

KOGANEI

OMRON CompoBus/S Compatible

Serial transmission compatible manifold

User's Manual

Ver. 1.0

Supported solenoid valves

● **Fseries**

OMRON CompoBus/S Compatible

Serial transmission compatible manifold

User's Manual

This user's manual describes the serial transmission block so that the serial transmission compatible manifold and solenoid valves can be used correctly. See the individual catalogs or the valves general catalog for information about the relevant manifolds and the valves.

To use these products correctly, you must first read the documentation.



CAUTION

This product does not have the appropriate functions to support applications, such as safety equipment or accident prevention systems, that require high levels of safety.

- Do not put the communication cables near or in bundles with power lines.
- This manual is for the F series solenoid valves. Contact us if you are using a different series of solenoid valves.

1. Serial transmission block compatible with solenoid valve series

Serial transmission block single unit model	YS6A1	YS2A1
Supported solenoid valve series	F10 and F15 series	F18 series

2. Specifications

■ General specifications

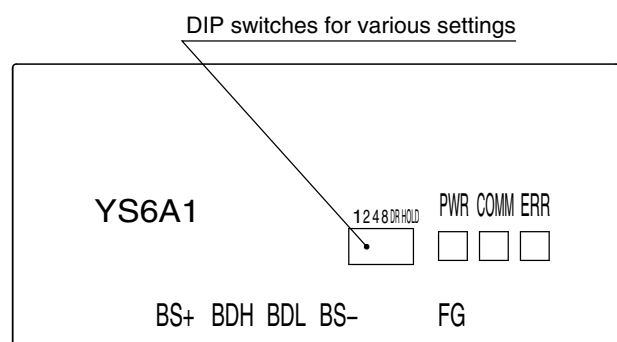
Item	Model	YS6A1 and YS2A1
Power supply voltage		24 VDC $\pm 10\%$
Power consumption		3 W or less (excluding solenoid valve)
Operating temperature range		5 to 50°C [41 to 122°F]
Operating humidity range		35 to 85% RH (Non-condensation)
Operating atmosphere		No corrosive gases and no excessive dust
Vibration resistance		49.0 m/s ² [5 G]
Shock resistance		98.1 m/s ² [10 G]
Dielectric strength		1000 VAC for 1 minute (between all external terminals and the case)
Noise resistance		1700 V or more (pulse width 1 μ s and 100 ns)
Insulation resistance		10 M Ω or more (between all external terminals and the case, using a 500 VDC insulation tester)

★ The above specifications are for the serial transmission block itself. You must consider the specifications for the solenoid valves that are mounted regarding the installation and operation in your operating environment. See the valves general catalog or the catalogs for relevant solenoid valves regarding specifications for the solenoid valves and other parts.

3. About serial transmission blocks YS6A1 and YS2A1

3-1. Names of parts of the LED display panel

LED display panel



★ The illustration above shows the panel for the YS6A1, but it is the same for the YS2A1.

