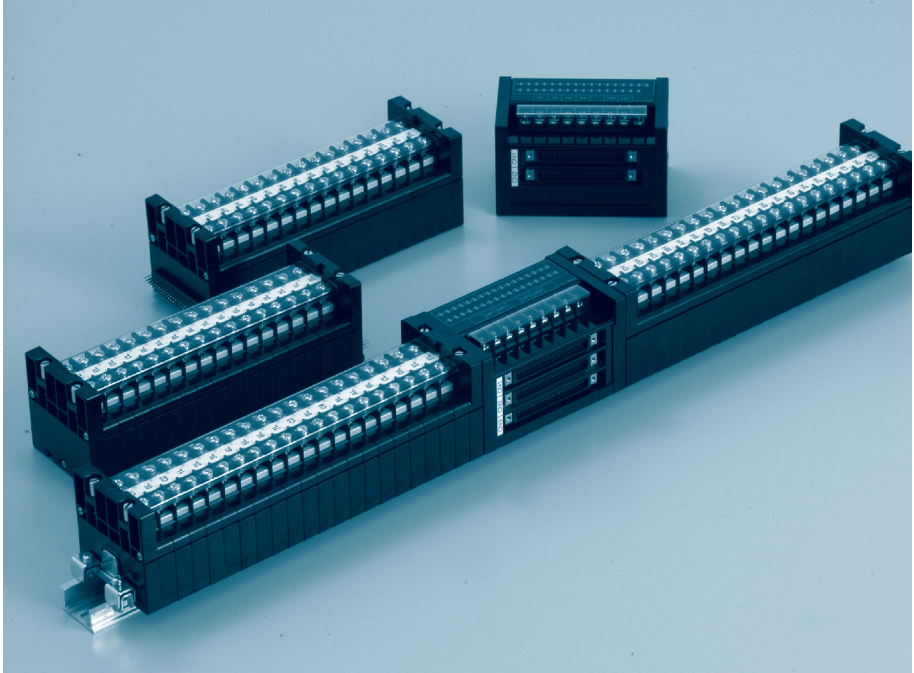




INTERFACE UNIT

THT TYPE



FEATURES

Both DI and DO modules of the THT type interface unit have the same structure, providing a smart appearance. The connector sockets and operation indicators are located at the center of the unit with 16 bits of DI and DO terminals arranged on the each side of the unit.

Since the terminal blocks on the right and left sides of the unit can be divided from the main unit, the main unit can be replaced without disconnecting wires.

The TJ-5.5 type test tool can be attached to the terminal block.

● Interface unit with built-in DI module

The external terminal block (screw size: M4) incorporates the photo-coupler module. Input voltage can be converted from 110 V DC to 24 V DC when it is connected to the terminal block. External surge voltage applied to the control panel is insulated via the internal photo-coupler module. Thus, the interface unit can minimize surge voltage, resulting in a noise immunity improvement.

● Interface unit with built-in DO module

The external terminal block (screw size: M4) incorporates contact relays, enabling a 110 V DC circuit to be controlled with a signal (24 V DC) from a PLC.

With this structure, a conventionally-required intermediate terminal block can be eliminated, enabling a remarkable reduction in the number of parts mounted in the control panel and the number of wiring steps.

FEATURES (Details)

1

Ensuring long-term reliability 

To ensure reliability for a long period, the operating current of the 110 V photo-coupler drive circuit is fixed.

2

Preventing malfunction caused by diffraction by grounding at neutral point 



Operating voltage control value (60 V: No operation, 80 V: Operation) is specified to prevent malfunction.

3

Measures for DI (photo-coupler) module input current 

When input is turned ON, a transient current of several tens of amperes follows, and after cleaning the contact surface, approx. 2 mA current flows through the circuit. This structure results in thermal condition improvement.

4

Conforming to power standard (B-402)  



The THT type interface unit ensures high reliability in voltage fluctuation, insulation performance and noise immunity, in conformity with the power standard.

