

INSTRUCTION MANUAL

SERIAL TRANSMISSION TYPE

M4TB $\begin{matrix} 3 \\ 4 \end{matrix}$ — $\begin{matrix} \text{T6C0} \\ \text{T6C1} \end{matrix}$

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

For Safety Use

To use this product safely, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, **read this operation manual carefully for proper operation.**

Observe the cautions on handling described in this manual, as well as the following instructions:

CAUTION

- Incorrect address settings of serial transmission slave stations could cause the solenoid valve and the cylinder to malfunction. Before using the product, check the set address of the slave stations.
- For operation of serial transmission slave stations, read the communication system operation manual carefully.
- Do not touch electric wiring connections (exposed live parts): this will cause an electric shock. During wiring, keep the power off. Also, do not touch these live parts with wet hands.

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Serial Transmission Type
INSTRUCTION MANUAL No. SM-214982-A

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NOTE: Symbol No. given in gothic brackets at the side of Page No. on each page and Symbol No. near or around the illustration, such as [C2-4PP07] and [V2-503-B], are the editing symbols that are not related to this text.



1. PRODUCT

1.1 General outline of the system

1) M4TB□-T6C1·T6C0

This solenoid valve M4TB□-T6C1·T6C0 is a manifold solenoid valve incorporating a slave station (OPP2-1C·0C), which can be connected to the CompoBus/S of Omron's programmable controllers (PLC) C200HX/HG/HE (hereafter referred to as SYSMAC α), C200HS, and CQM1 series.

- (1) The PLC and manifold solenoid valve can be connected only with one cable. This can reduce the number of wiring work steps.
- (2) Up to 16 manifold solenoid valves with the slave station can be connected to one master unit, allowing distributed control in units of 16 or 8 points. (The maximum length of main line is 100 m.)
- (3) The source of power for unit and valve can be installed individually and each unit has a monitor LED indicator.
- (4) If the communication error occurs, holding or clearing of the output signal is selected using the output mode setting switch.

2) CompoBus/S

CompoBus/S is one of remote I/O systems of Omron's programmable controllers SYSMAC α , C200HS, and CQM1 series, and provides the following features.

- (1) One cable connection saves the wiring work.
The master station and slave station, as well as two slave stations are connected only with one cable. Additionally, use of 4-wire special flat cable makes it possible to supply the power for communication to the slave station through this cable. This may greatly reduce the floor wiring. Additionally, the branch line can also be easily branched from the main line with special connector.
- (2) A high speed communication cycle time of 0.5 ms is achieved.
Up to 16 slave stations and 128 input/output points are connected at a high speed communication cycle of 0.5 ms.
The system is applicable to even time critical FA fields.
- (3) The system can be configured freely by means of T branch method and multi-drop method.
T branch method and multi-drop method can be combined freely for wiring.
This makes it possible to configure a system having a high degree of freedom corresponding to the floor structure. Additionally, two kinds of cables, VCTF cable and special flat cable, are provided. When using the special flat cable, the T-branch connector can be attached using one-touch operation.



- (4) The maximum length of the main line is 100 m.

With the high speed communication achieved, the length of the main line can be extended to 100 m, ensuring high-speed I/O processing of input and output units in a wide area.

- (5) CompoBus/S can be started up easily.

CompoBus/S can be started up easily only by wiring the cables and making simple settings. It is also easy to replace the conventional remote I/O system with this system.

Faulty slave No. is indicated using the LED.

If any fault occurs in a slave station, the slave No. (node address) is displayed on the 4-digit LED on the master station, ensuring easy finding of faulty part.

When using the master unit for C200HX/HG/HE or C200HS, the fault of the internal auxiliary relay is also displayed in detail.

- (6) A wide variety of slaves are provided.

A wide variety of input and output units, such as I/O and sensor terminals are provided as slave stations. Additionally, the BIT (bit chain) master station can also be used as slave station of CompoBus/S, ensuring free configuration of system corresponding to the application.

