHM-3 and MHC-3
Height: 3U (Unit: 1U = 44.45 mm)

When installing a signal conditioner nest, observe the following conditions.

- Keep nests at least 100 mm away from the floor, as shown in the following figures.
- Keep the top of the instrumentation cabinet at least 100 mm away from the ceiling, and cut a ventilation hole of 200 cm^2 or larger on the top of it, as shown in the following figures.
- Do not install both 5U and 3U nests in the same instrumentation cabinet.
- Up to four 5U nests can be installed side by side. To install more nests side by side, keep the fifth nest at least 3U long from the fourth nest for ventilation, or install a heat shield between the fourth and the fifth nests, as shown in Figure a.
- Up to three 3U nests can be installed side by side. There are two ways to install more nests side by side. Keep the fourth nest at least 3U long from the third nest for ventilation, or install a heat shield between the third and the fourth nests, as shown in Figure b. Otherwise, install SCFAN1 Fan Unit between the forth and the fifth 3U nests making SCFAN1 in contact with the nests, as shown in Figure c.



■ MODELS AND SUFFIX CODES

Signal Conditioner Nest

		Description
Model	MHC	I/O Signal Conditioner Nest
	MHM	Control I/O Signal Conditioner Nest
Suffix Code	-1	100/110/115/120 V AC single
	-2	220/230/240 V AC single
	-3	24 V DC (3-UNIT type)
	-5	100/110/115/120 V AC dual-redundant
	-6	220/230/240 V AC dual-redundant
	0	Without Communication Function
	1	With Communication Function (ESC card)
Style Code	*B	Style B (*1)
Option Code	/□□□	Specify the card according to the following options.

*1: Style code *B is described as SUFFIX on the actual products.

Option

Option Code	Specification		
/□M1	EM1 mV input card	Without Burnout	
/□MU	EM1 mV input card	Up-scale Burnout	
/□MD	EM1 mV input card	Down-scale Burnout	
/□T5	ET5 TC input card	Without Burnout	
/□TU	ET5 TC input card	Up-scale Burnout	
/□TD	ET5 TC input card	Down-scale Burnout	
/□TF	ET5 TC input card	Without Burnout	Temperature indication in Fahrenheit
/□TH	ET5 TC input card	Up-scale Burnout	Temperature indication in Fahrenheit
/□TL	ET5 TC input card	Down-scale Burnout	Temperature indication in Fahrenheit
/□R5	ER5 RTD input card	Without Burnout	
/□RU	ER5 RTD input card	Up-scale Burnout	
/□RD	ER5 RTD input card	Down-scale Burnout	
/□RF	ER5 RTD input card	Without Burnout	Temperature indication in Fahrenheit
/□RH	ER5 RTD input card	Up-scale Burnout	Temperature indication in Fahrenheit
/□RL	ER5 RTD input card	Down-scale Burnout	Temperature indication in Fahrenheit
/□S1	ES1 Potentiometer input card	Without Burnout	
/□SU	ES1 Potentiometer input card	Up-scale Burnout	
/□SD	ES1 Potentiometer input card	Down-scale Burnout	
/□H1	EH1 Input isolator card		
/□H5	EH5 Input isolator card with square root extraction		
/□A1	EA1 2-wire transmitter input card		
/□A2	EA2 2-wire transmitter input card with BRAIN communication function		
/□A5	EA5 2-wire transmitter input card with square root extraction		
/□P1	EP1 Pulse train input card		
/□P3	EP3 Input frequency card		
/□C0	EC0 Control output isolator card		(Exclusive to MHM)
/□A0	EA0 Output isolator card		
/□H0	EH0 (1 to 5 V output)		
/□X1	EX1 I/O through card		
/T	With tag numbers (all cards in a nest)		

Note: In the box □, fill in the slot number to insert a card, in hexadecimal notation (1 to 9, A, B, C, D, E, F, G)
Refer to “Signal Conditioner Cards” (GS 33K50H80-50E) for each signal conditioner card.