5

Up-screw type terminal block  

Since each terminal screw is held with a spring, the screws may not be dropped or lost. The screw size is M4, which is applicable to up to 5.5 mm² wire size.

6

Terminal blocks can be removed from the main unit.  

The terminal blocks on both sides of the interface unit can be individually removed. Even if a failure occurs, you can replace the main unit without disconnecting wires.

7

Operation indicator lamp  

24 V DC output operation and power supply ON/OFF status are indicated with LEDs.

8

Separation of external wiring and in-panel wiring modules  

An external wiring terminals block is located in one side, and an in-panel wiring terminals block is located on the other side.

9

Connector for 24 V DC wiring  

PLC I/O wiring connector is provided.

10

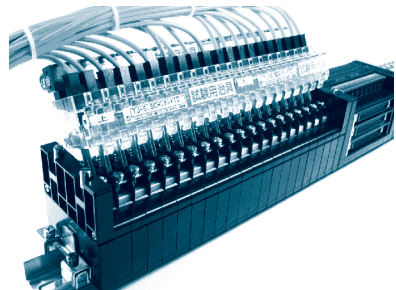
7000 V impulse withstand 

The THT type is protected against high surge voltage (lightning impulse) between the input circuit and ground (including the output circuit).

11

Dedicated sequence checker  

The test jig (TJ-5.5CH) can be attached to the interface unit. Through quick connections, withstand voltage tests and sequence tests can be conducted. This method can remarkably reduce the number of in-factory test steps, contributing to a work efficiency improvement.



