

**8-PORT ETHERNET SWITCH
(with surge protector)****MODEL SHSP****BEFORE USE**

Thank you for choosing M-System. Before use, please check contents of the package you received as outlined below.

If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

This product is for use in general industrial environments, therefore may not be suitable for applications which require higher level of safety (e.g. safety or accident prevention systems) or of reliability (e.g. vehicle control or combustion control systems).

For safety, installation and maintenance of this product must be conducted by qualified personnel.

■ PACKAGE INCLUDES:

Ethernet switch (1)

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

POINTS OF CAUTION**■ CONFORMITY WITH EC DIRECTIVES**

- The equipment must be mounted inside a panel.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
100 – 240V AC rating: 85 – 264V, 47 – 66 Hz, approx. 8 – 11VA
24V DC rating: 24V ±10%, approx. 5.5W

■ SAFETY PRECAUTION

- Before you remove the unit or mount it, turn off the power supply and input signal for safety.

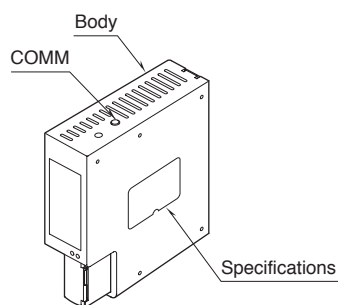
■ ENVIRONMENT

- Indoor use
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -5 to +60°C (23 to 140°F) with relative humidity within 30 to 95% RH in order to ensure adequate life span and operation.
- Be sure that the ventilation slits are not covered with cables, etc.

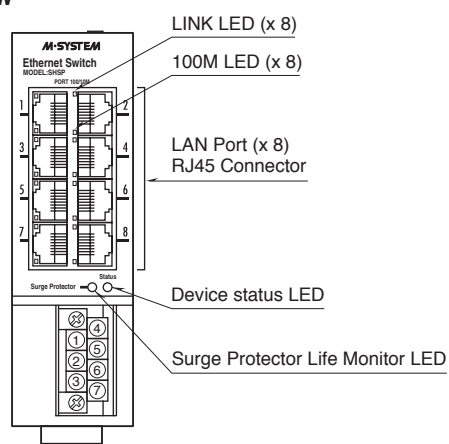
■ WIRING

- Wrong connection may damage the unit.
- Do not install cables (power supply, network and output) close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.
- Mixing with other networks may cause malfunction.

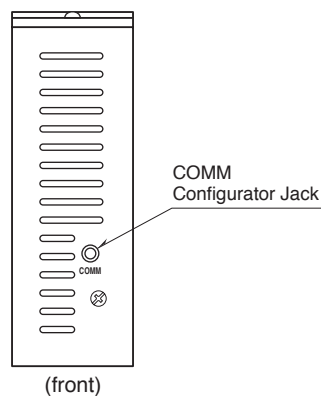
COMPONENT IDENTIFICATION



FRONT VIEW



TOP VIEW



• Status

Bicolor LED which changes from green to red according to the unit's status.

Green

LAN ports are in normal communication status.

Red

Communication is lost due to the control circuit failure.

Replace the unit.

Alarm contact output is turned on.

• Surge Protector

Tricolor LED which changes from green to orange to red according to the unit's status.

OFF

When the power supply is turned on for the first time after the unit has been installed, the LED is OFF indicating that it is in the initial state.

Green

The unit has been subjected to a lightning surge for the first time. The LED turns on only when the power is supplied.

Orange

The internal surge protector is close to its end of life. Immediate replacing the unit is recommended.

Red

The internal surge protector has degraded and is in abnormal status or at its end of life.

Immediate replacing the unit is required.

Alarm contact output is turned on.

• Startup LED Operation

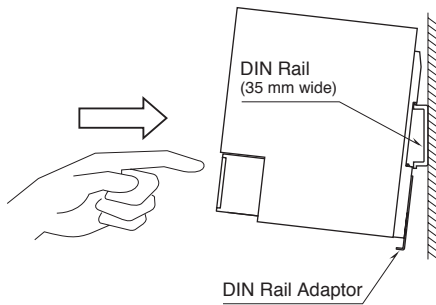
Both Status and Protector LED turns to orange color for approximately 1 second when the power supply is turned on while the internal microprocessor is initialized. Status of the unit and its surge protector as explained above is irrelevant.