Signal Conditioner Nest Fan Unit

		Description
Model	SCFAN1	Signal Conditioner Nest Fan Unit
Style Code	*A	Style A

■ SIGNAL AND TERMINAL DIAGRAM

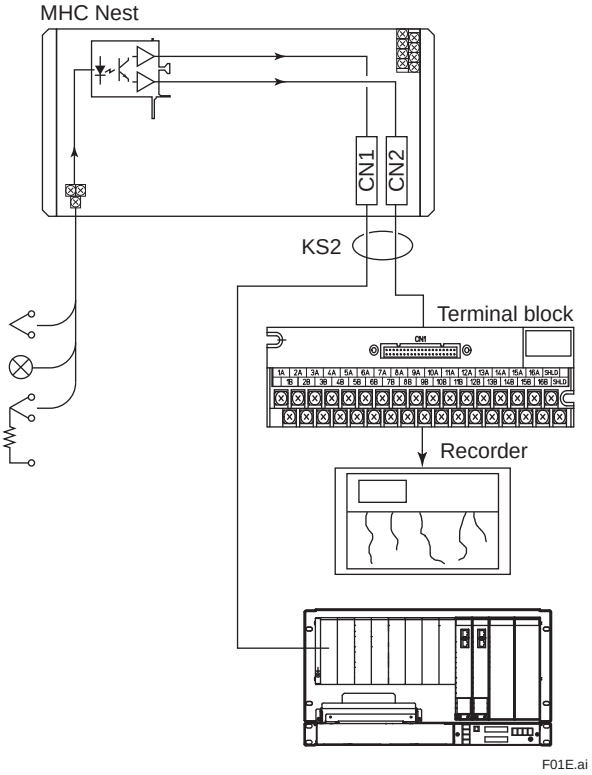


Figure 1. MHC-50 Nest Connection

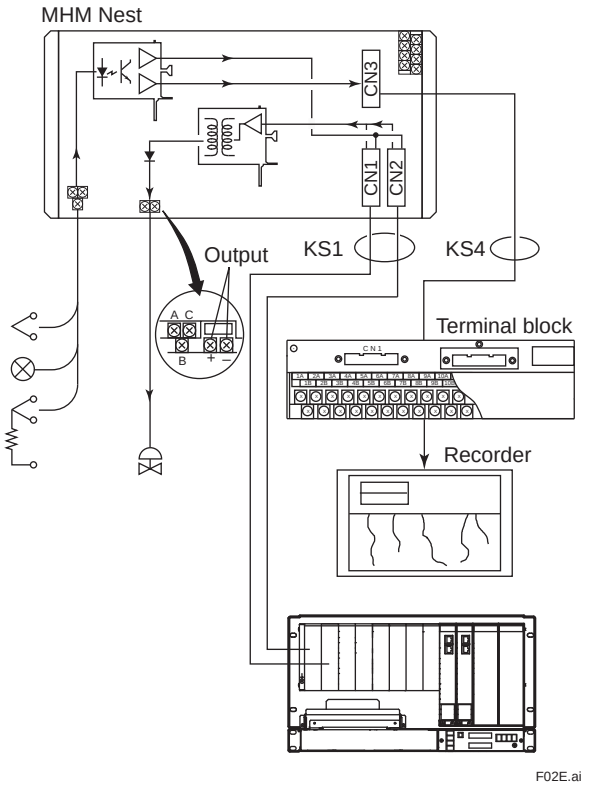
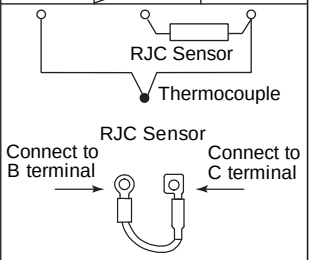
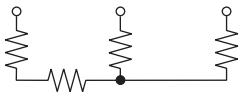
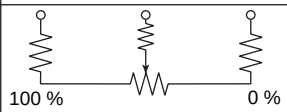
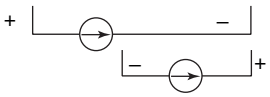