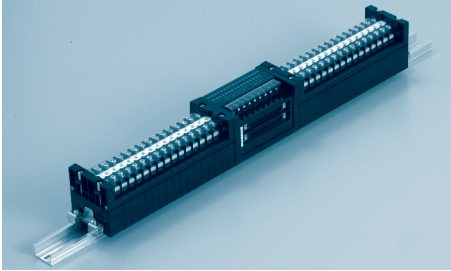


INTERFACE UNIT

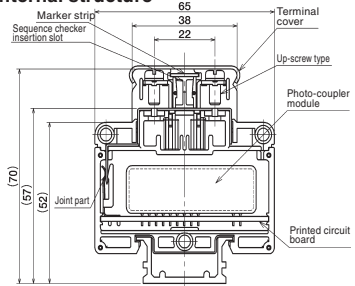
THT TYPE

STANDARD PRODUCTS

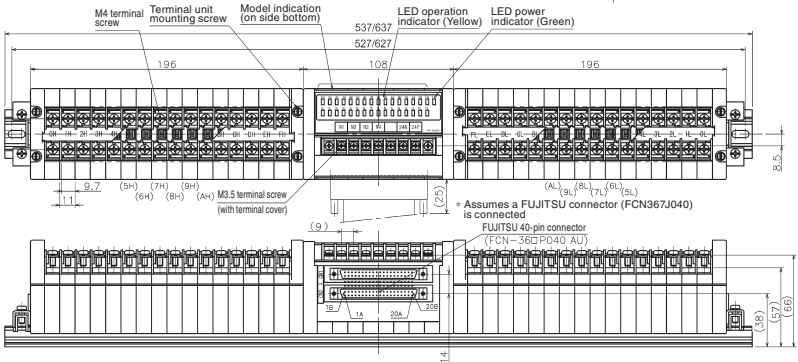
THT-34X091 Di terminal block



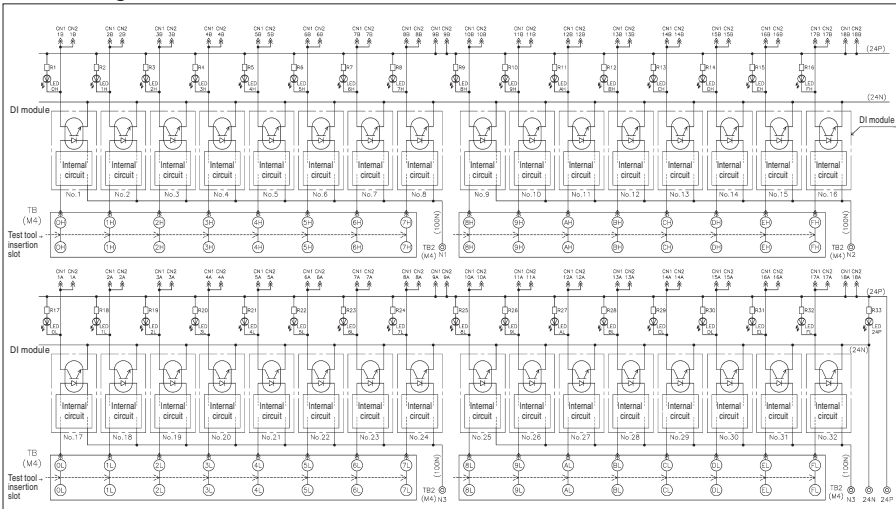
Internal structure



Dimensions



Circuit diagram



THT-34X091 [DI terminal block]

Operating conditions

No.	Item	Normal service conditions	
1	Operating temperature	-10 to 55°C	No condensation, no freezing
2	Storing temperature	-20 to 60°C	
3	Relative humidity	20 to 80%	
4	Altitude	2000 m max.	

Ratings

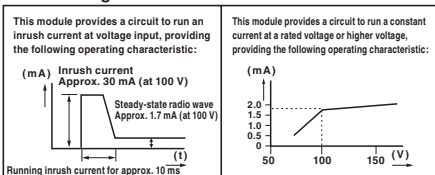
No.	Item	Ratings	
1	Input	Circuit voltage	100 / 110V DC (80 to 143V DC)
		Current carrying capacity	Approx. 1.6 mA (at 110 V DC) (Inrush current at input: approx. 20 mA)
		Input impedance	Approx. 68 kΩ (at 100 V DC)
		Malfunction prevention circuit	60 V DC or lower: Photo-coupler operation disabled 80 V DC or higher: Complete operation
2	Output	Circuit voltage	24 V DC (Maximum allowable voltage: 30 V DC)
		Leak current at OFF	20 μA max.
		Rated load current	5 mA max.
		Operating time	150 μs max.
		Reset time	5 ms max.

Performance

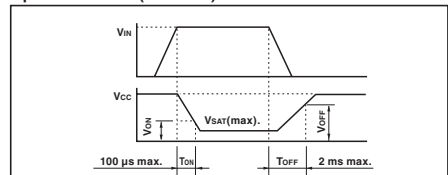
No.	Item	Performance	
1	Insulation resistance	Between electric circuit and ground	10 MΩ or more (500 V DC Megger tester)
		Between input and output circuits	5 MΩ or more (500 V DC Megger tester)
2	Power-frequency withstand voltage	Between input circuit and ground	2000 V AC (60 Hz) for 1 minute
		Between output circuit and ground	500 V AC (60 Hz) for 1 minute
		Between input and output circuits	2000 V AC (60 Hz) for 1 minute
3	Lightning impulse withstand voltage	Between input circuit and ground (including output circuit)	±7000 V (1.2 x 50 μs), 3 times
4	Oscillatory surge voltage	Between input circuit and ground	1st pulse height: 2.5 to 3 kV Oscillation frequency: 1.0 to 1.5 MHz 1/2 damping time: 6 μs or more Repeat cycle: at least 50 times/sec Test circuit output impedance: 150 to 200 Ω or more, continuously for 2 seconds
		Between input circuit terminals	
5	Square wave impulse noise	Between input circuit and ground	Voltage (Vp): 1 kV ±10% Polarity: Positive and negative Output: Coaxial Dynamic output impedance: 50 Ω Rising time (Tr): 1 ns ±30% Pulse width (Tw): 100 ns ±30% Repeat frequency: 50/60 Hz or more, continuously for 2 seconds
		Between input circuit terminals	
6	Radio interference noise	150 / 400 / 900 MHz band radio waves	
7	Electrostatic discharge noise	Electrostatic discharge (contact): 8 kV Electrostatic discharge (air): 4 kV At least 10 times each, for positive polarity only	
8	Vibration resistance	Acceleration: 9.8 m/s ² ; Vibration time: 1800 s in 3-axis directions	
9	Shock resistance	294 m/s ² in 3-axis directions each	

