General Specifications

GS 33K55R40-50E

Terminal Boards
Terminal Blocks
Relay Boards
(for RIO and ST compatible FIO)

CENTUM VP

[Release 5]

■ GENERAL

Terminal boards are used to connect field I/O signals to I/O modules (for RIO and ST compatible FIO) in I/O module nests of control stations.

Terminal blocks are used to connect I/O signals to I/O modules.

Relay input boards are connected to digital signals from the field and provide one/two contact output signals per input. When converted into two contact signals, one contact is used as status input and the other is output from a terminal on the top of the board. Relay output boards output one/two status output signals per relay.

■ STANDARD SPECIFICATIONS

● Terminal Boards

Model	Usage	Contact Point	Terminal	Connection I/O Module	Connecting Cable	Weight	Rating
MUB	General-purpose	32 points (16 x 2)	M4 screws	ADM□1C, AMM12C, AMM22C ADV□59	KS2	1.3 kg	Insulation resistance: At least 100 MΩ (500 V DC) Withstanding voltage: 500 V AC Ambient temp: 0 to 50 ºC Ambient humidity: 5 to 90 %RH
MUD	General-purpose	64 points (32 x 2)		ADM□2C ADV□69	KS9	1.8 kg	
MCM	Control I/O	8 inputs, 8 outputs		AMC80	KS1	1.5 kg	
MTC	Thermocouple input	30 points (15 x 2)		AMM25C	KS1	1.5 kg	
MRT	RTD input	32 points (16 x 2)		AMM32C	KS8	1.8 kg	

Note: MUB, MUD, MCM, and MRT conform with standards for hazardous locations product certification (CSA Non-Incendive). For more information on these standards, refer to “System Overview” (GS 33K01A20-50E).

● Terminal Blocks

Model	Usage	Contact Point	Terminal	Module	Connecting Cable	Insulation Resistance	Withstanding Voltage	Ambient temp., humidity
TE16	General-purpose	16 points	M4 screws	ADM□1C, AMM12C, AMM22C ADV□59	KS2	At least 100 MΩ (500 V DC)	500 V AC	0 to 50 ºC 5 to 90 %RH
TE32	General-purpose	32 points		ADM□2C ADV□69	KS9			
TE08	General-purpose	8 points		–	KS4			
TETC	Thermocouple input	15 points (with reference contact temp. detection circuit)		AMM25C	KS1			
TERT	RTD input	16 points		AMM32C	KS8			

Note: TE16, TE32 and TERT conform with standards for hazardous locations product certification (CSA Non-Incendive). For more information these standards, refer to “System Overview” (GS 33K01A20-50E).

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GS 33K55R40-50E

1st Edition Aug. 19, 2011 (YK)

● Relay Boards

Usage	Models	Contact Points	Terminal TM1	Terminal TM2	Terminal	Connecting Cable	Connecting Module
Relay Contact input	MRI-114	16 Points	Contact signal input		M4 screws	KS2	ADM11C ADV859 ADV159
	MRI-124			"NO" contact output			
	MRI-134			"NC" contact output			
	MRI-214	32 Points			M4 screws	KS9	ADM12C ADV869 ADV169
	MRI-224			"NO" contact output			
	MRI-234			"NC" contact output			
Relay output	MRO-114	16 Points	"NO" contact output		M4 screws	KS2	ADM51C ADV859 ADV559
	MRO-124		"NO" contact output	"NO" contact output			
	MRO-134		"NC" contact output	"NO" contact output			
	MRO-144		Wet contact output				
	MRO-154		Wet contact output (With switch)				
	MRO-164		Wet contact output	"NO" contact output			
	MRO-214	32 Points	"NO" contact output		M4 screws	KS9	ADM52C ADV869 ADV569
	MRO-224		"NO" contact output	"NO" contact output			
	MRO-234		"NC" contact output	"NO" contact output			
	MRO-244		Wet contact output				
	MRO-254		Wet contact output (With switch)				
	MRO-264		Wet contact output	"NO" contact output			

● Relay Boards Detail Specifications

Relay Input Boards (16points)

Model	MRI-114	MRI-124	MRI-134
Usage	Contact Input	Contact Input (with “NO” Contact output)	Contact Input (with “NC” Contact output)
Connecting Module	ADM11C, ADV859, ADV159		
Connecting Cable	KS2		
Contact Input Signal (TM1)	ON Signal: 150 Ω or less OFF Signal: At Least 50 kΩ		
External Contact Rating (TM1)(*1)	24 V DC, 25.5 mA		
Contact Rated Load (TM2)(*2)		125 V AC 0.1 A 24 V DC 0.3 A 125 V DC 0.08 A	
Contact Minimum Load (TM2)		10 mV 10 µA	
Terminals for Field Device Connection	M4 screws, crimping terminal width: 8.6 mm or less		
Size of connected electric wire	2 mm^2 or less, Field wiring size: 0.9 or 1.25 mm^2 recommended		
Power Supply Voltage	24 V DC±10 %		
Average Current Consumption when All Relays are ON	0.41 A		
Insulation Resistance	At Least 20 MΩ (500 V DC)		
Withstanding Voltage	Between each terminals and Cases: 1000 V		
Ambient Temperature and Humidity	0 - 50 °C, 45 - 85 %RH (non condensing)		
Size	W:482.6 H:88.1 mm (IEC 2U)	W:482.6 H:132.5 mm (IEC 3U)	W:482.6 H:132.5 mm (IEC 3U)
Weight	1 kg	1.5 kg	1.5 kg
Color	Black		

Note: These products do not conform with safety standards, EMC conformity standards, or standards for hazardous locations product certification listed in the “System Overview” (GS 33K01A20-50E).
*1: Voltage and current rating for relay contact input boards with external contact signal sources applied. The power source applied to each input is not isolated.
*2: In case an inductive load is connected to an output, make sure to connect a spark killer circuit (an RC-connection in series in case of an AC power supply, a diode in case of a DC power supply) in parallel with the load in order to protect the contact.

Relay Input Boards (32points)

Model	MRI-214	MRI-224	MRI-234
Usage	Contact Input	Contact Input (with “NO” Contact output)	Contact Input (with “NC” Contact output)
Connecting Module	ADM12C, ADV869, ADV169		
Connecting Cable	KS9		
Contact Input Signal (TM1)	ON Signal: 150 Ω or less OFF Signal: At Least 50 kΩ		
External Contact Rating (TM1)(*1)	24 V DC, 25.5 mA		
Contact Rated Load (TM2)(*2)		125 V AC 0.1 A 24 V DC 0.3 A 125 V DC 0.08 A	
Contact Minimum Load (TM2)		10 mV 10 µA	
Terminals for Field Device Connection	M4 screws, crimping terminal width: 8.6 mm or less		
Size of connected electric wire	2 mm^2 or less, Field wiring size: 0.9 or 1.25 mm^2 recommended		
Power Supply Voltage	24 V DC±10 %		
Average Current Consumption when All Relays are ON	0.82 A		
Insulation Resistance	At Least 20 MΩ (500 V DC)		
Withstanding Voltage	Between each terminals and Cases: 1000 V		
Ambient Temperature and Humidity	0 - 50 °C, 45 - 85 %RH (non condensing)		
Size	W:482.6 H:132.5 mm (IEC 3U)	W:482.6 H:177 mm (IEC 4U)	W:482.6 H:177 mm (IEC 4U)
Weight	1.5 kg	2 kg	2 kg
Color	Black		

Note: These products do not conform with safety standards, EMC conformity standards, or standards for hazardous locations product certification listed in the “System Overview” (GS 33K01A20-50E).
*1: Voltage and current rating for relay contact input boards with external contact signal sources applied. The power source applied to each input is not isolated.
*2: In case an inductive load is connected to an output, make sure to connect a spark killer circuit (an RC-connection in series in case of an AC power supply, a diode in case of a DC power supply) in parallel with the load in order to protect the contact.

Relay Output Boards (16points)

Model	MRO-114	MRO-124/MRO-134	MRO-144/MRO-154	MRO-164
Usage	contact output “NO” contact circuit	contact output “NO” contact 2 circuits/ ”NO” and “NC” contacts each one circuit	Wet contact output/ Wet output with maintenance switch	Wet contact output, Dry contact output
Connecting Module	ADM51C, ADV859, ADV559			
Connecting Cable	KS2			
Contact Rated Load (TM1) (*2)	125 V AC 1 A 24 V DC 1 A 125 V DC 0.1 A	125 V AC 1 A 24 V DC 1 A 125 V DC 0.1 A	125 V AC 0.6 A 24 V DC 0.6 A 125 V DC 0.1 A 16 Points total: 5 A or less	125 V AC 0.6 A 24 V DC 0.6 A 125 V DC 0.1 A 16 Points total: 5 A or less
Contact Rated Load (TM2) (*2)		250 V AC 1.5 A 24 V DC 1.5 A 125 V DC 0.1 A		250 V AC 1.5 A 24 V DC 1.5 A 125 V DC 0.1 A
Contact Minimum Load (TM1,TM2)	5 V, 10 mA			
Power Supply Voltage	24 V DC±10 %			
Consumption Current (*1)	0.21 A	0.28 A	0.21 A	0.28 A
Insulation Resistance	At Least 20 MΩ 500 V DC			
Withstanding Voltage	Between Lower terminal “TM1”and Cases:1000 V Between power supply terminal “TM1” and Cases : 500 V	Between Lower terminal “TM1” and Cases:1000 V Between Upper terminal “TM2” and Cases:1500 V Between power supply terminal “TM1” and Cases : 500 V	Between Lower terminal “TM1” and Cases:1000 V Between power supply terminal “TM1” and Cases : 500 V	Between Lower terminal “TM1” and Cases:1000 V Between Upper terminal “TM2” and Cases: 1500 V Between power supply terminal “TM1” and Cases : 500 V
Ambient Temperature and Humidity	0 - 50 °C, 45 - 85 % RH (non condensing)			
Terminals for Field Device Connection	M4 screws, crimping terminal width: 8.6 mm or less			
Size of connected electric wire	2 mm^2 or less, Field wiring size: 0.9 or 1.25 mm^2 recommended			
Size	W:482.6 H:88.1 mm (IEC 2U)	W:482.6 H:132.5 mm (IEC 3U)	W:482.6 H:132.5/177 mm (IEC 3U/4U)	W:482.6 H:177 mm (IEC 4U)
Weight	1 kg	1.5 kg	1.5 kg/2 kg	2 kg
Color	Black			

Note: These products do not conform with safety standards, EMC conformity standards, or standards for hazardous locations product certification listed in the “System Overview” (GS 33K01A20-50E).
*1: Average current consumption when all relays operate.
*2: In case an inductive load is connected to an output, make sure to connect a spark killer circuit (an RC-connection in series in case of an AC power supply, a diode in case of a DC power supply) in parallel with the load in order to protect the contact.