Figure 2. MHM-50 Nest Connection

■ FIELD SIDE TERMINAL

Signal Conditioner Nest		Terminal A	Terminal B	Terminal C
EM1		+		–
ET5 (*1)				
ER5 (*2)				
ES1 (*3)				
EP1, EP3	Two-wire type	+		–
	Two-wire type power supply	Signal	power supply	
	Three-wire type power supply	+	power supply	–
EH1, EH5		+		–
EA1, EA2, EA5, EA7 (*4) (*5) (*6)				
EH0, EA0, EC0, EC7		+		–
EX1		+		–

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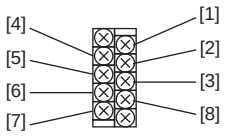
*1: The Reference Junction Compensation Sensor (RJC Sensor) is attached to ET5. Connected it to B and C terminals of signal conditioner.
*2: Must be wiring resistance of A as same as B.
*3: Must be wiring resistance of A as same as C.
*4: B terminal is used when combined with BARD safety barrier.
*5: In the case of 4-to-20 mA input that requires no transmitter power supply, connect to C-terminal (+) and B-terminal (–).
Input resistance of EA1, EA2, and EA5 is 250 Ω.
For EA7, input resistance is equivalent to 250 Ω (voltage drop is 5 V or less, at 20 mA input).
*6: EA7 cannot be used with SPBD standby manual station.

■ Power Supply, Alarm and ESC Terminals

< AC Power Supply >



Terminal	MH M/C-150	MH M/C-151	MH M/C-260	MH M/C-261
[1]	L	100/110/115/120 V AC	L	220/230/240 V AC
[2]	N		N	
[3]	⏚		⏚	
[4]	ALARM 30 V DC, 300 mA max.		ALARM 30 V DC, 300 mA max.	
[5]				
[6]		A		A
[7]		B		B
[8]		SG		SG
		for ESC card communication		for ESC card communication

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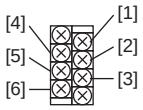
< DC Power Supply >



Terminal	MH M/C - 30	MH M/C - 31
[1]	+	24 V DC
[2]	–	
[3]	⏚	
[4]		A
[5]		B
[6]		SG
		for ESC card communication

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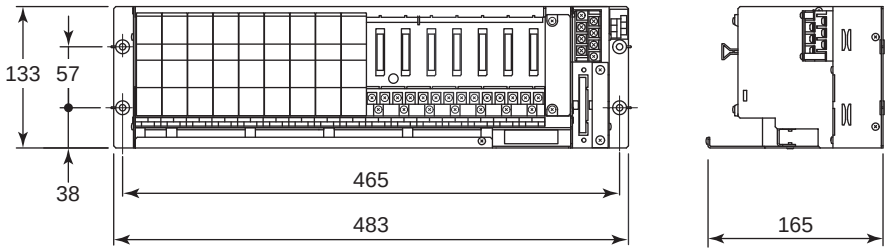
■ EXTERNAL DIMENSIONS

● MHC-3□

Unit: mm



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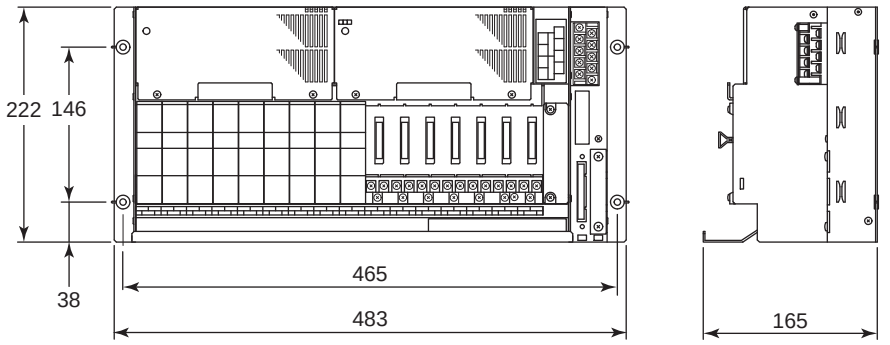
Nominal Tolerances :