Reference data on internal DI module

Circuit configuration



Operation chart (Ta=25°C)



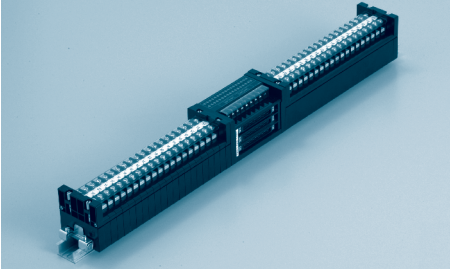


INTERFACE UNIT

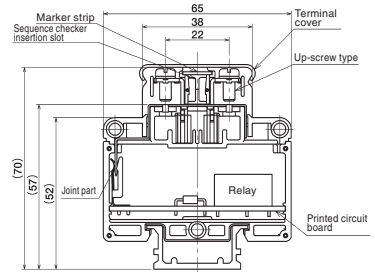
THT TYPE

STANDARD PRODUCTS

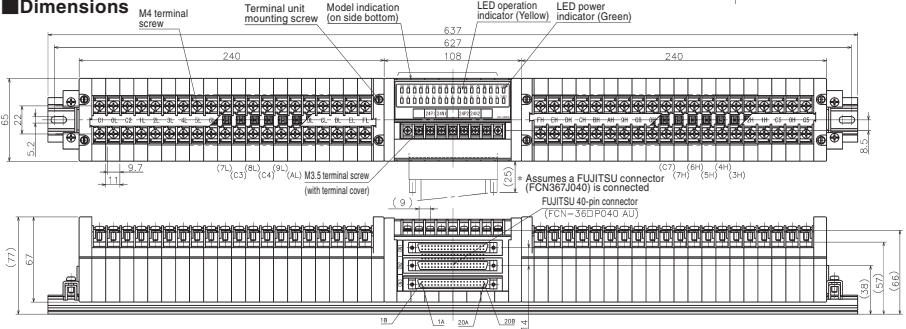
THT-34X092 DO terminal block



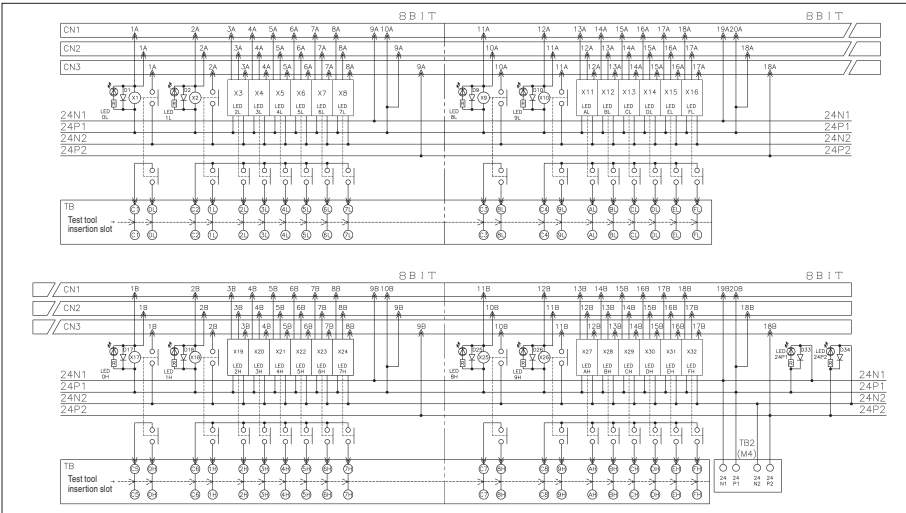
Internal structure



Dimensions



Circuit diagram



THT-34X092 [DO terminal block]

Operating conditions

No.	Item	Operating conditions	
1	Operating temperature	-10 to 55°C	No condensation, no freezing
2	Storing temperature	-20 to 60°C	
3	Relative humidity	20 to 80%	
4	Altitude	2000 m max.	