Relay Output Boards(32points)

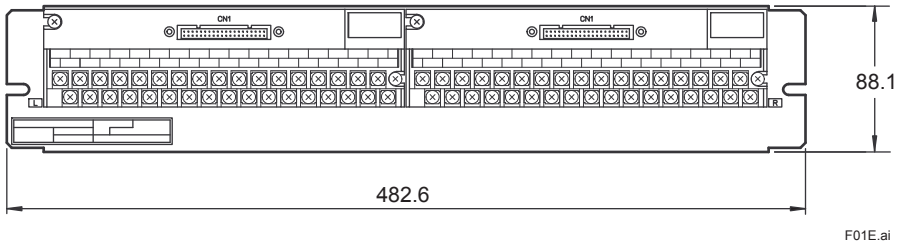
Model	MRO-214	MRO-224/MRO-234	MRO-244/MRO-254	MRO-264
Usage	contact output “NO” contact circuit	contact output “NO” contact 2circuits/ ”NO” and “NC” contacts each one circuit	Wet contact output/ Wet output with maintenance switch	Wet contact output, Dry contact output
Connecting Module	ADM52C, ADV869, ADV569			
Connecting Cable	KS9			
Contact Rated Load (TM1)(*2)	125 V AC 1 A 24 V DC 1 A 125 V DC 0.1 A	125 V AC 1 A 24 V DC 1 A 125 V DC 0.1 A	125 V AC 0.6 A 24 V DC 0.6 A 125 V DC 0.1 A 32 points total: 8 A or less	125 V AC 0.6 A 24 V DC 0.6 A 125 V DC 0.1 A 32 points total: 8 A or less
Contact Rated Load (TM2)(*2)		250 V AC 1.5 A 24 V DC 1.5 A 125 V DC 0.1 A		250 V AC 1.5 A 24 V DC 1.5 A 125 V DC 0.1 A
Contact Minimum Load (TM1,TM2)	5 V, 10 mA			
Power Supply Voltage and Current	24 V DC±10 %			
consumption current (*1)	0.42 A	0.56 A	0.42 A	0.56 A
Insulation Resistance	At least 20 MΩ (500 V DC)			
Withstanding Voltage	Between Lower terminal “TM1” and Cases: 1000 V Between 24 V power supply terminal and Cases: 500 V	Between Lower terminal “TM1” and Cases: 1000 V Between Upper terminal “TM2” and Cases: 1500 V Between 24 V power supply terminal and Cases: 500 V	Between Lower terminal “TM1” and Cases: 1000 V Between 24 V power supply terminal and Cases: 500 V	Between Lower terminal “TM1” and Cases: 1000 V Between Upper terminal “TM2” and Cases: 1500 V Between 24 V power sup ply terminal and Cases: 500 V
Ambient Temperature and Humidity	0 - 50 °C, 45 - 85 % RH (non condensing)			
Terminals for Field Device Connection	M4 screws, crimping terminal width: 8.6 mm or less			
Size of connected electric wire	2 mm^2 or less, Field wiring size: 0.9 or 1.25 mm^2 recommended			
Size	W:482.6 H:132.5 mm (IEC 3U)	W:482.6 H:177 mm (IEC 4U)	W:482.6 H:177/221.4 mm (IEC 4U/5U)	W:482.6 H:221.4 mm (IEC 5U)
Weight	1.5 kg	2 kg	2.2 kg/2.5 kg	2.5 kg
Color	Black			

Note: These products do not conform with safety standards, EMC conformity standards, or standards for hazardous locations product certification listed in the “System Overview” (GS 33K01A20-50E).
*1: Average current consumption when all relays operate.
*2: In case an inductive load is connected to an output, make sure to connect a spark killer circuit (an RC-connection in series in case of an AC power supply, a diode in case of a DC power supply) in parallel with the load in order to protect the contact.

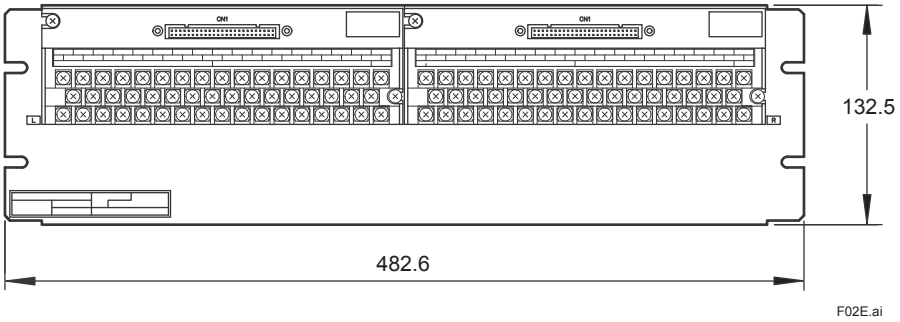
■ EXTERNAL DIMENSIONS

● Terminal Boards

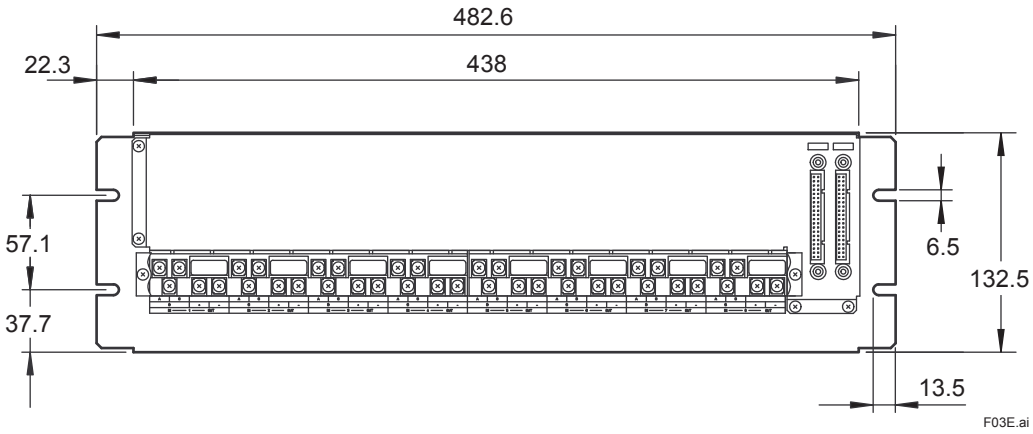
Model MUB Unit : mm



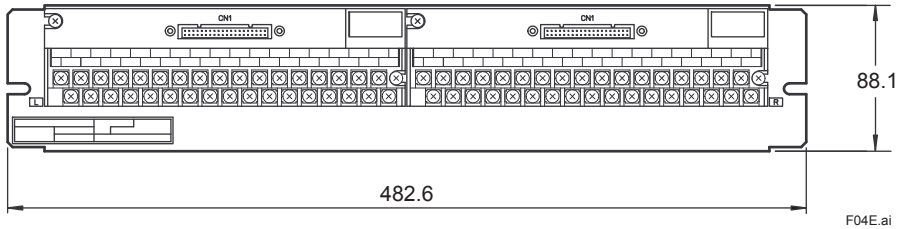
Model MUD Unit : mm



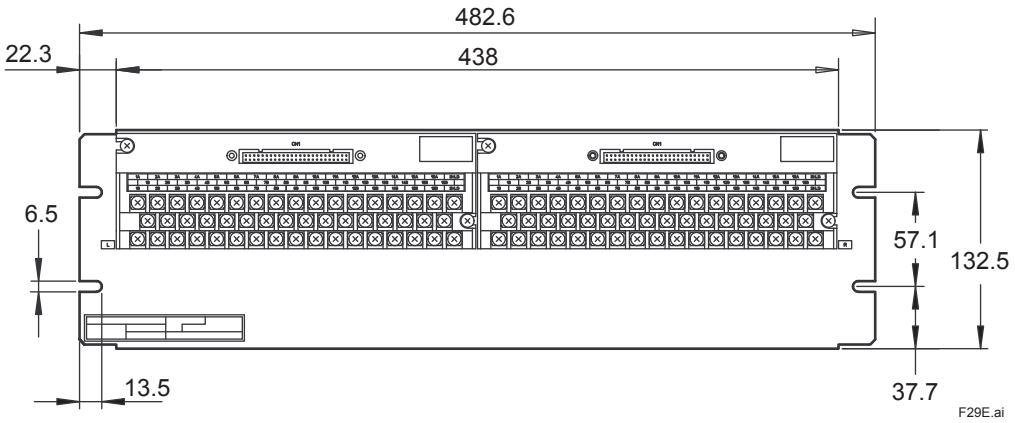
Model MCM Unit : mm



Model MTC Unit : mm

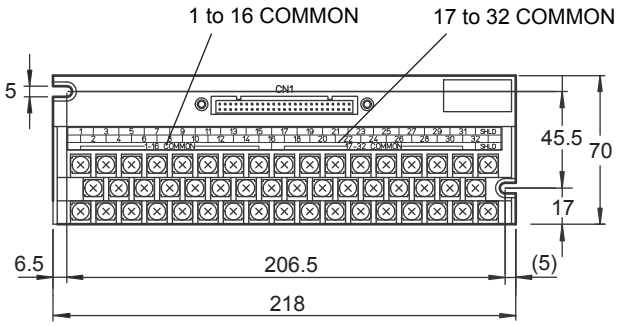


Model MRT Unit : mm



● Terminal

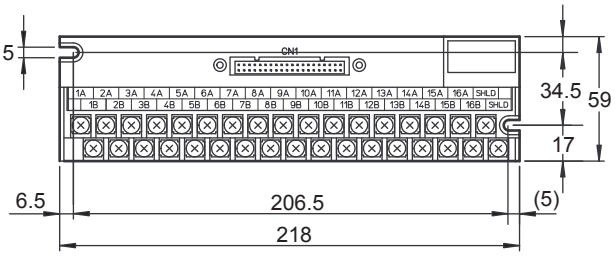
Model TE32 Unit : mm



CH.No.	Input Terminal
1	1+ 1 to 16COM.–
2	2+ 1 to 16COM.–
. . . .	. . . .
31	31+ 17 to 32COM.–
32	32+ 17 to 32COM.–

F30E.ai

Models TE16, TETC Unit : mm



CH.No.	Input terminal
1	1A+ 1B–
2	2A+ 2B–
. . . .	. . . .
15	15A+ 15B–
16(*1)	16A+ 16B–

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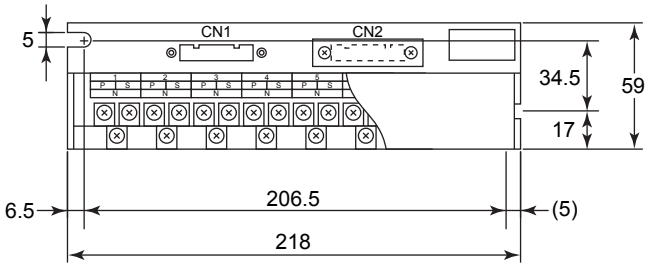
*1: In TETC, CH. No. 16 is used to reference junction compensation.