Nominal tolerance is ± 0.8 mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is ± 1.5 mm.
The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

● MHC-5□, MHC-6□, MHC-1□, MHC-2□

Unit: mm



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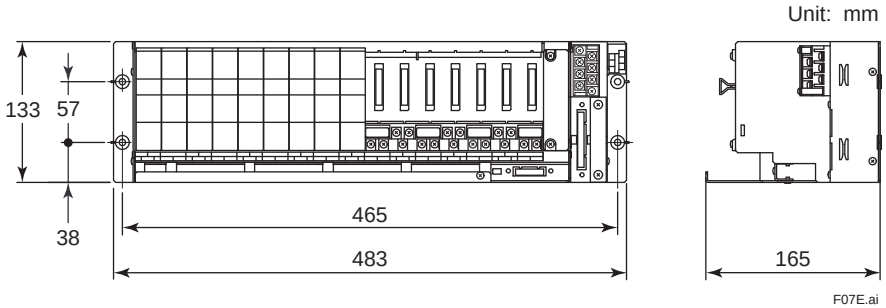
Nominal Tolerances :

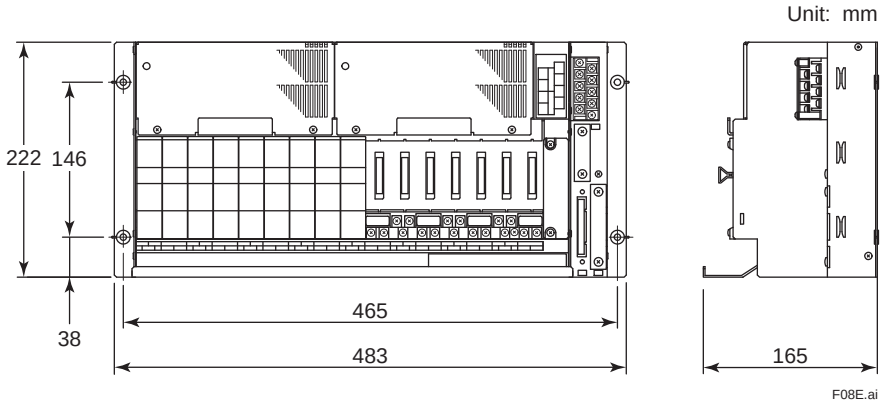
Nominal tolerance is ± 0.8 mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is ± 1.5 mm.
The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

● **MHM-3□**



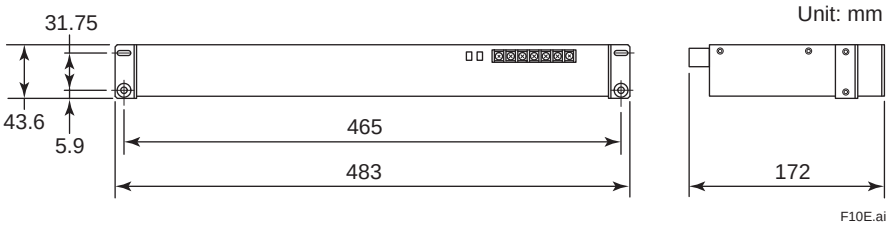
Nominal Tolerances :
Nominal tolerance is ± 0.8 mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is ± 1.5 mm.
The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

● **MHM-5□, MHM-6□, MHM-1□, MHM-2□**



Nominal Tolerances :
Nominal tolerance is ± 0.8 mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is ± 1.5 mm.
The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

● **SCFAN1**



Nominal Tolerances :
Nominal tolerance is ± 0.8 mm for the dimensions of 0.5 mm or more and 120 mm or less, and the combined nominal tolerance is ± 1.5 mm.
The nominal tolerance is in accordance with JEM 1459 for the dimensions over 120 mm.

■ APPLICABLE STANDARDS

Refer to the GS “Integrated Production Control System CENTUM VP System Overview” (GS 33J01A10-01EN).

■ ORDERING INFORMATION

Specify the model, suffix code(s), and option code(s).

■ TRADEMARK ACKNOWLEDGMENT

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