Ratings

No.	Item		Ratings
1	Input (Terminal block)	Coil voltage	24V DC±10%
		Current consumption	12.5mA (at rated input)
		Coil resistance	1920Ω
		Operating time	10 ms max.
		Reset time	10 ms max.
2	Output	CN side	Circuit voltage Circuit operating current
		Terminal side	Circuit voltage Circuit operating current
			24V DC 10mA (1Pin)
			100/110 V DC or 24 V DC 5 A (max.)

Performance

No.	Item	Performance	
1	Insulation resistance	Between electric circuit and ground	10 MΩ or more (500 V DC Megger tester)
		Between terminal side output contact/CN side output contact and coil circuit	5 MΩ or more (500 V DC Megger tester)
2	Power-frequency withstand voltage	Between terminal side output contact and ground	2000 V AC (60 Hz) for 1 minute
		Between CN side output contact/coil circuit and ground	500 V AC (60 Hz) for 1 minute
		Between terminal side output contact/CN side output contact and coil circuit	2000 V AC (60 Hz) for 1 minute
3	Lightning impulse withstand voltage	Between terminal side output contact/circuit and ground (including CN side output contact and coil circuit)	±4500 V (1.2 x 50 μs), 3 times
4	Oscillatory surge voltage	Between terminal side output circuit and ground	1st pulse height: 2.5 to 3 kV Oscillation frequency: 1.0 to 1.5 MHz 1/2 damping time: 6 μs or more Repeat cycle: at least 50 times/sec Test circuit output impedance: 150 to 200 Ω or more, continuously for 2 seconds
		Between terminal side output circuit terminals	
5	Square wave impulse noise	Between terminal side output circuit and ground	Voltage (Vp): 1 kV ±10% Polarity: Positive and negative Output: Coaxial Dynamic output impedance: 50 Ω Rising time (Tr): 1 ns ±30% Pulse width (Tw): 100 ns ±30% Repeat frequency: 50/60 Hz or more, continuously for 2 seconds
		Between terminal side output circuit terminals	
6	Radio interference noise	150 / 400 / 900 MHz band radio waves	
7	Electrostatic discharge noise	Electrostatic discharge (contact): 8 kV Electrostatic discharge (air): 4 kV At least 10 times each, for positive polarity only	
8	Vibration resistance	Acceleration: 9.8 m/s ² , Vibration time: 1800 s in 3-axis directions	
9	Shock resistance	294 m/s ² in 3-axis directions each	

Reference data on internal relay contact (OMRON, G6B)

No.	Item	Operating conditions
1	Rated load	Resistance load: AC250V 5A/DC30V 5A Inductive load: AC250V 1.5A (cosφ=0.4) / DC30V 1.5A (L/R=7ms)
2	Rated operating current	5A
3	Max. contact voltage	380V AC 125V DC
4	Max. contact current	Resistance load: 5A AC/5A DC Inductive load: 5A AC(cosφ=0.4)/5A DC(L/R=7ms)
5	Max. switching capacity	Resistance load: 1250VA AC/150W DC Inductive load: 375VA AC(cosφ=0.4)/80W DC(L/R=7ms)
6	Failure rate (Reference value)	5V DC 10mA (Level P) (λ ₆₀ = 0.1 x 10 ⁻⁶ /number of operations)



THT TYPE

HOW TO ORDER

Refer to the following type coding:

