

Common to all H3DS

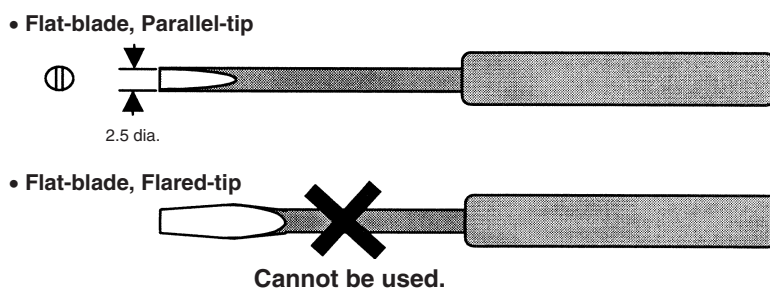
Installation of Screw-Less Clamp Models

Tools

A flat-blade screwdriver should be used to mount the cables.

Applicable Screwdriver

- Flat-blade, Parallel-tip, 2.5 mm diameter



Examples: FACOM AEF.2.5 × 75E
 VESSEL No. 9900-(-)2.5 × 75
 WAGO 210-119
 WIHA 260/2.5 × 40

Applicable Wires

Applicable Wire Sizes

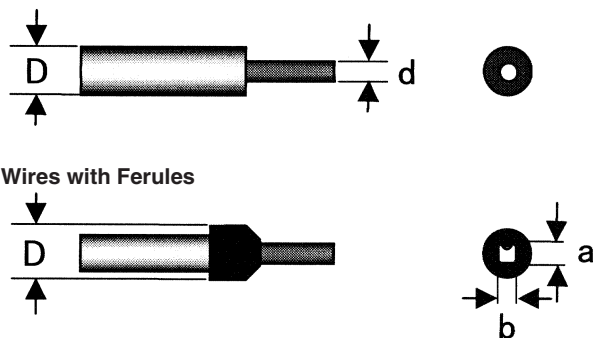
0.2 to 1.5 mm², AWG24 to AWG16

Applicable Wire Type

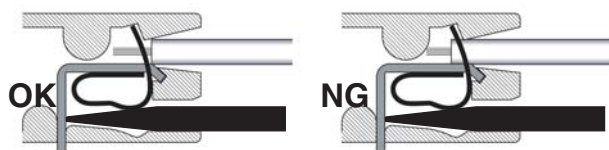
Solid wires, stranded wires, flexible wires, or wires with ferules can be used.

(See note 1) $1.8 \leq \text{Diameter } D \text{ (mm)} \leq 3.0$ (see note 2)

Conductor diameter d (mm) or length of sides a and b (mm) ≤ 1.6



Note: 1. If the overall diameter of the wire is less than 1.8 mm, do not insert the wire past the conductor. Refer to the following diagrams.



2. If the overall diameter of the wire is over 2.8 mm, it will be difficult to use double wiring.

■ Wiring

Use wires of the applicable sizes specified above. The length of the exposed conductor should be 6 to 7 mm.

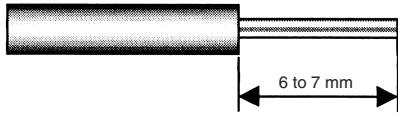


Fig. 1 Exposed Conductor Length

Use the following wiring procedure.

1. Insert the specified screwdriver into the release hole located beside the wire connection hole where the wire is to be inserted.

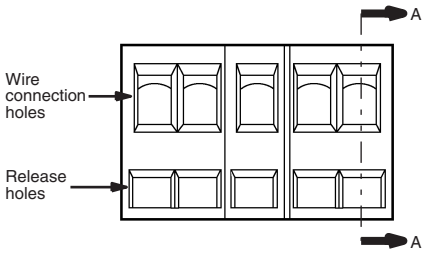


Fig. 2 Wire Connection Holes and Release Holes

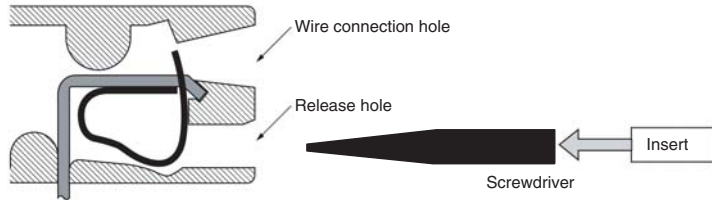
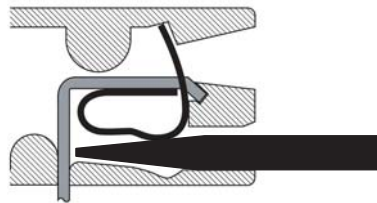
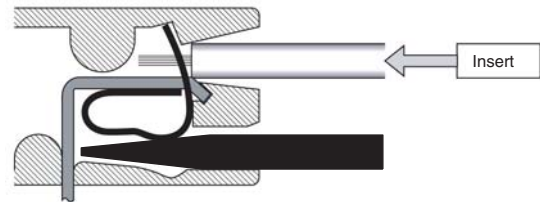