TE08

Unit : mm



CH.No.	Input terminal
1	1P+ 1N– 1S shield
2	2P+ 2N– 2S shield
. . . .	. . . .
7	7P+ 7N– 7S shield
8	8P+ 8N– 8S shield

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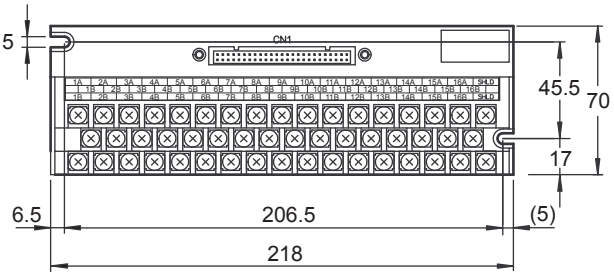
Model TERT

Unit : mm



CH.No.	Input terminal
1	1A 1B 1B
2	2A 2B 2B
. . . .	. . . .
16	16A 16B16B

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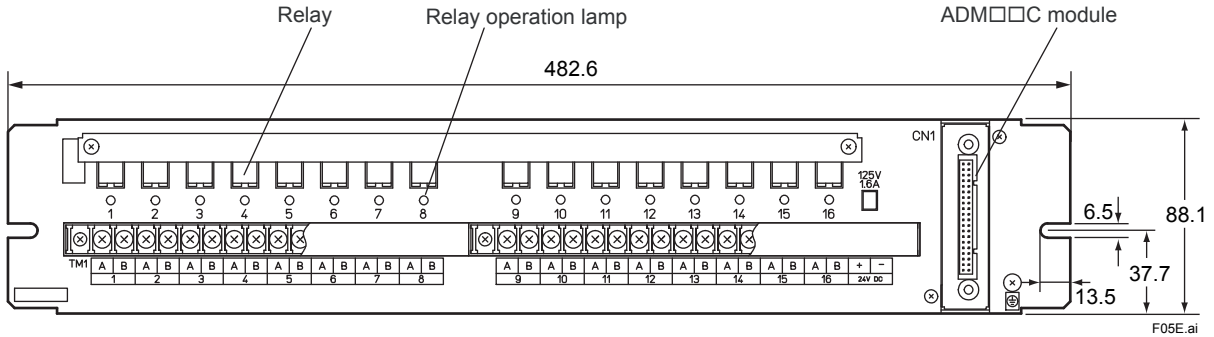
● Relay Boards

Models MRI-114, MRO-114

Unit : mm



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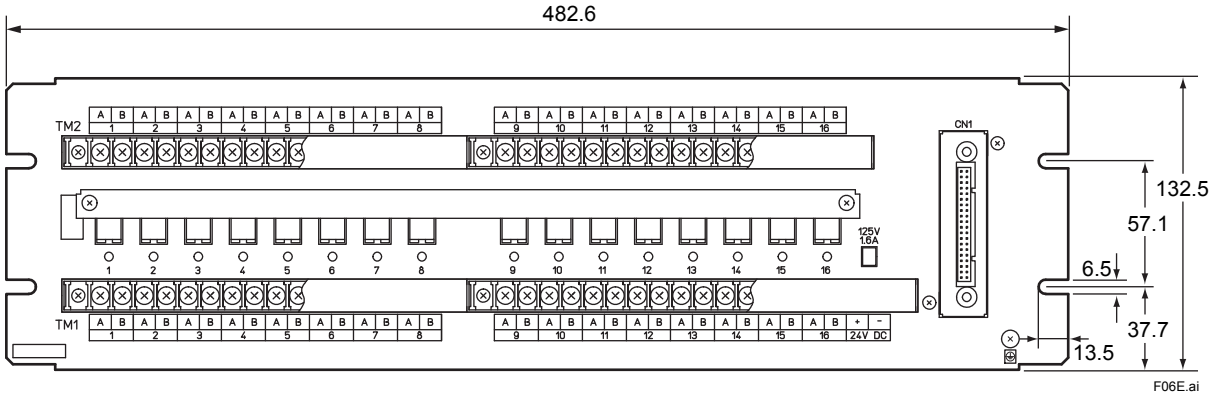
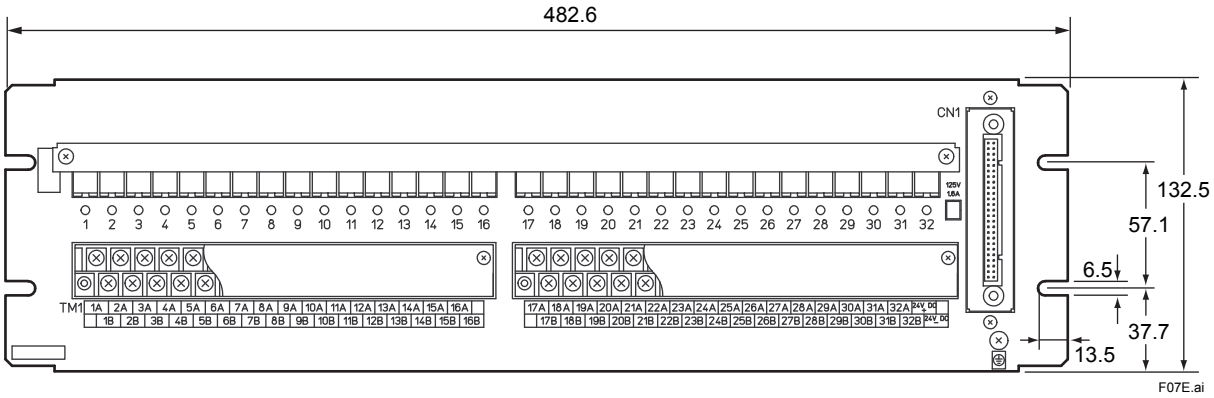
Models MRI-124, MRI-134
Models MRO-124, MRO-134