Type coding

THT -34X091

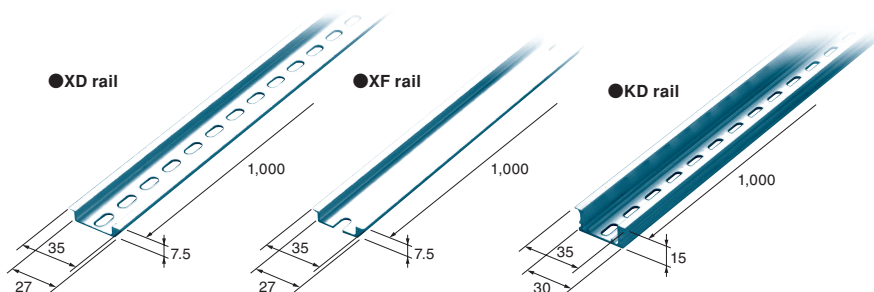


①: Basic type

②: Circuit arrangement

③: Rail designation

Code	Rail	Rail shape
XD	TXB type DIN rail	Punched
XF		U-cut
KD	TKB type (reinforced) DIN rail	Punched



Conformable standards

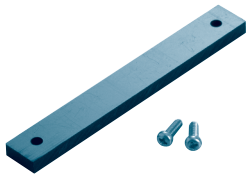
• JEC-2500(1987)	Protection relay for power supply
• B-402 (October 1997)	Digital protection relay and protection relay equipment
• JIS C 2811(1995)	Industrial terminal block
• JIS C 0704(1995)	Insulation distance, insulation resistance, and withstand voltage for control equipment

* This product does not cover the entire range of the above standards. The product has undergone tests on applicable items among the requirements of the above standards.

ACCESSORIES

THT connector cover

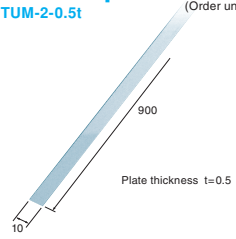
(Order unit: 5)



Marker strip

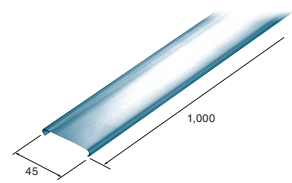
TUM-2-0.5t

(Order unit: 100)



Cover TUC-3

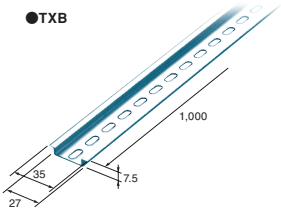
(Order unit: 20)



Aluminum rail TXB

(Order unit: 50)

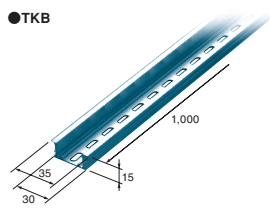
●TXB



Aluminum rail TKB

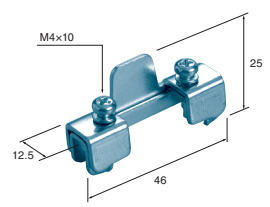
(Order unit: 50)

●TKB



End clamp TXL

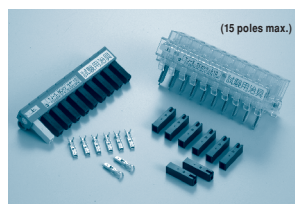
(Order unit: 50)



Sequence checker

(Order unit: 30)

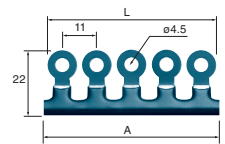
■TJ-5.5CH (PC (Joint type))



Jumper

(Order unit: 10)

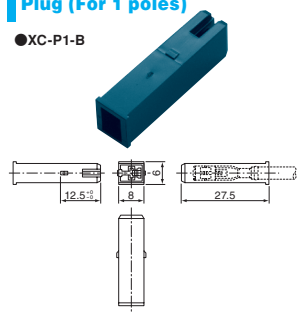
SB11CB-□



Type name	For 2 poles SB11CB-2	For 2 poles SB11CB-12
A	16	126
L	20.5	130.5

Plug (For 1 poles)