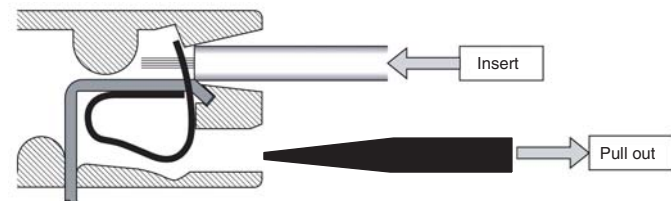
Fig. 3 Section A-A of Fig. 2



2. Insert the exposed conductor into the wire connection hole.

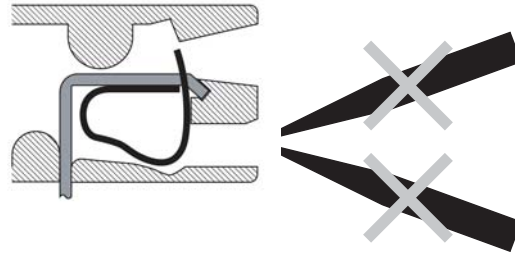


3. Pull out the screwdriver.

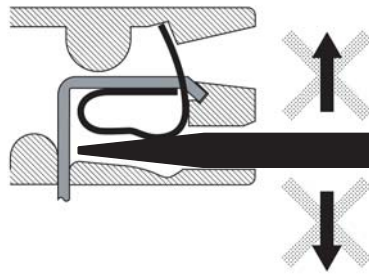


■ Precautions

Always insert the screwdriver straight into the hole, never at an angle. The clamp spring may be deformed if the screwdriver is not straight.



Do not move the screwdriver side to side in the clamp hole. The clamp spring may be deformed if the screwdriver is moved sideways.

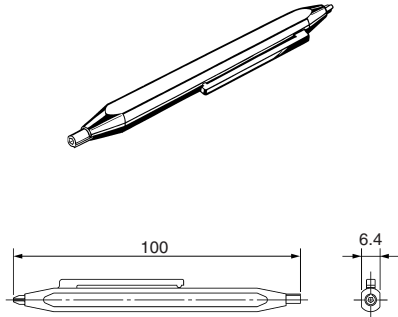


Accessories (Order Separately)

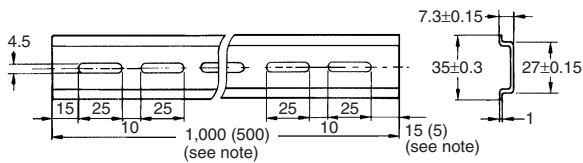
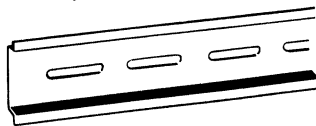
Note: All units are in millimeters unless otherwise indicated.

■ Dimensions

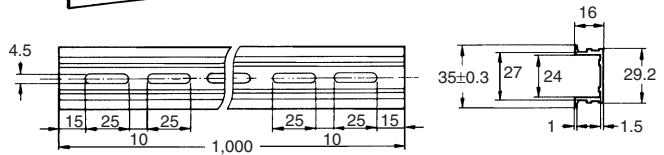
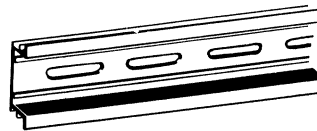
Lock Key
Y92S-38



Mounting DIN-rail
PFP-100N, PFP-50N

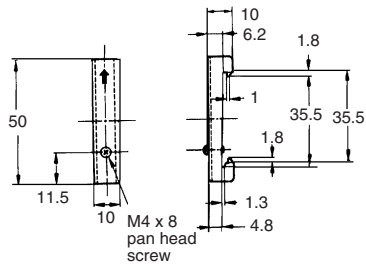
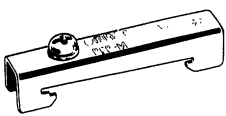


PFP-100N2

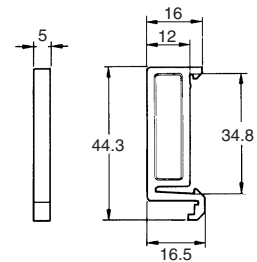
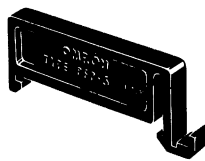


Note: The values shown in parentheses are for the PFP-50N.