Unit : mm



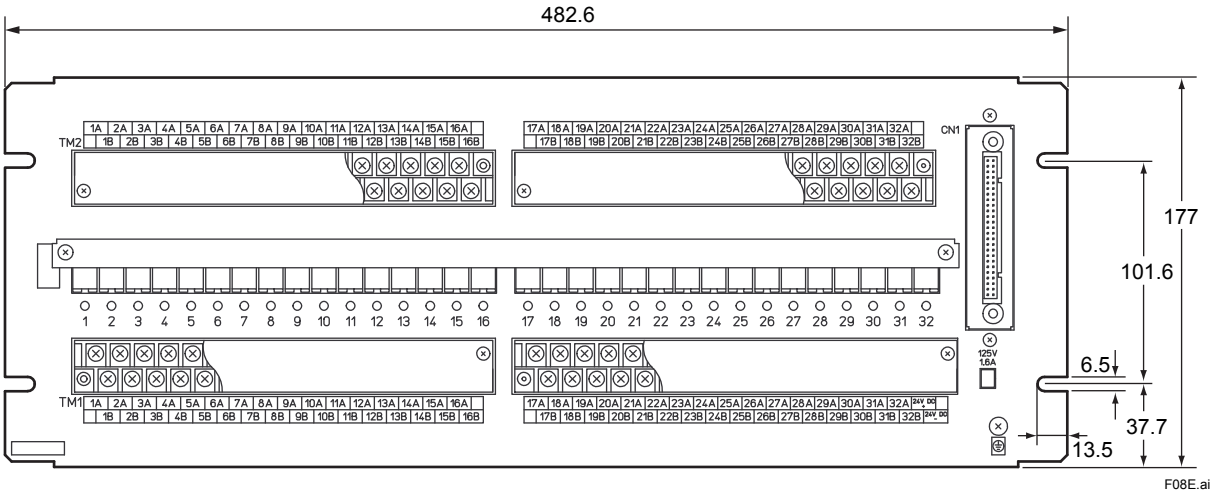
Models MRI-214, MRO-214

Unit : mm

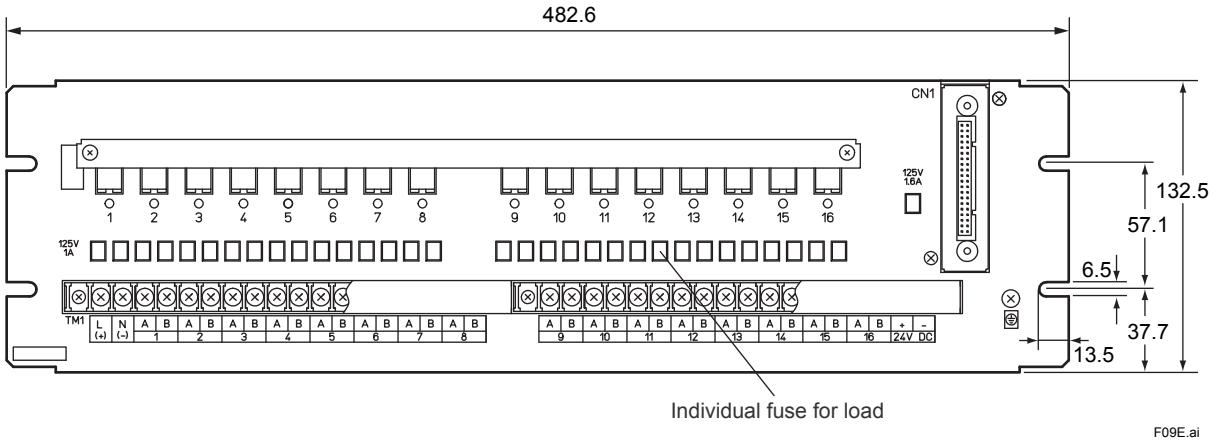


Models MRI-224, MRI-234
Models MRO-224, MRO-234

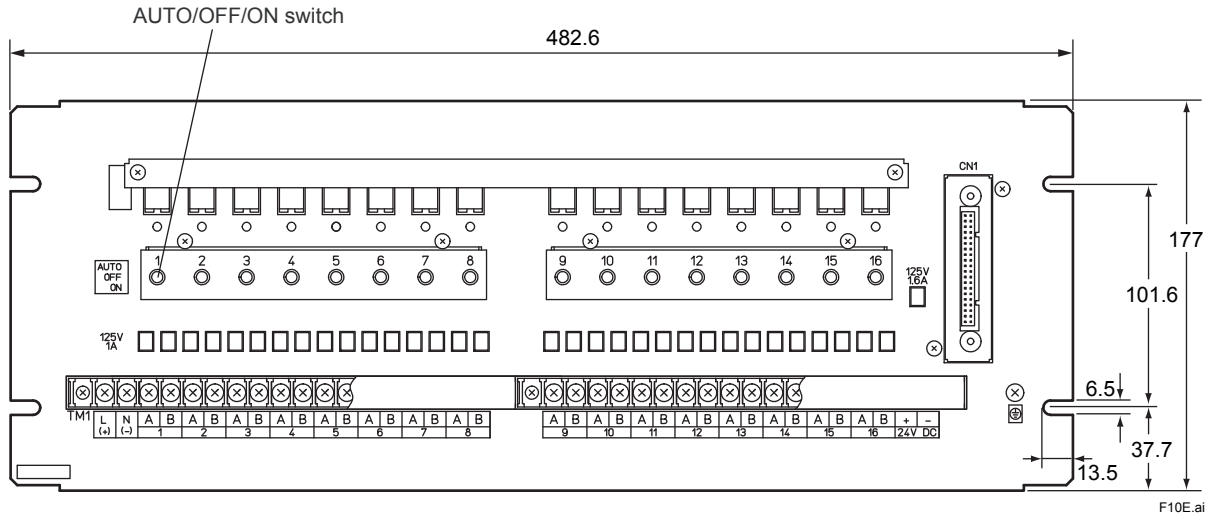
Unit : mm



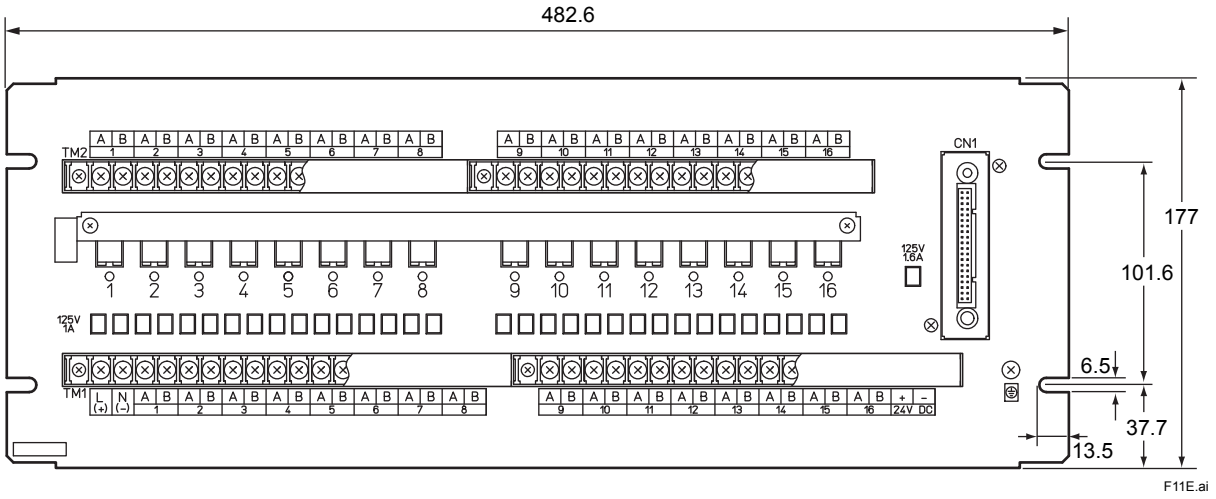
Model MRO-144 Unit : mm



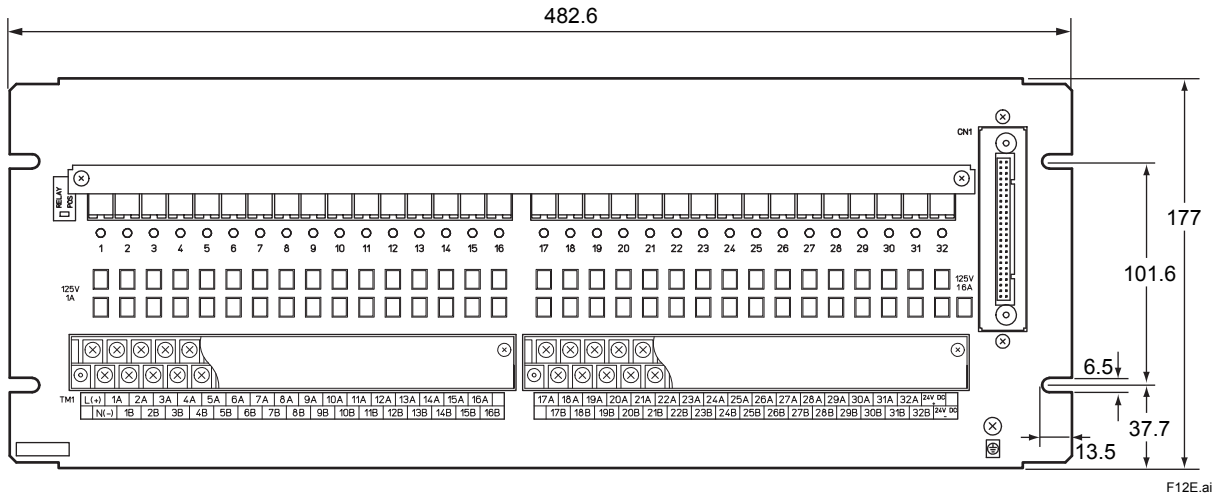
Model MRO-154 Unit : mm



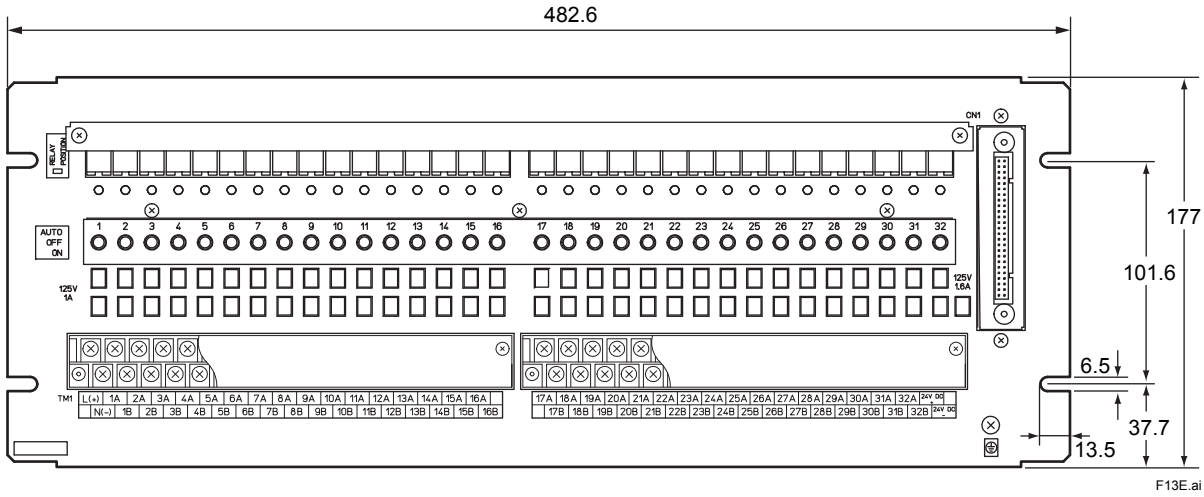
Model MRO-164 Unit : mm



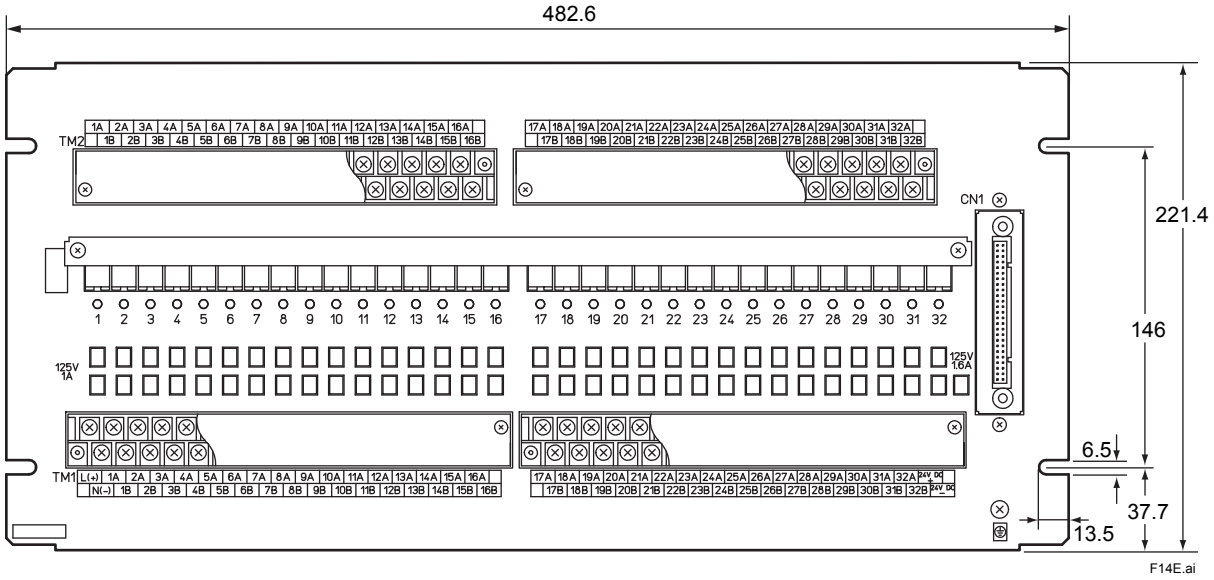
Model MRO-244 Unit : mm



Model MRO-254 Unit : mm

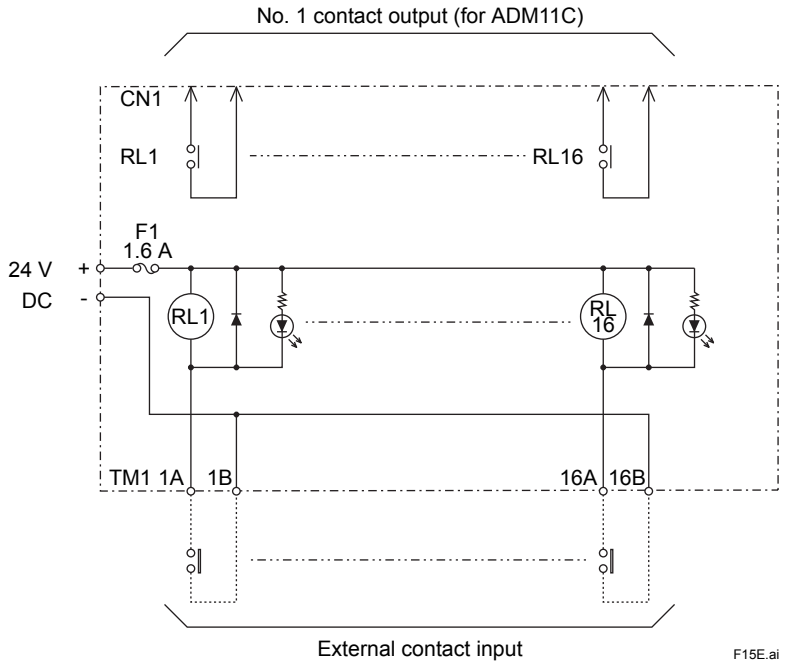


Model MRO-264 Unit : mm

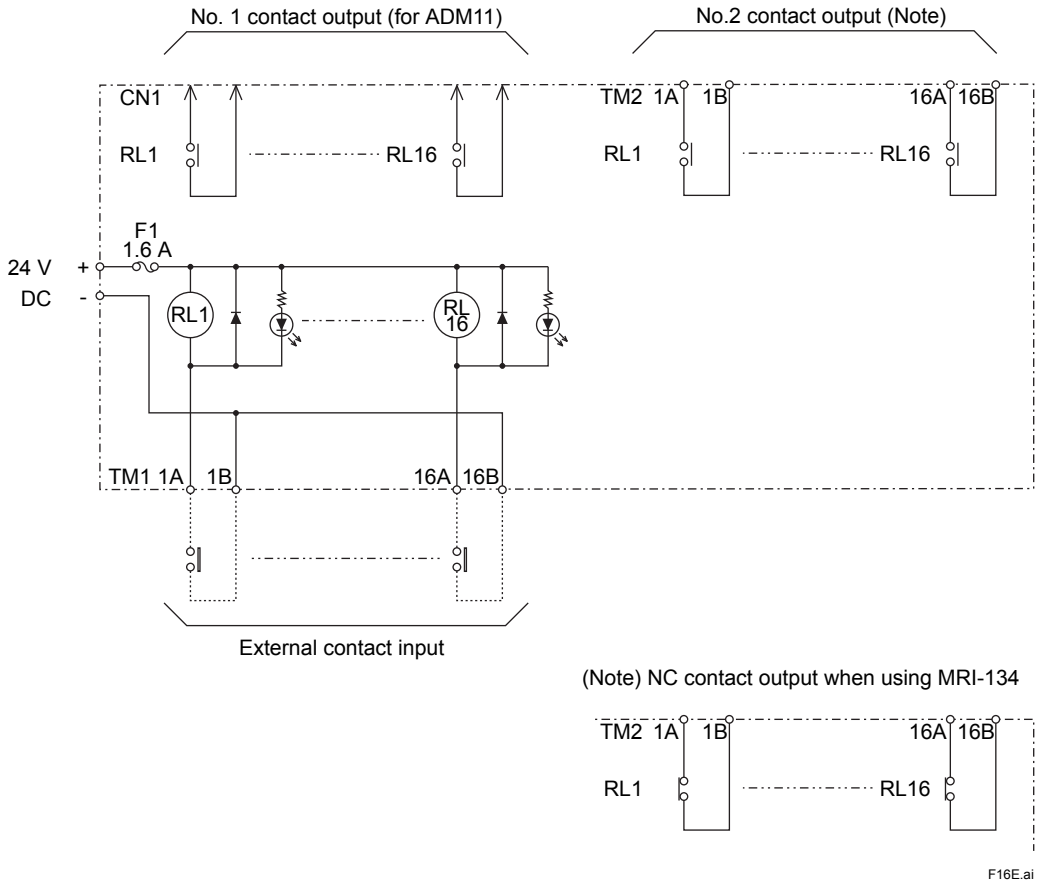


■ Relay Input Board Circuit Diagram

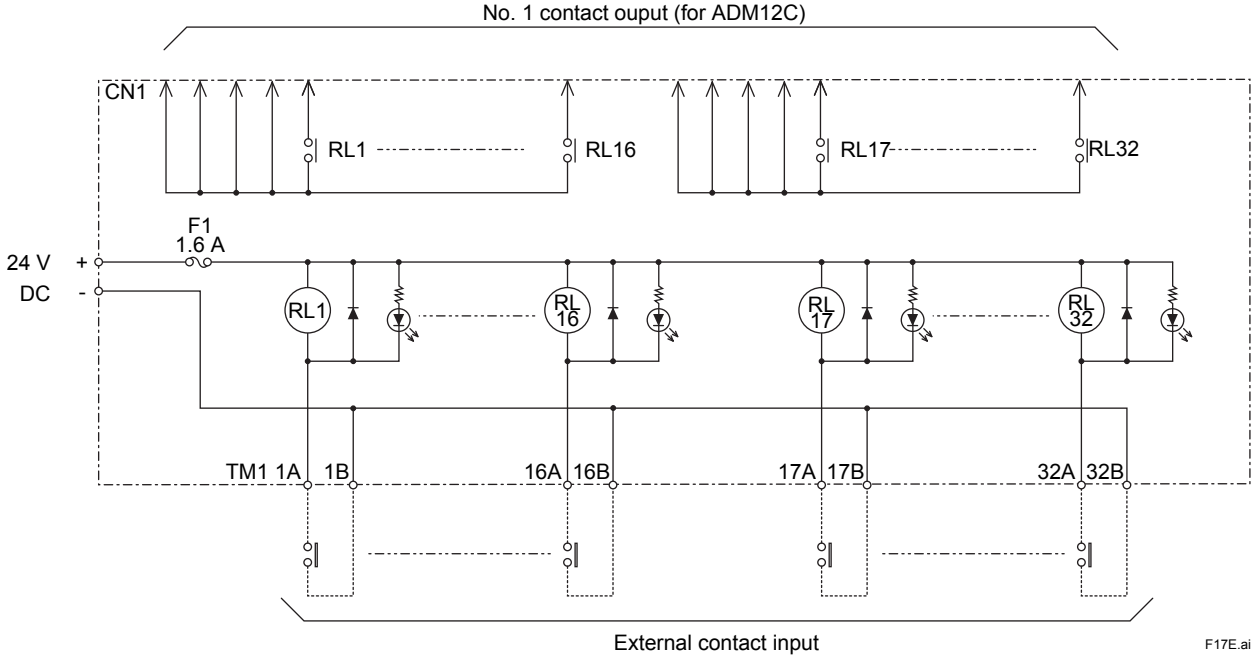
Model MRI-114



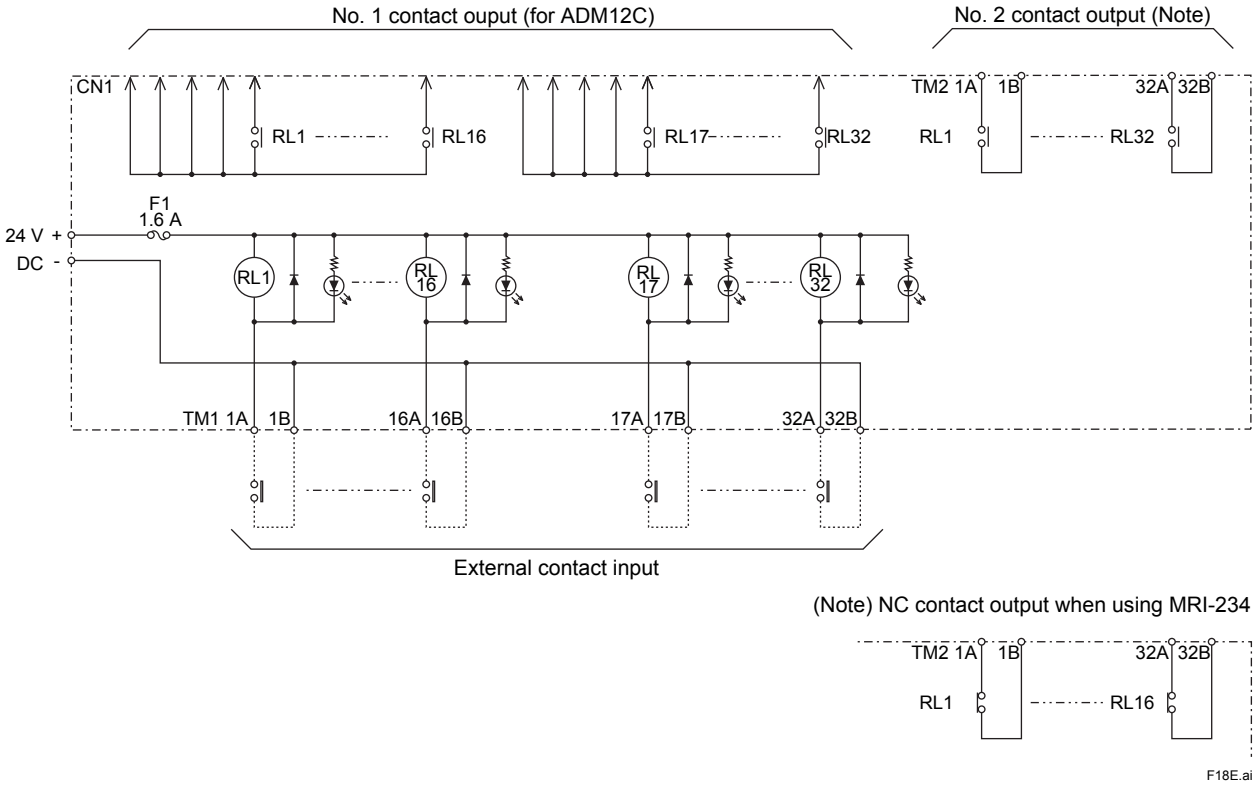