Indicator Functions

LED	COLOR	ALARM	UNIT STATUS	REPLACEMENT
Status	Green	OFF	Normal	No need
	Red	ON	Control circuit failure	Immediately required
LED	COLOR	ALARM	DISCHARGE ELEMENT	REPLACEMENT
Protector	OFF	OFF	Normal (no surge)	No need
	Green	OFF	Normal (one or multiple surge hits)	
	Orange	OFF	Close to end-of-life	Immediately recommended
	Red	ON	End-of-life (degraded)	Immediately required

INSTALLATION

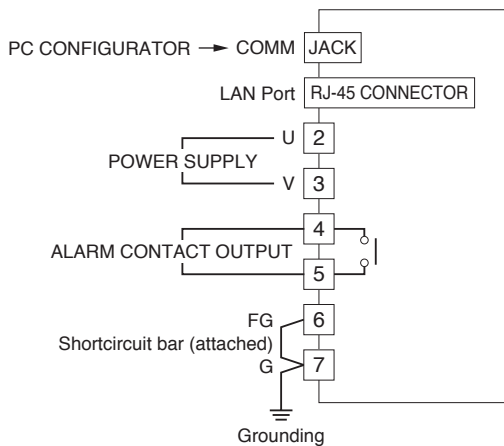
Set the unit so that its DIN rail adaptor is at the bottom. Position the upper hook at the rear side of the unit on the DIN rail and push in the lower. When removing the unit, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



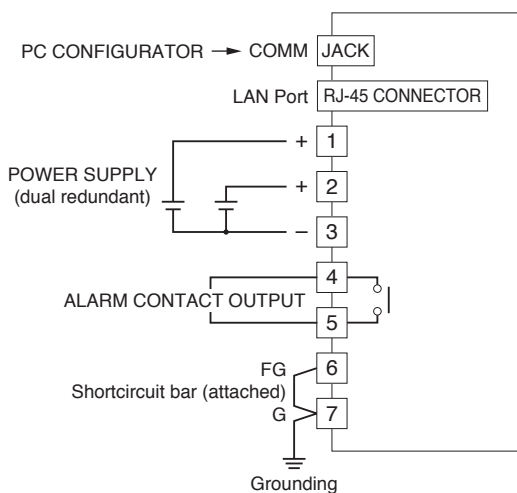
TERMINAL CONNECTION

Connect the unit as in the diagram below.

■ AC POWERED

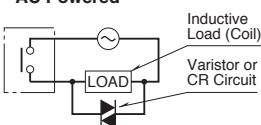


■ DC POWERED

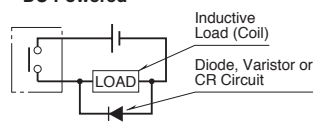


■ Relay Protection

• AC Powered



• DC Powered



CONNECTING POWER SUPPLY / GROUND

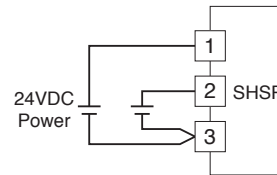
■ POWER SUPPLY (DC power)

Two sets of power input terminals are available on this unit (negative common).

In order to use two independent power sources for redundancy, connect each to the terminals 1 – 3 and 2 – 3 respectively. In this state, the unit can maintain its operation if one of the power sources fails.

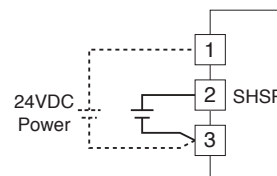
For single power supply, use either of these terminal sets.

• Dual Redundant Power Supply



Connect independent power sources to both terminals 1 – 3 and 2 – 3.