End Plate
PFP-M



Spacer
PFP-S



Precautions

Changing of Setting

Caution
Do not change the time scale or operating mode, while the Timer is in operation or malfunction could result.

Power Supplies

The H3DS Series is provided with a transformerless power supply system. An electric shock may be received if the input terminal is touched while power is being supplied.

Use the bar terminal for wiring the H3DS. Using a stranded-wire terminal may cause a short-circuit due to a stray wire entering into the Timer.

Both AC and DC power supplies can be connected to the power input terminals without regarding polarity.

With the H3DS only, a DC power supply must be connected to the power input terminals as designated according to the polarity of the terminals.

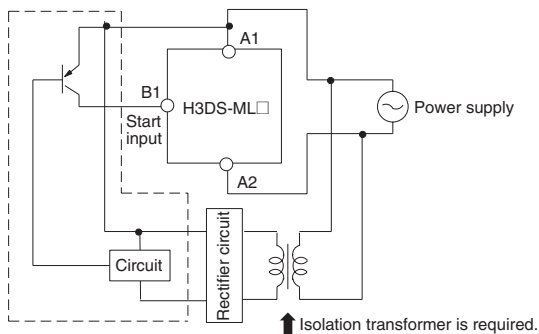
A DC power supply can be connected if its ripple factor is 20% or less and the mean voltage is within the rated operating voltage range of the Timer.

Make sure that the voltage is applied within the specified range, otherwise the internal elements of the Timer may be damaged.

Connect the power supply voltage through a relay or switch in such a way that the voltage reaches a fixed value at once or the Timer may not be reset or a timer error could result.

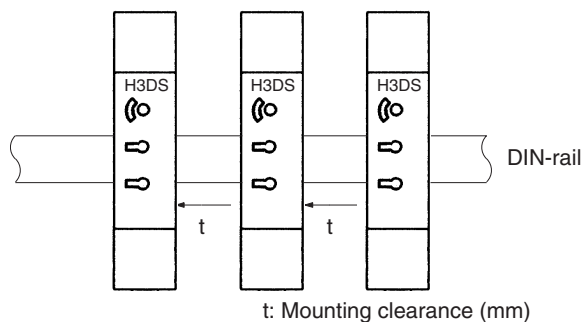
Be sure that the capacity of the power supply is large enough, otherwise the Timer may not start due to inrush current (approx. 3 A) that may flow for an instant when the Timer is turned on.

For the power supply of an input device of the H3DS-ML□, use an isolating transformer, of which the primary and secondary windings are mutually isolated and the secondary winding is not grounded.



Installation

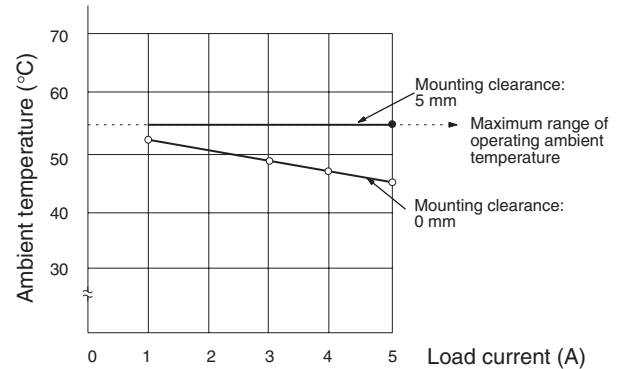
If the load current is continuously being supplied to the Timer for a long period of time, be sure to provide the mounting clearance as shown in the figure below. If used under the conditions other than those specified below (except for the H3DS-XL□), the life of internal components may be shortened due to an excessive rise in the internal temperature.



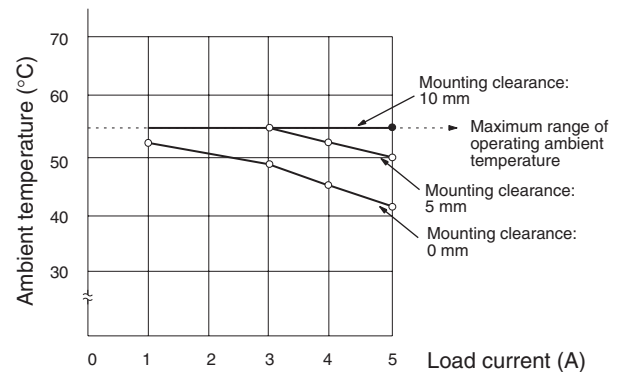
Switching Current vs. Ambient Temperature

(When Mounting Two or More H3DS Units Side-by-Side)