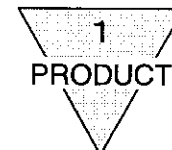
Note : Always thoroughly read Omron's User's Manuals. This manual basically describes T6C1·T6C0 and slave station OPP2-1C·0C. For details of Omron's programmable controllers SYSMAC α , C200HS, and CQM1 series and CompoBus/S, see relevant User's Manual.

For this manifold solenoid valve, read this instruction manual, as well as manuals described above to fully understand the functions and performance in order to operate the manifold solenoid valve properly.

For any further inquiries regarding CompoBus/S, contact with the manufacturer as listed below.

OMRON Corporation

Home page address : <http://www.omron.co.jp/>



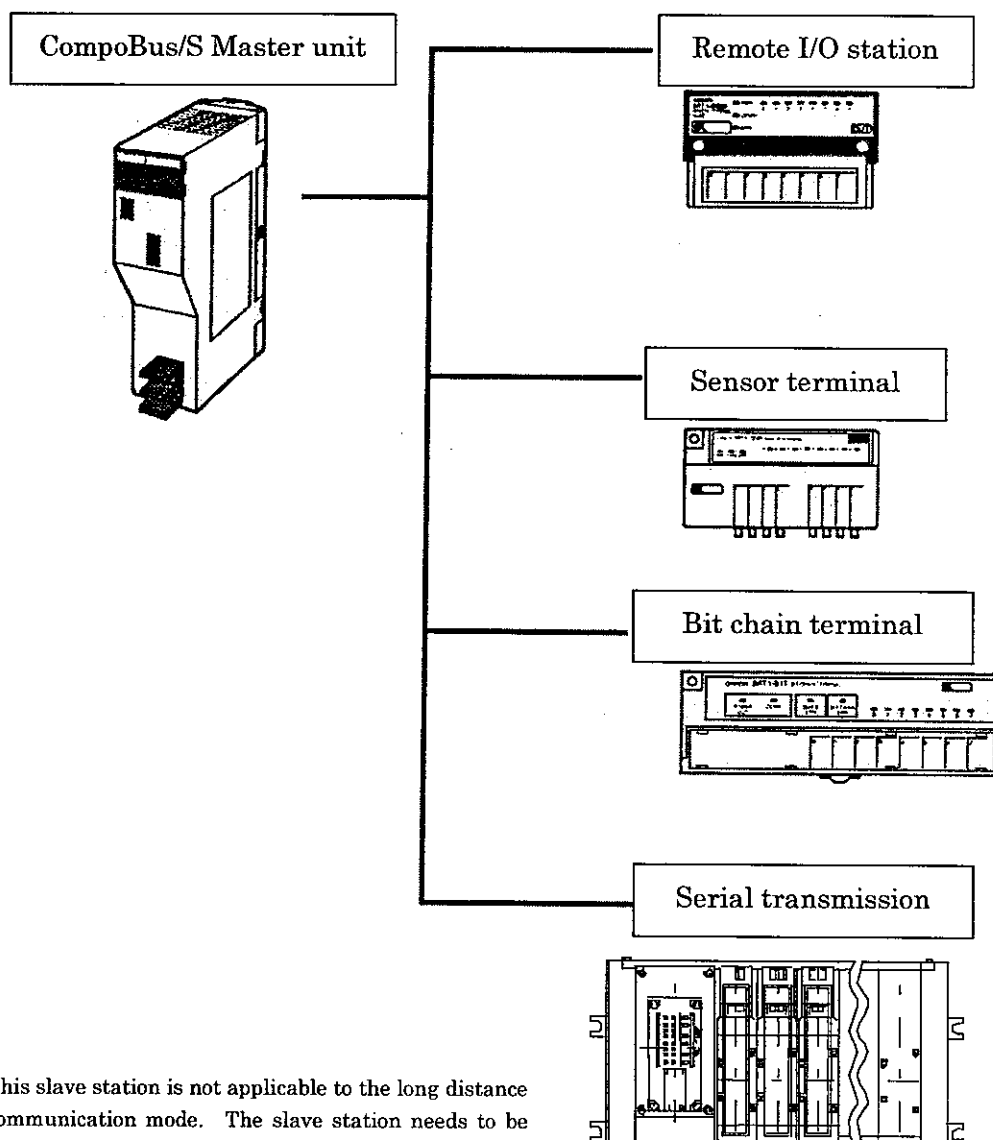
1.2 Structure of the System

This system consists of a programmable controller main unit, master unit, solenoid valve T6C1 · T6C0, and auxiliary units.