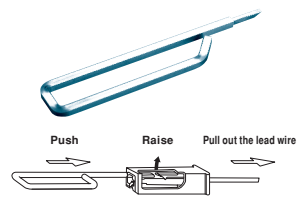
●XC-P1-B



Remover

●MIC-NQ

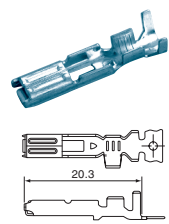
Used to pull out a receptacle from the XC plug.



Receptacle contactor element

●(MIC) Mark II (manufactured by AMP)

* Refer to the "IS-259J (91592-1)" and "IS-260J (755400-1)" crimping tool instruction manuals supplied by AMP.



Applicable wire (mm ²)	Insulation coat size	Material and finish	Model of receptacle		Instruction manual for tool
			Tape	Loose piece	
0.3 to 0.89	1.5 to 2.6	Brass / Tin plated	172775-1	172776-1	91592-1
		Brass / Partial gold plated	172775-2	172776-2	
		Phosphor bronze / Tin plated	172775-4	172776-4	
0.5 to 2.27	2.1 to 3.4	Brass / Tin plated	172773-1	172774-1	755400-1
		Brass / Partial gold plated	172773-2	172774-2	
		Phosphor bronze / Tin plated	172773-4	172774-4	



INTERFACE UNIT

THT TYPE

REFERENCE PRODUCTS

[TCT type DI module terminal block]

Features

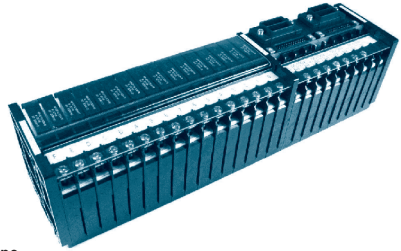
- 2 outputs (insulated) are available with 1 input.
(Operation indicator is provided.)
- Module replacement is enabled for each bit.
- External wire of up to 5.5 mm² size can be connected.