- H3DS-ML□/-SL□/-AL□

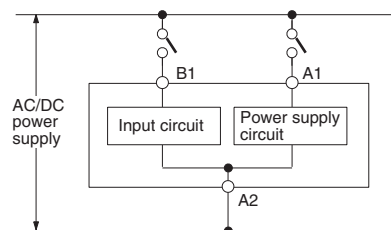


- H3DS-FL□/-GL□



Input/Output

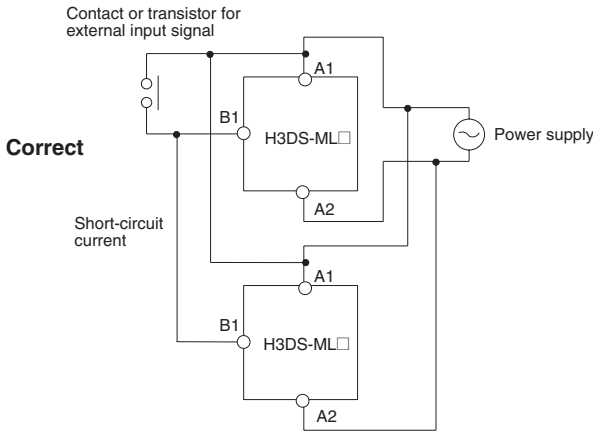
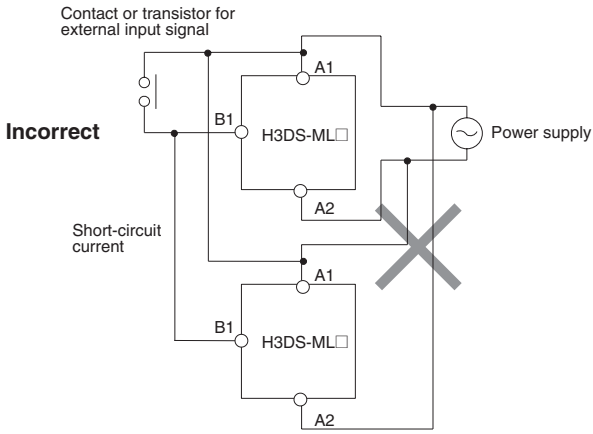
Relationship between Input and Power Supply Circuits (H3DS-ML□)



Since the input circuit and the power supply circuit are configured independently, the input circuit can be turned on or off irrespective of the on/off state of the power supply. It must be noted that a voltage equivalent to the power supply voltage is applied to the input circuit.

When connecting a relay or a transistor as an external signal input device, pay attention to the following points to prevent short-circuiting due to a sneak current to the transformerless power supply.

If a relay or transistor is connected to two or more Timers, the input terminals of those Timers must be wired properly so that they will not be different in phase or the terminals will be short-circuited to one another (refer to the figures below).



The H3DS Series is provided with a transformerless power supply system.

Input Wires

The input wires must be as short as possible. If the floating capacity of wires exceeds 2,000 pF (approx. 17 m for cables with 120 pF/m), the operation will be affected. Pay particular attention when using shielded cables.

Precautions for EN61812-1 Conformance

The H3DS as a built-in timer conforms to EN61812-1 provided that the following conditions are satisfied:

The output section of the H3DS is provided only with basic isolation. To ensure reinforced isolation required by the EN61812-1, provide supplementary basic isolation on the load side connected to the output.

The H3DS itself is designed according to the following:

- Overvoltage category III
- Pollution degree 2

On the above basis:

Operation parts on the front and bottom: Reinforced isolation

- With clearance of 5.5 mm and creepage distance of 5.5 mm at 230 VAC

Output: Basic isolation

- With clearance of 3 mm and creepage distance of 3 mm at 230 VAC

Environment

When using the Timer in an area with excess electronic noise, separate the Timer, wiring, and the equipment which generates the input signals as far as possible from the noise sources. It is also recommended to shield the input signal wiring to prevent electronic interference.

Organic solvents (such as paint thinner), as well as very acidic or basic solutions can damage the outer casing of the Timer.

Do not use the Timer in places where it is exposed to dust, corrosive gas, or direct sunlight.

When storing the Timer, make sure that the ambient temperature and humidity are within the rated values. Leave the Timer at room temperature for at least three hours before using the Timer if it has been stored at an ambient temperature of -10°C or below.

Leaving the Timer with outputs ON at a high temperature for a long time may hasten the degradation of internal parts (such as electrolytic capacitors). Therefore, use the product in combination with relays and avoid leaving the product as long as more than 1 month with the output turned ON.

Others

If the Timer is mounted on a control board, dismantle the Timer from the control board or short-circuit the circuitry of the power board before carrying out a voltage withstand test between the electric circuitry and non current-carrying metal part of the Timer, in order to prevent the internal circuitry of the Timer from damage.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.