- Combination of PLC and Master unit

Type of PLC	Type of master unit
C200HX/HG/HE C200HS, CS1	Model C200HW-SRM21-V1
CQM1H	Model CQM1-SRM21-V1
—	Model SRM1-C01/02-V2

- Fundamental structure of system



Note) This slave station is not applicable to the long distance communication mode. The slave station needs to be used in the high-speed communication mode.



1.3 Specifications

1) Solenoid valve specifications

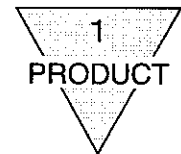
(1) Manifold specifications

Item	Specification			
	M4TB3 Series		M4TB4 Series	
Manifold system	Manifold block system		Manifold block system	
Applicable solenoid valve	4TB3 Series		4TB4 Series	
Number of stations	2 to 8 (16 max. for single solenoid)		2 to 8 (16 max. for single solenoid)	
Type of manifold	Common supply & common exhaust		Common supply & common exhaust	
Ambient temperature °C	5 - 50		5 - 50	
Ambient humidity	35 to 85% RH (No dew condensation allowed)		35 to 85% RH (No dew condensation allowed)	
Working atmosphere	No corrosive gas allowed		No corrosive gas allowed	
Fluid temperature °C	5 - 50		5 - 50	
Connection port size (diameter)	Supply port (P) Exhaust port (R)	Cylinder port (A/B)	Supply port (P) Exhaust port (R)	Cylinder port (A/B)
	Rc 1/2	Rc 1/4 · Rc 3/8	Rc 1/2	Rc 3/8 · Rc 1/2
	Pilot exhaust port (PR)	External pilot port (PA)	Pilot exhaust port (PR)	External pilot port (PA)
	Rc 1/8	Rc 1/8	Rc 1/8	Rc 1/8

(2) Solenoid valve specifications

Item	Series Model No. Position / Number of Solenoids	M4TB3 Series				
		4TB310 2 positions Single	4TB320 2 positions Double	4TB330 3 positions All-port block	4TB340 3 positions ABR connection	4TB350 3 positions RAB connection
Working fluid		Compressed air				
Operating method		Pilot (Soft spool)				
Maximum working pressure	MPa	1.0				
Minimum working pressure	MPa	0.15	0.1	0.2		
Proof pressure	MPa	1.5				
Effective sectional area	mm ²	40			33	
Response time	ms	30 max. (at 0.5 MPa)			50 max. (at 0.5 MPa)	
Manual override		Non-locking system; locking system (Optional)				
Lubrication		Not required (Where lubrication is required, use turbine oil class I ISO VG32 (#90).				
Protection structure		Dust-proof type – drip-proof type (optional)				

Item	Series Model No. Position / Number of Solenoids	M4TB4 Series				
		4TB410 2 positions Single	4TB420 2 positions Double	4TB430 3 positions All-port block	4TB440 3 positions ABR connection	4TB450 3 positions RAB connection
Working fluid		Compressed air				
Operating method		Pilot (Soft spool)				
Maximum working pressure	MPa	1.0				
Minimum working pressure	MPa	0.15	0.1	0.2		
Proof pressure	MPa	1.5				
Effective sectional area	mm ²	70			60	
Response time	ms	50 max. (at 0.5 MPa)			70 max. (at 0.5 MPa)	
Manual override		Non-locking system; locking system (Optional)				
Lubrication		Not required (Where lubrication is required, use turbine oil class I ISO VG32 (#90).				
Protection structure		Dust-proof type – drip-proof type (optional)				



