



# Switching Hub W4S1-series

**OMRON**

## Users Manual

Thank you for purchasing OMRON Switching Hub.  
To secure safe operation, please be sure to read this manual.  
Keep this manual in a safe location and be sure that it is readily available to your final users of the product.

**OMRON Corporation**

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### Safety Precautions

#### Definition of the precaution and warnings

**Warning** Wrong operation could result in minor or moderate injury. If the worst happens, it may result in death, serious injury and property damage.

**Caution** Wrong operation may result in minor or moderate injury and property damage.

#### Warnings

##### Warning

Don't disassemble and touch any unit while the power is supplied. Doing so may result in electrical shock.



Don't touch any of the terminals while the power is supplied. Doing so may result in electrical shock.



Take a fail-safe countermeasures by the customer to secure safety in case of an abnormal signal caused by broken signal line and momentary power interruption. Not doing so may result in serious accidents.



##### Caution

Pay careful attention to the polarities(+/-) when wiring the DC power supply. A wrong connection may cause malfunction of the system.



### Summary for safety

- Take appropriate countermeasures such as installing external breakers to ensure safety in case of short-circuiting in external wiring.
- Mount the unit only after checking the terminal blocks and the connectors completely.
- Be sure that screws of the terminal blocks are tightened to the torque specified in this manual.
- Wire correctly.
- Use the power supply voltage specified in this manuals.
- Be particularly careful the place where the power supply is unstable to secure the power with the rated voltage. Use CLASS2 power supply.
- Leave the label for a dust proof attached to the unit when wiring.
- Remove the label after completion of wiring to ensure proper heat dissipation.
- Be sure to ground when installing the unit.
- Supply the power only after proper and sufficient checking of the wiring and switch.
- Don't attempt to disassemble, repair and modify this unit.
- Don't pull on the cables or bent them beyond its manual unit.
- Don't place objects on cables and codes.
- Before touching the unit, be sure to first touch a grounded metallic object in order to discharge any static built-up.
- This unit is class A (Industry Environment product). A usage in living may result in interruption of electric frequency. Take a proper countermeasure against the interruption of electric frequency when its case.

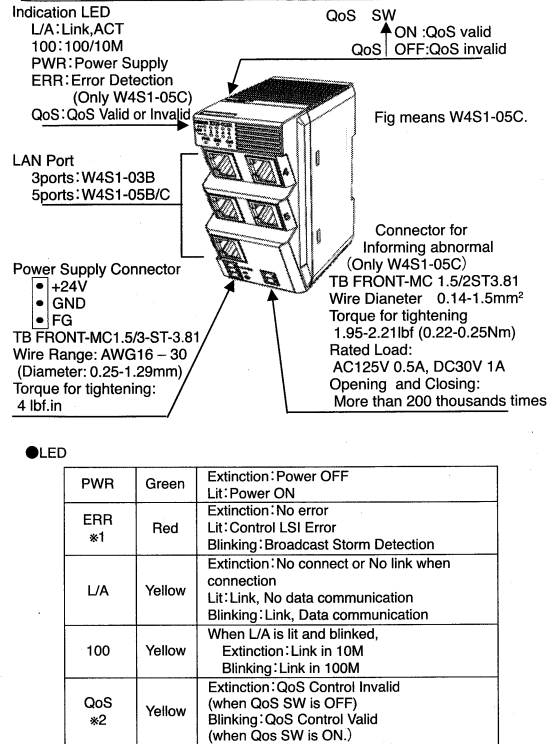
### Application Precaution

- Set successfully. A slider side of the unit must be down. Hitch the upside hook back of the unit on DIN rail and push its downside. When removing the unit, push down sliders with a driver and pull out the unit from downside.
- Don't operate the system in the following places;

- Locations subject to direct sunlight.
- Locations subject to temperature or humidity outside the range specified in the specification.
- Locations subject to condensation as the result of severe change in temperature.
- Locations subject to corrosive or flammable gas.
- Locations subject to dust (Especially iron dust) or salt.
- Locations subject to exposure to water, oil, or chemicals.
- Locations subject to shock and vibration.

- Take appropriate and sufficient countermeasures when installing system in the following locations;
  - Location subject to static electricity or other forms of noise.
  - Location subject to strong electromagnetic field.
  - Location subject to possible exposure to radioactivity.

### Each Part Name



#### LED

PWR	Green	Extinction: Power OFF Lit: Power ON
ERR *1	Red	Extinction: No error Lit: Control LSI Error Blinking: Broadcast Storm Detection
L/A	Yellow	Extinction: No connect or No link when connection Lit: Link, No data communication Blinking: Link, Data communication
100	Yellow	When L/A is lit and blinked, Extinction: Link in 10M Blinking: Link in 100M
QoS *2	Yellow	Extinction: QoS Control Invalid (when QoS SW is OFF) Blinking: QoS Control Valid (when QoS SW is ON.)