Type coding

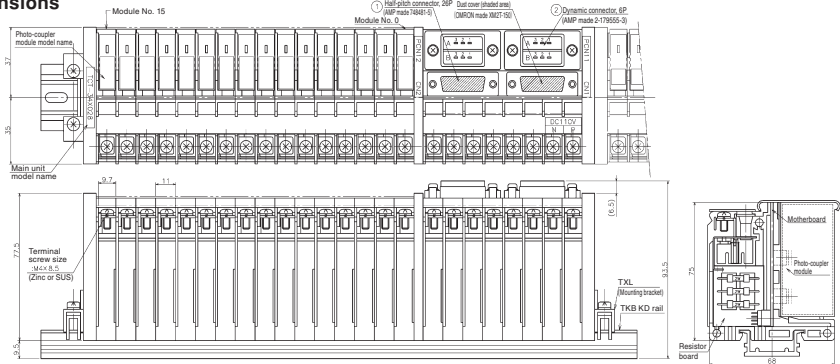
TCT - 34X028 - 1 **KD15**

- ① ② ③ ④ ⑤

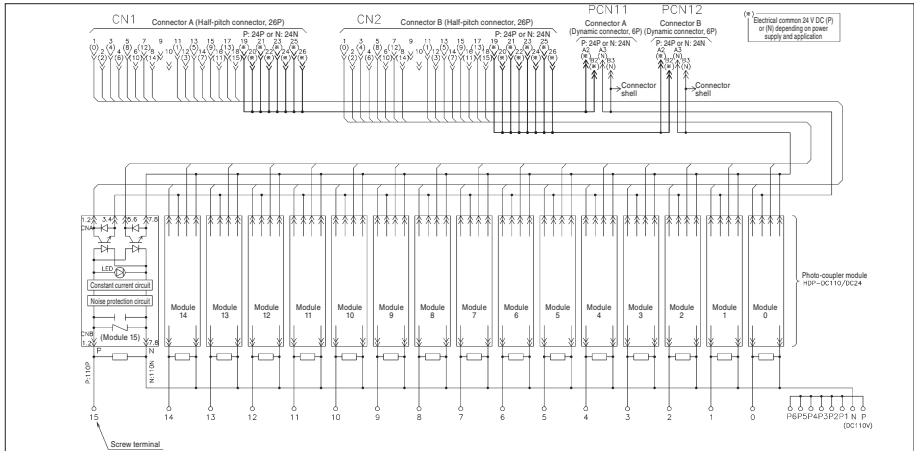
- Basic type
- Circuit arrangement: Available in several types.
- Terminal specifications: No indication = Zinc, SUS = Stainless steel
- Number of units: Number of units mounted in series
- Rail type: No indication = No rail, KD15 = 1 stage, Other = (Contact us for information)



Dimensions



Circuit diagram



* For details of product specifications, contact us.

REFERENCE PRODUCTS

[IOM type interface module]

■ Features

- 1) Up to 32 circuits are incorporated in spite of compact design.
- 2) PLC connector is provided at the top of the module.
- 3) With separate connector terminal block, the main unit is easy to replace.

■ Type coding

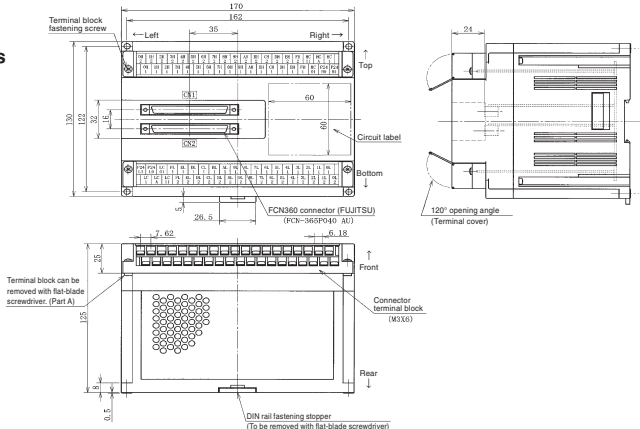
IOM - R32B

- ①
- ②

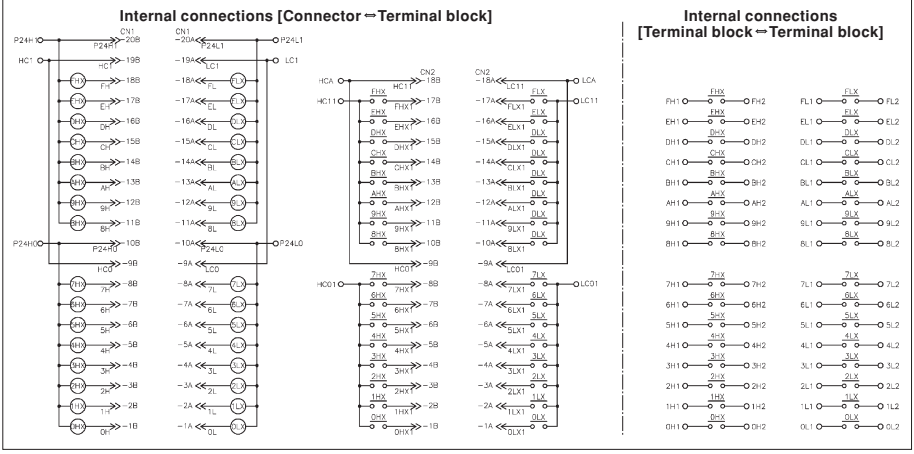
- ① Basic type
- ② Circuit arrangement: Built-in relay type and photo-coupler type available,



■ Dimensions



■ Circuit diagram



* For details of product specifications, contact us.