Models MRI-124, MRI-134



Model MRI-214

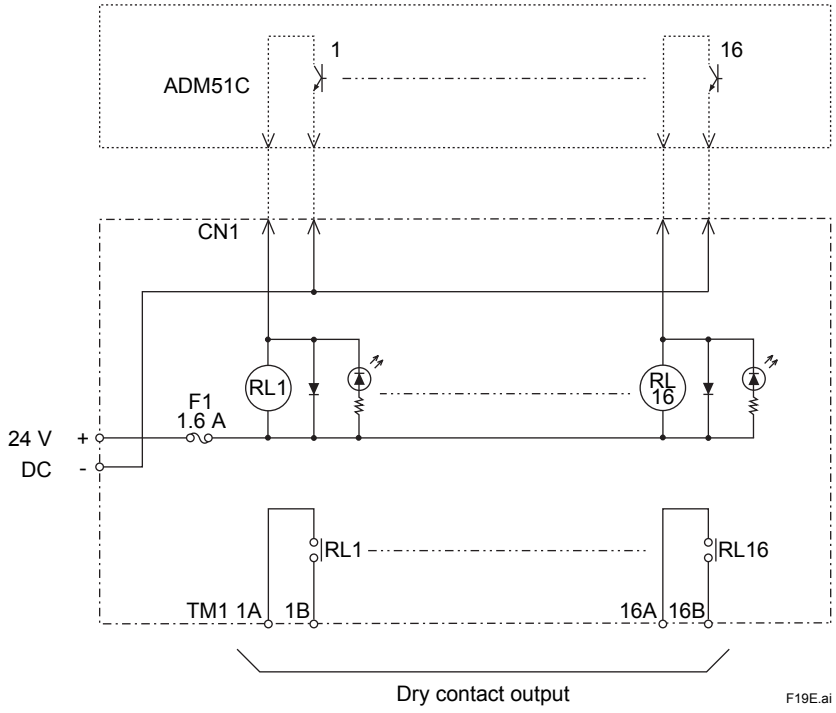


Models MRI-224, MRI-234

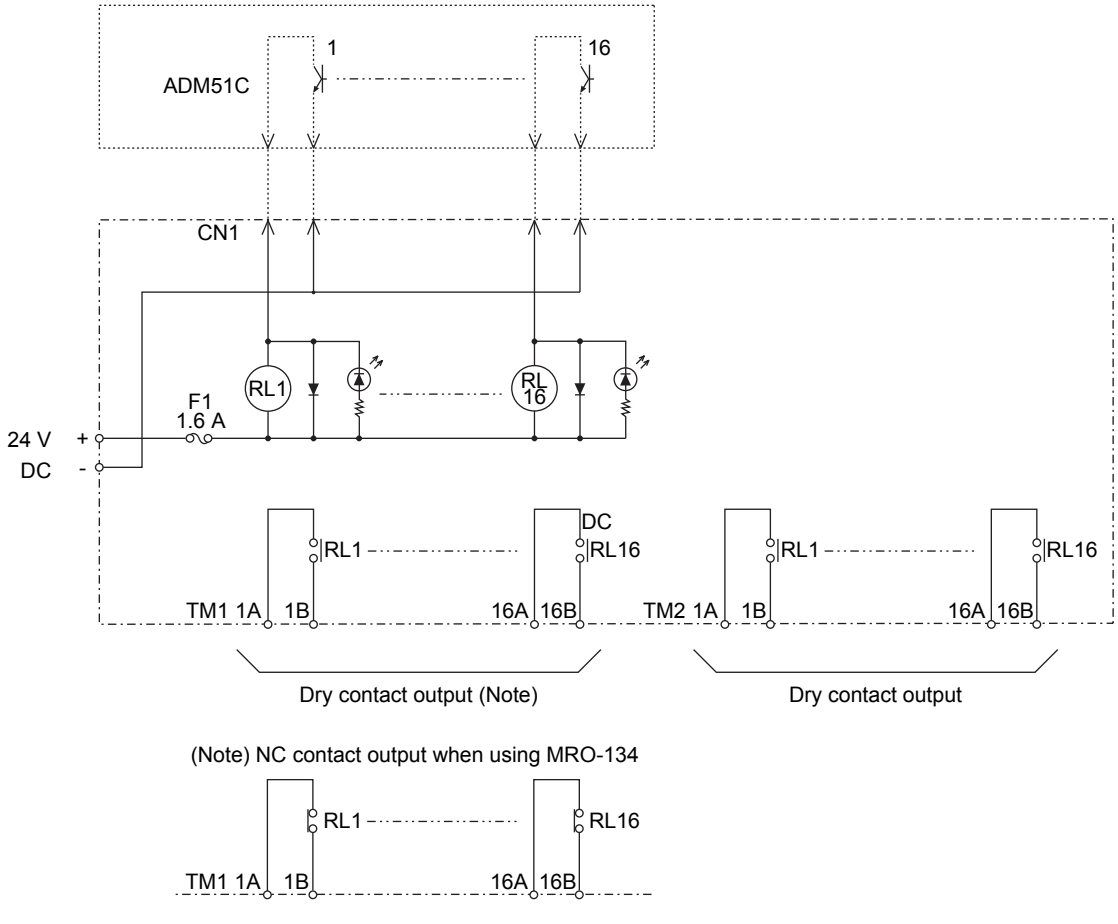


(Note) NC contact output when using MRI-234

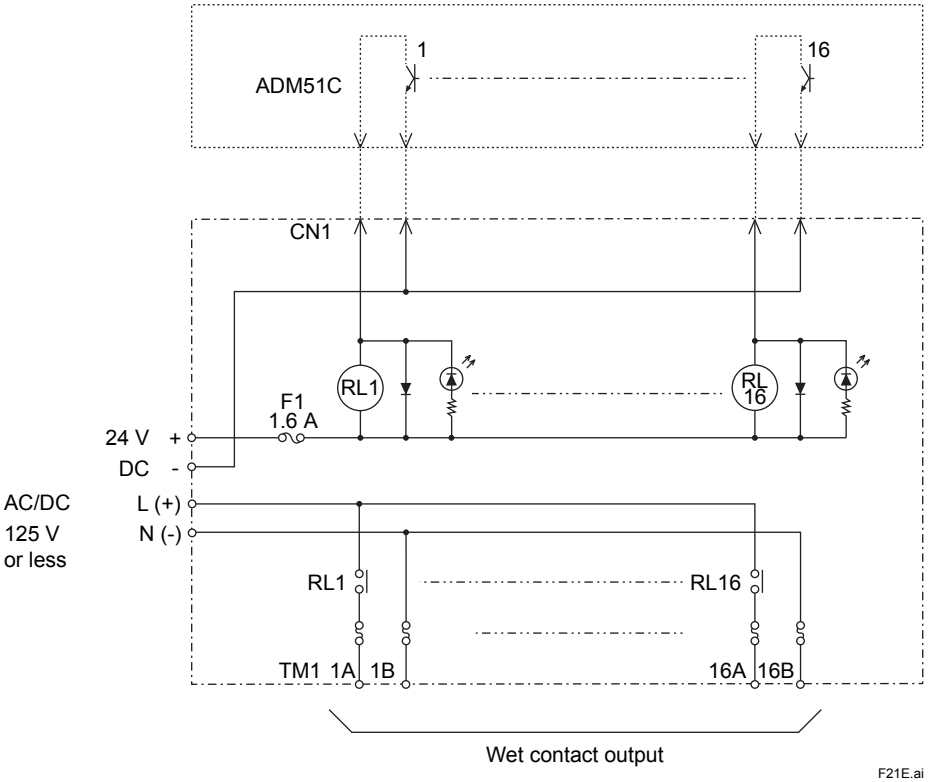
Model MRO-114



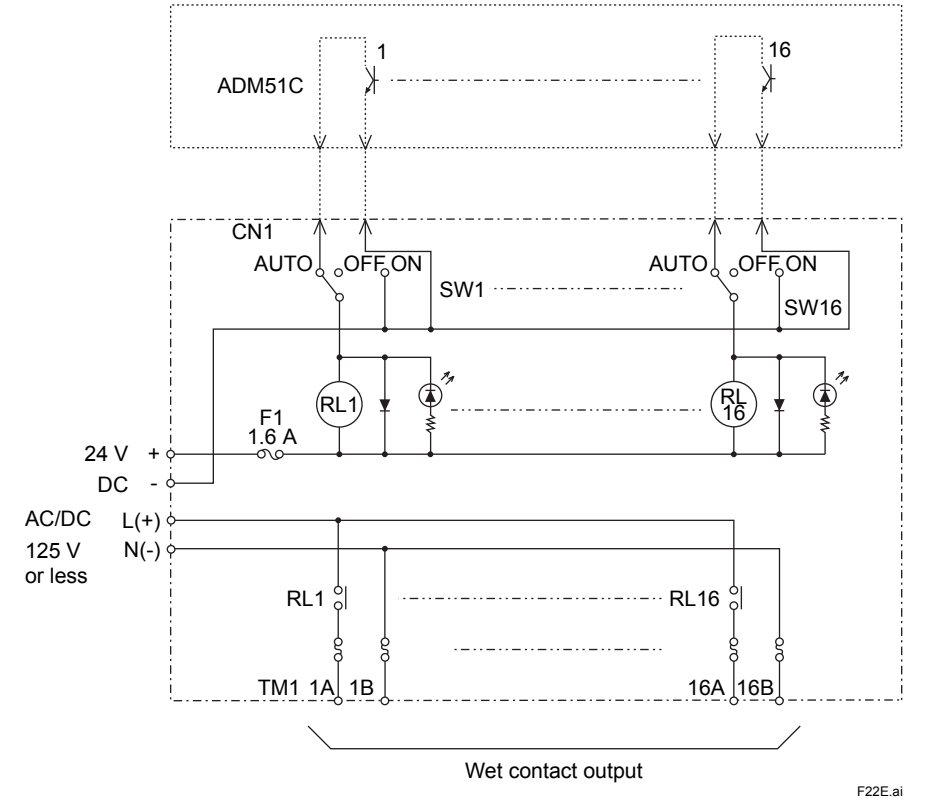
Models MRO-124, MRO-134



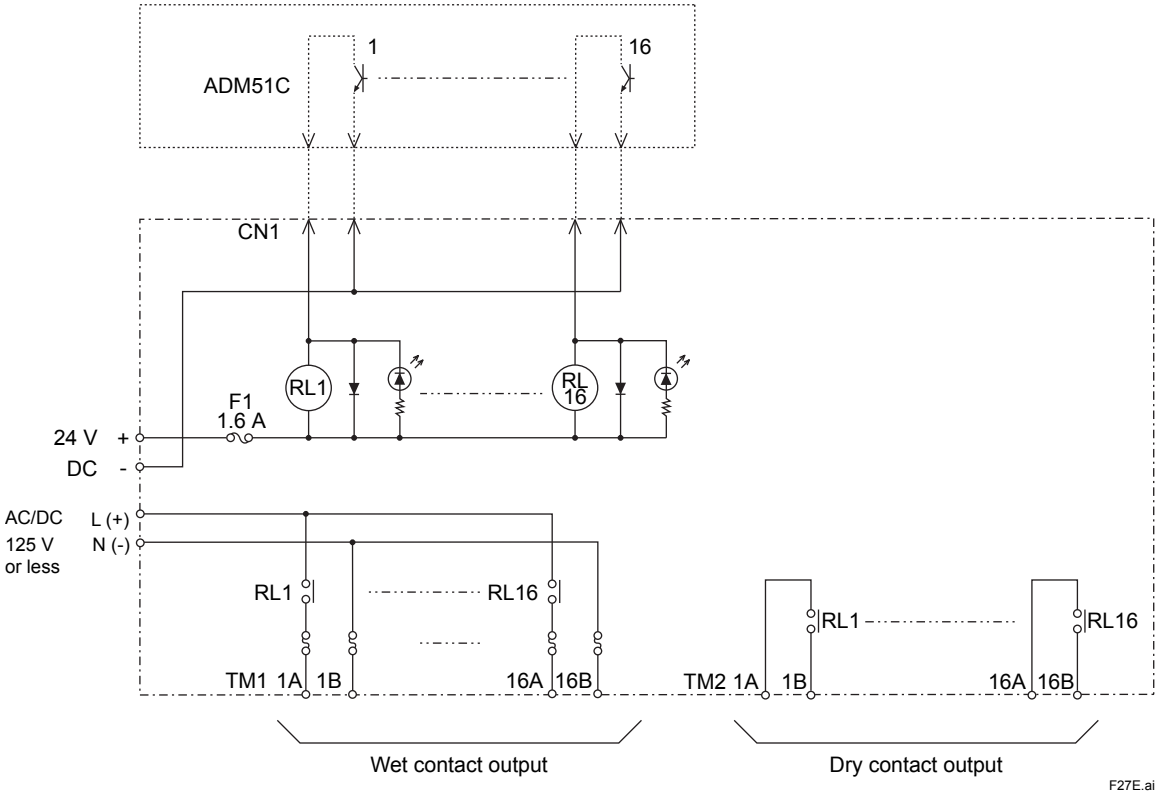
Model MRO-144



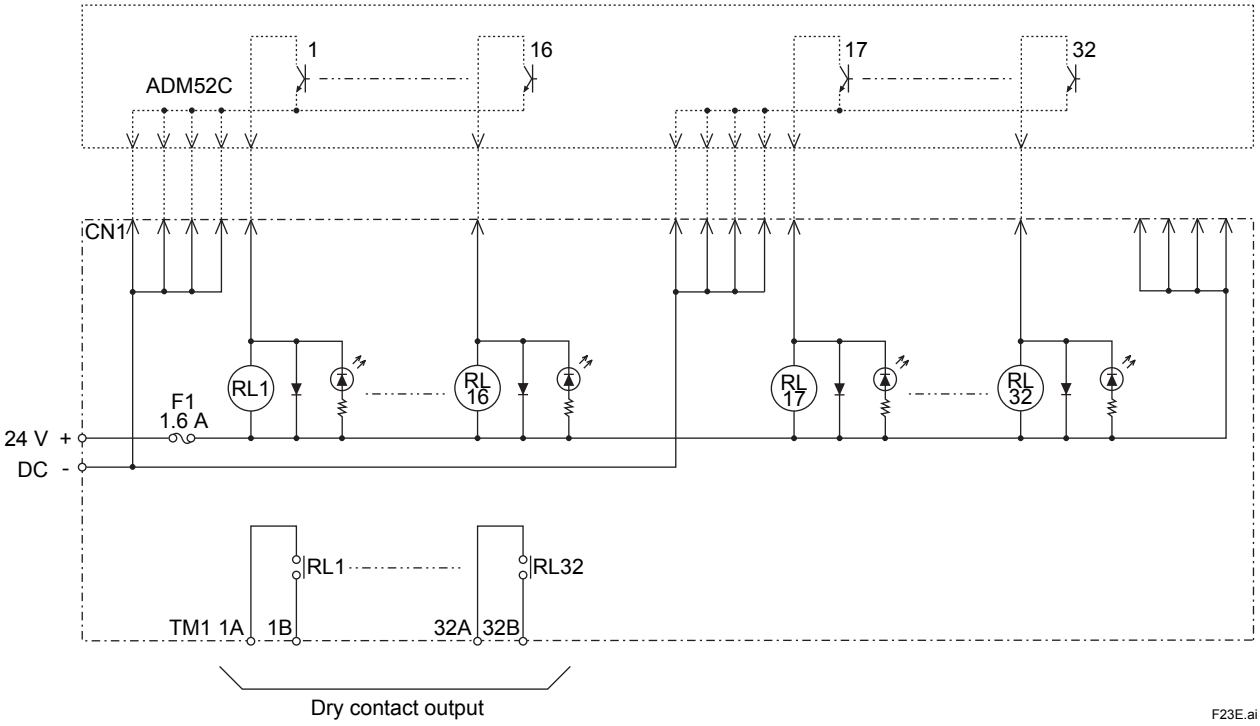
Model MRO-154



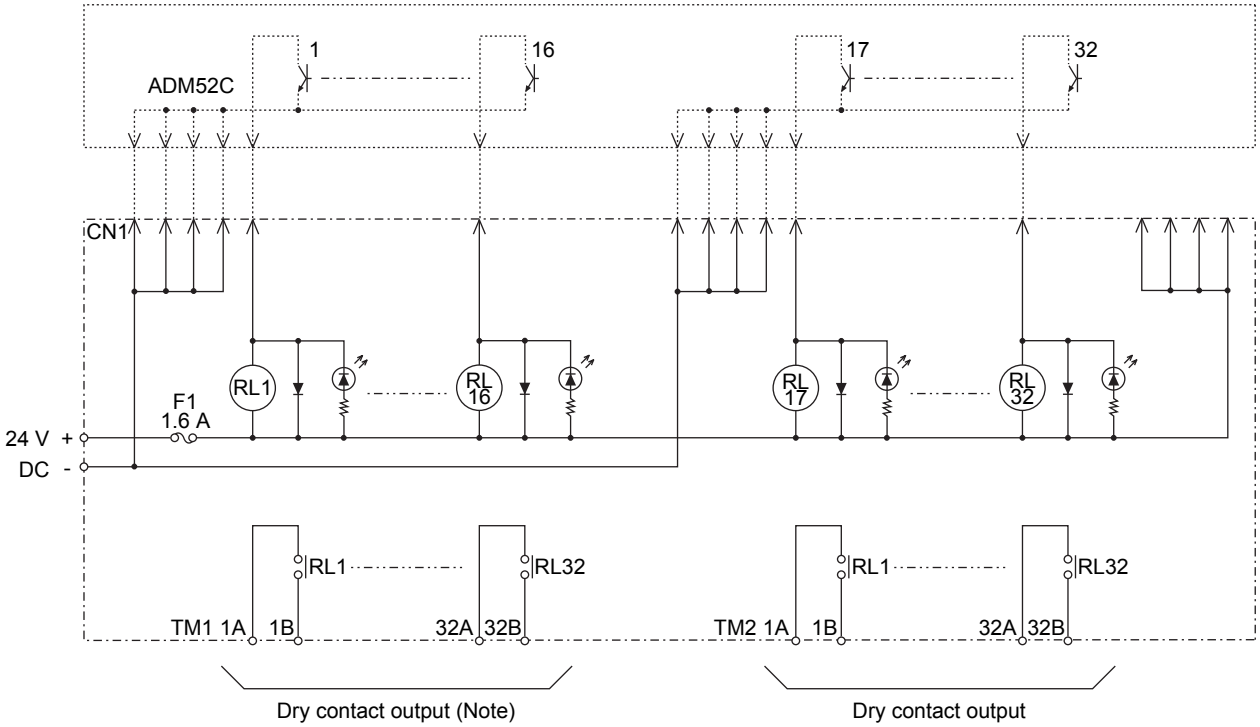
Model MRO-164



Model MRO-214

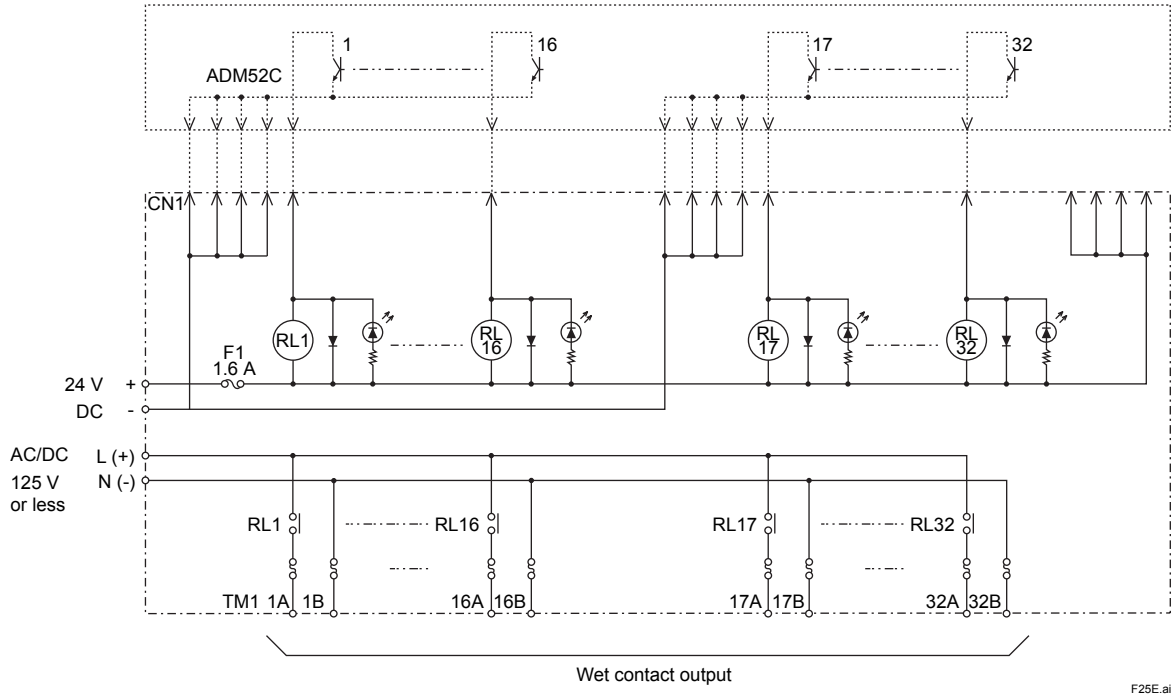


Models MRO-224, MRO-234



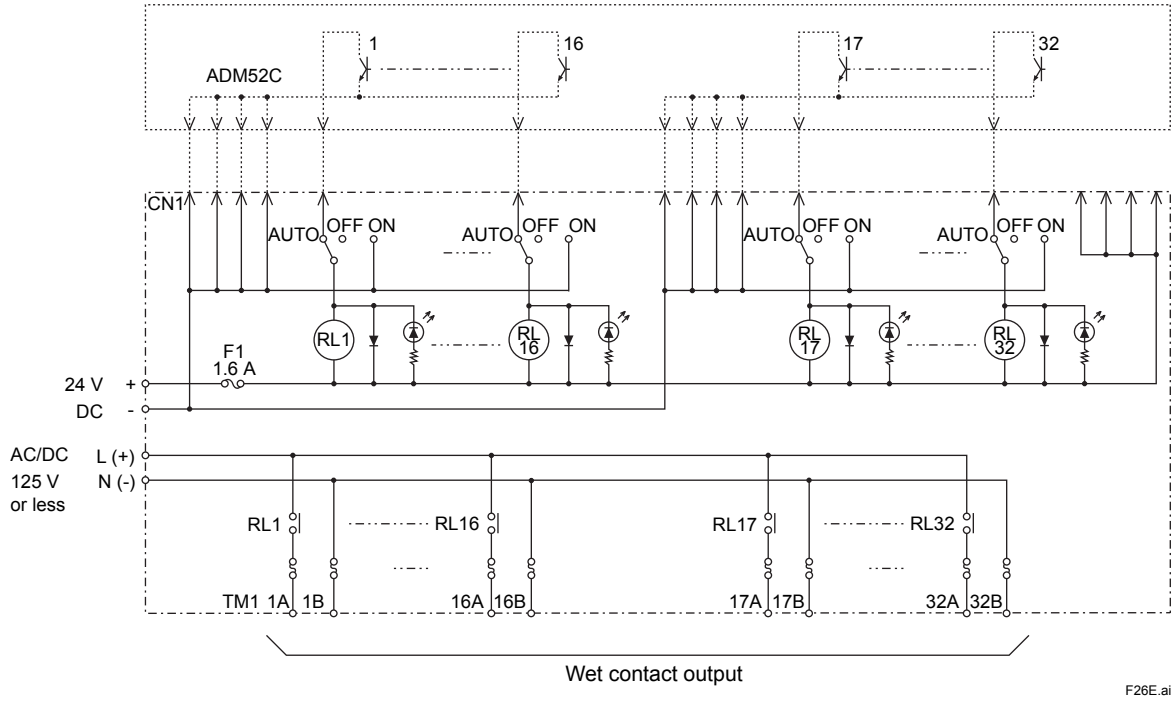
F24E.ai

Model MRO-244

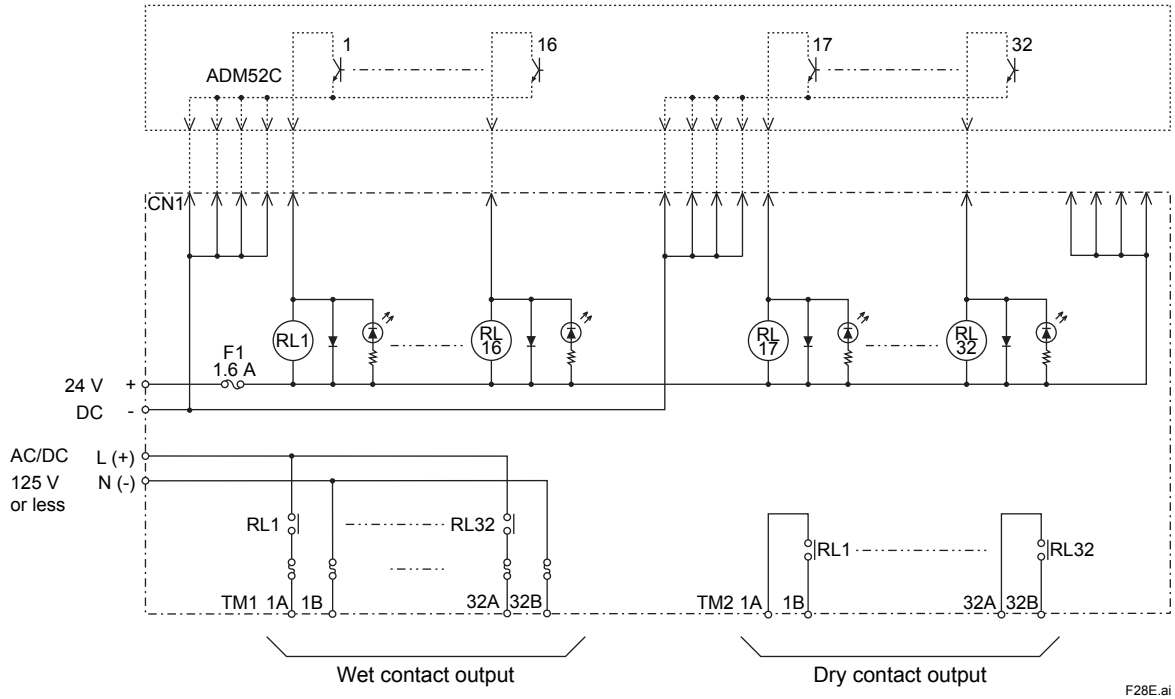


F25E.ai

Model MRO-254



Model MRO-264



■ MODELS AND STYLE CODES

● Terminal Boards

		Description