#### Switch

QoS SW *2	OFF: QoS Control Invalid ON: QoS Control Valid
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- \*1) The function is limited only for W4S1-05C. It isn't mounted on W4S1-03B/05B.
- \*2) Valid or Invalid of QoS controlling depends on QoS SW when power ON. Even if SW is replaced, during Power ON, it isn't reflected on LED and the function isn't converted. To change QoS condition, shut down the power supply and replace SW.

#### Abnormal Information Connector

Power Supply	Situation	Connect
OFF	—	Unlock
ON	When Normal	Lock
	When LSI is abnormal	Unlock
	When it detects Broadcast storm	Lock

### LAN Cable

- When using twist pair (STP) cable with a shield, it is expected to prevent a noise. However, as the shield of the cable is installed in this unit, the both side of LAN cable may be grounded. Attempt to ground its other side and use twist pair cable (UTP) without shield when grounding its both side may lead ground electric difference.

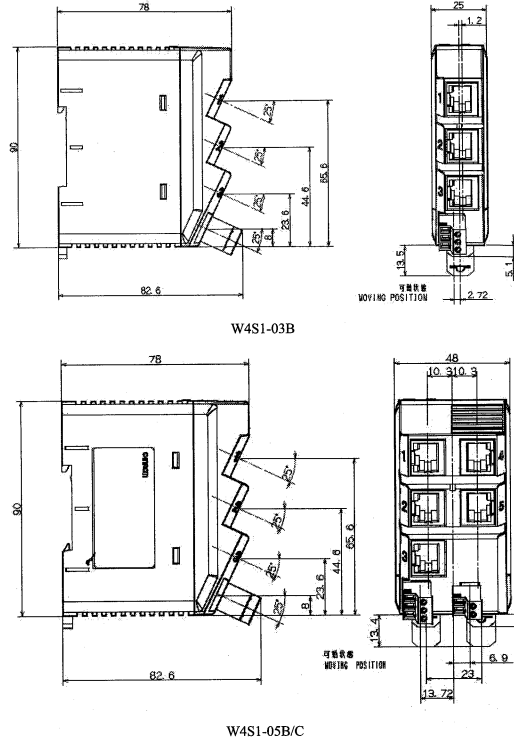
### QoS Function

QoS can compare Implicit Message with other standard packet and transfer it by priority. The Implicit Message is I/O data for EIP controlling. Turn off QoS when using it in normal mode, which has no function to put priority.

Priority when QoS is ON is the following.

Priority	Detail
1	EtherNet/IP™ Implicit Message
2	IGMP Packet
3	Other than the above

### Dimension



### Troubleshooting

Here is the abnormal causes and the proper troubleshooting to take SW.

SW	Cause	User's Countermeasure
Even if the power is ON, all the LED isn't lit.	① Without power supply, Power Supply Disconnection ② Internal Power Supply is broken.	① Confirming if power voltage 24V is supplied. ② Changing Switching Hub
L/A LED isn't lit.	① LAN Cable comes off ② LAN Cable disconnection, short-circuiting ③ LSI Abnormal	① Confirming Connector Connection ② Cable Changing ③ Changing Switching Hub
Abnormal contact point is unlocked. ERR LED is lit. (W4S1-05C)	① Loud Noise ② LSI Abnormal	① Improving the setting environment ② Changing Switching Hub (When the power supply is re-ON)
ERR LED is blinked. (W4S1-05C)	Broadcast storm occurs.	Unlocking loop connection

### Specification

Power Voltage	DC24V±5%
Consumption Electric Power	220mA [Less than 5.28W]
Incoming Current	I <sub>p</sub> =1.42A
Voltage Proof	AC250V 1mA for 1minute (LAN Connector, Connector for informing abnormal, FG vs. Power Supply Connector)
EMI / EMS	EN61000-6-4:2007 / EN61000-6-2:2005
Noise proof and Impact proof	Complied with JIS C60068-2-6, JIS C60068-2-27
Way of setting	It is set in the switching hub
Usage circumstance	No Corrosive gas
Usage surrounding air Temperature	0°C ~ +55°C (No Freezing and No Condensation)
Usage surrounding air Humidity	10~90% Relative Humidity (No Condensation)
Storage surrounding air Temperature	-20 ~ +75°C (No Freezing and No Condensation)
Buffer Size	80Kbyte
MAC Address	2048 pieces
Amount	

### Suitability for use

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products. Take all necessary steps to determine the suitability of the product systems, machines, and equipment with which it will be used. Please know and observe all prohibitions of use applicable to the products. NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM. See also product catalogs for Warranty and Limitations of Liability.

EtherNet/IP is Multi Vendor Network for industry, which uses Ethernet. The specification is managed by ODVA (Open DeviceNet Vendor Association) as public specification.

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