• Single Power Supply



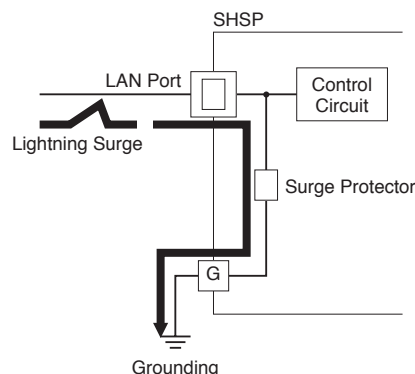
Connect a power source to either of the terminals 1 – 3 or 2 – 3.

■ GROUNDING

A surge protector is equipped at the LAN port to protect the unit from surges entering through the LAN cable. It is designed to direct the surges to the ground when they enter the port as illustrated in the figure to the above right. The G terminal, therefore, MUST be grounded. Grounding resistance of 100Ω is recommended.

If you want to ground the system at multiple points in order to separate noise interferences for information equipment and for electric equipment:

- 1) When there is no potential difference between the two grounding points, remove the shortcircuit bar connecting FG and G terminals of this unit and connect the FG to the ground for the information equipment, and the G to that for the electric equipment.
- 2) When there is a potential difference, separate grounding is not permitted. The shortcircuit bar must remain connected, and only the G terminal must be connected to the grounding for electric equipment.



LAN CABLE

• To Use STP (Shielded Twisted Pair) Cable

Use of STP cables will enhance the protection effect, but you must be aware that the LAN cable will be automatically grounded at both ends as its shield will be connected to the ground through the FG terminal.

If interference by common mode noise is suspected, use UTP (Unshielded Twisted Pair) cable.

SURGE PROTECTION

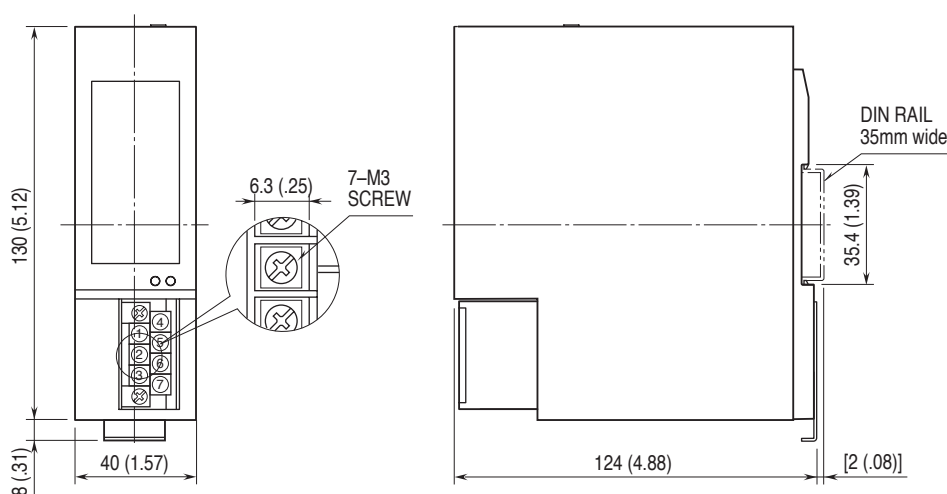
This unit's surge protection is applicable only to the LAN ports. If the power input and alarm contact output terminals are connected to wires drawn from outside of the control panel, we recommend use of surge protectors for these points, too.

Please contact M-System to select appropriate models.

MAINTENANCE

Confirm the unit's status by referring to 'Indicator Functions' table in Page 2 and replace it to a new one if necessary.

EXTERNAL DIMENSIONS mm (inch)



M-SYSTEM WARRANTY

M-System warrants such new M-System product which it manufactures to be free from defects in materials and workmanship during the 36-month period following the date that such product was originally purchased if such product has been used under normal operating conditions and properly maintained, M-System's sole liability, and purchaser's exclusive remedies, under this warranty are, at M-System's option, the repair, replacement or refund of the purchase price of any M-System product which is defective under the terms of this warranty. To submit a claim under this warranty, the purchaser must return, at its expense, the defective M-System product to the below address together with a copy of its original sales invoice.

THIS IS THE ONLY WARRANTY APPLICABLE TO M-SYSTEM PRODUCT AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. M-SYSTEM SHALL HAVE NO LIABILITY FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES OF ANY KIND WHATSOEVER.

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