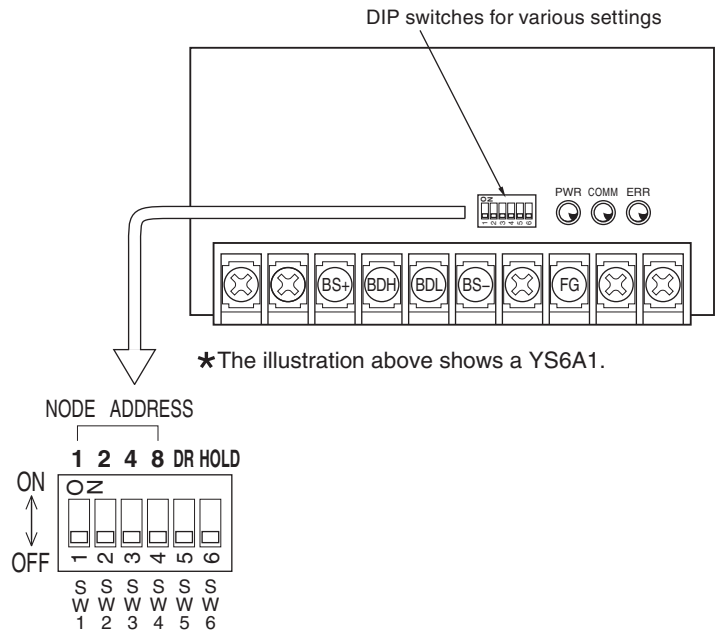
Description of LED display

Name	State	Color	Description
PWR	Lit	Green	While power is on
	Off		While power is off
COMM	Lit	Yellow	While communication is normal
	Off		While communication is abnormal or in stand-by
ERR	Lit	Red	While communication error occurs
	Off		While communication is normal or in stand-by

3-2. Settings

Open the wiring cover and use a flat blade screwdriver to set the DIP switches.

Caution: Always turn off the power supply before doing settings.



- ① **Address setting (NODE ADDRESS)** 0: OFF
1: ON

NODE	SW 1	SW 2	SW 3	SW 4
ADDRESS	1	2	4	8
#0	0	0	0	0
#2	0	1	0	0
#4	0	0	1	0
#6	0	1	1	0
#8	0	0	0	1
#10	0	1	0	1
#12	0	0	1	1
#14	0	1	1	1

- ② **Communication mode setting (DR)** 0: OFF
1: ON

Communication mode	SW 5
High-speed communication mode	0
Long-distance communication mode	1

- ③ **Hold/clear output function (HOLD)** 0: OFF
1: ON

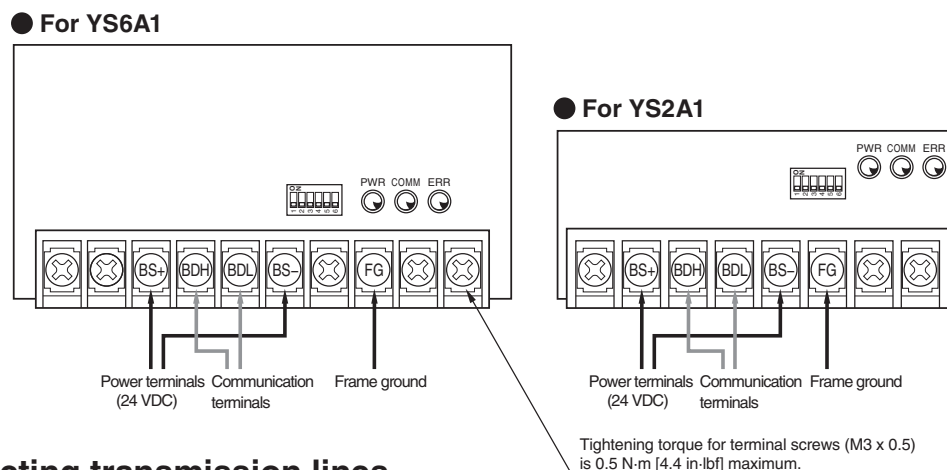
Function	SW 6	Description
Clear output	0	All the output data from the master is cleared when a communication abnormality occurs.
Hold output	1	The output data from the master is held in the state immediately prior to when a communication abnormality occurs.

3-3. Wiring

Open the wiring cover and connect the transmission cable and power cable (24 VDC) to the wiring terminal. For YS2A1, with a knife, cut the center of the rubber grommet on the side of the transmission block, and put the wires into the transmission block case. (Grommet model and manufacturer: rubber grommet, model SG-22A manufactured by Kyowa Rubber Industry CO., LTD.)

The screws on the wiring terminal are M3 screws. Use crimped terminals (JIS 2805 R-type 1.25-3 equivalent) suitable for the terminal screws. Furthermore, do the wiring according to the labels.

Names of parts of wiring terminal



Connecting transmission lines

Cable types and communication distances

The cables that can be used with CompoBus/S are shown below.