Model	MUB	General-purpose Terminal Board (16-point board (TE16) x 2)
	MUD	General-purpose Terminal Board (32-point board (TE32) x 2)
	MCM	Terminal Board for Control I/O
	MTC	Terminal Board for Thermocouple
	MRT	Terminal Board for RTD
Style Code	*A	Style A

● Terminal

		Description
Model	TE16	Terminal Block for 16 Point Input
	TE32	Terminal Block for 32 Point Input
	TE08	Terminal Block for 8 Point Input
	TETC	Terminal Block for Thermocouple Input
Style Code	*B	Style B

		Description
Model	TERT	Terminal Block for RTD
Style Code	*A	Style A

● Relay Boards

		Description
Model	MRI	Relay Input Board
Suffix Codes	-11	For ADM11C (16 points)
	-12	For ADM11C (16 points) (with Repeat Relay Contact Output (NO): 16 Points)
	-13	For ADM11C (16 points) (with Repeat Relay Contact Output (NC): 16 Points)
	-21	For ADM12C (32 points)
	-22	For ADM12C (32 points) (with Repeat Relay Contact Output (NO): 32 Points)
	-23	For ADM12C (32 points) (with Repeat Relay Contact Output (NC): 32 Points)
	4	24 V DC Power Supply
Style Code	*B	Style B

Note: One point of the relay outputs is connected to the ADM□C card via connector. In the case of type 2 and type 3, the remaining 1 contact can be output through the upper terminal.

		Description
Model	MRO	Relay Output Board
Suffix Codes	-11	For ADM51C (16 Points) Relay Contact Output (NO): 1 point each
	-12	For ADM51C (16 Points) Relay Contact Output (NO): 2 points each
	-13	For ADM51C (16 Points) Relay Contact Output (NO) (NC): 1 point each
	-14	For ADM51C (16 Points) Relay Wet Output (NO): 1 point each
	-15	For ADM51C (16 Points) Relay Wet Output (NO): 1 point each with AUTO/OFF/ON SW
	-16	For ADM51C (16 Points) Relay Wet Output (NO): 1 point each Relay Contact Output (NO): 1 point each
	-21	For ADM52C (32 Points) Relay Contact Output (NO): 1 point each
	-22	For ADM52C (32 Points) Relay Contact Output (NO): 2 points each
	-23	For ADM52C (32 Points) Relay Contact Output (NO) (NC): 1 point each
	-24	For ADM52C (32 Points) Relay Wet Output (NO): 1 point each
	-25	For ADM52C (32 Points) Relay Wet Output (NO): 1 point each with AUTO/OFF/ON SW
	-26	For ADM52C (32 Points) Relay Wet Output (NO): 1 point each Relay Contact Output (NO): 1 point each
	4	24 V DC Power Supply
Style Code	*A	Style A

■ ORDERING INFORMATION

Specify model, suffix codes, and style code.

■ TRADEMARK

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