VCTF Cable : Vinyl cord, VCTF JIS C3306, 2 wires, 0.75 mm² [0.00116 in²] nominal cross section (signal lines x 2)

Specialized flat cable: 0.75 mm² [0.00116 in²] x 4 (signal lines x 2, power lines x 2)

The communication distances are shown below according to the types of cable.

Cable type	Length of main line	Length of branch line	Total length of branch line
VCTF cable	100 m [328 ft] or less	3 m [10 ft] or less	50 m [164 ft] or less
Specialized flat cable	30 m [98 ft] or less ^{Note}	3 m [10 ft] or less	30 m [98 ft] or less ^{Note}

Note: However, if there are fewer than 16 slaves connected, a main line of 100 m [328 ft] and a branch line of 50 m [164 ft] are possible, the same as the VCTF cables.

Connection method

- Connect BDH and BDL on the wiring terminal to BDH and BDL on the master or slave.
- To stabilize communications, attach a termination resistance to the terminal of the main line on the opposite side of the master.
- Regarding the connection type, two types are possible; a T-branch type or a multi-drop type.

Power line connection

Connect the power line to the power terminals (BS+ and BS-) on the serial transmission block.

This power supply is for both driving the solenoid valves and for internal circuits in the transmission block.



If you are supplying power from one source to multiple remote I/Os or to serial transmission compatible manifold solenoid valves; or if you are supplying power from far away, consider the voltage drop when selecting a power cable before you start wiring to assure you have a power supply voltage that is within the rated voltage (24 V ±10%).

If you cannot eliminate a voltage drop due to long wires, implement measures such as installing a separate power source close to the serial transmission compatible manifold solenoid valves.

4. Output relay and solenoid valve connections

The serial transmission block has 16 outputs, 0 to 15. The relationship between the output relay numbers in the program and the actual mounted solenoid valves is as shown below.

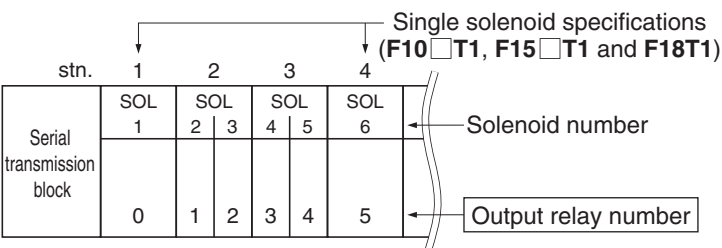
The relationship between all the solenoids on the manifold and output relay numbers is different depending on what is specified for "Wiring specifications" in the manifold ordering codes.

Wiring specifications **Blank** (packed wiring): Wired according to specifications of mounted valves.
 -W (double wiring): All wiring is for double solenoids, regardless of the specifications of the mounted valves.

① If wiring specifications are "blank" (packed wiring)

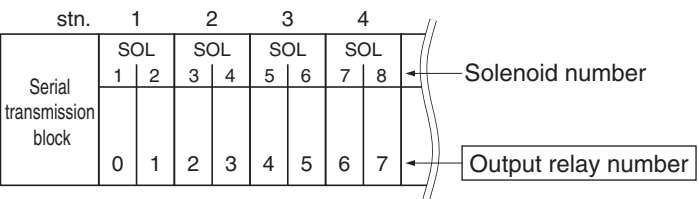
The valves specified as the single solenoid specifications when ordering (**F□T1**) are wired to solenoid A only and are not wired to solenoid B because wiring is done according to the mounted valve specifications.

This means that it cannot function as a double solenoid valve after it is delivered because no current flows to solenoid B, even if it is switched from a single solenoid valve to a double solenoid valve.



② When wiring specifications are "-W" (double wiring)

All wiring is for double solenoids.



- For other information, detailed specifications, and precautions, see the product catalog.
- For inquiries about the product, contact our Overseas Department noted below.



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- The specifications or the appearance of this product are subject to change any time without prior notice.