(3) Electrical Specifications

Item	Specification
	M4TB3, M4TB4 Series
Rated voltage (V)	DC 24 ± 10%
Current consumption (mA)	80
Power consumption (W)	1.9
Miscellaneous	Lamp and surge killer built in

2) Transmission specifications

Item	Specification		
Call processing	Special CompoBus/S protocol		
Transmission speed	750Kbit/s		
Modulation method	Base band method		
Encoding	Manchester coding method		
Error detection	Manchester code check, frame length check, and parity check		
Cable to be used	Vinyl cable VCTF JIS C 3306 : 2-core nominal cross section 0.75mm ² (Signal line×2) (VCTF cable) Special flat cable : 0.75mm ² ×4 (signal line×2 and power line×2)		
Distance	When the VCTF cable is used:		
	Length of main line	Length of branch line	Total length of branch lines
	100m or less	3m or less	50m or less
	When the special flat cable is used:		
	Length of main line	Length of branch line	Total length of branch lines
	30m or less	3m or less	30m or less
However, even though the special flat cable is used, the length of the main line and the total length of branch lines can be set to 100 m or less and 50m or less, respectively if the number of connected slave stations is 16 or less.			

Note) The slave station needs to be used in the high-speed communication m



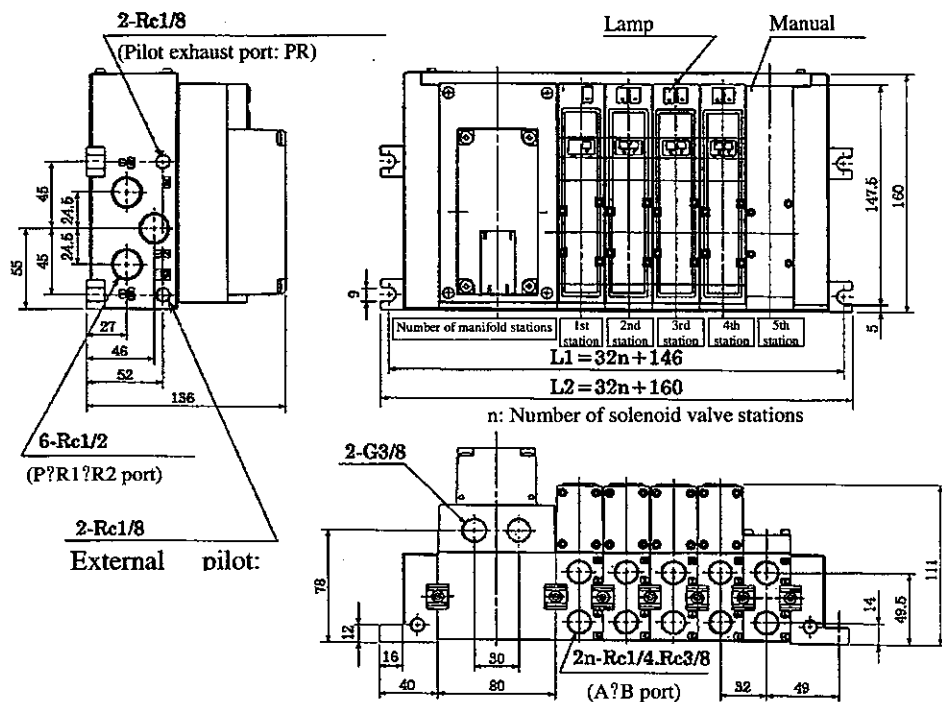
3) Slave station specification

Item		Specification
Power supply voltage (Unit side)		DC21.6V to 26.4V (DC24V $\pm 10\%$)
Consumption current (Unit side)		OPP2-0C : 40mA or lower, OPP2-1C : 60mA or lower (While all points are ON)
Power supply voltage (Valve side)		DC22.8V to 26.4V (DC24V $\pm 10\%$, -5%)
Consumption current (Valve side)		15mA or lower (While all points are OFF.)
Insulation resistance		Between all external terminals in a lump and Case 20M Ω or more DC500VM
Withstand voltage		Between all external terminals in a lump and Case AC500V for 1 minute
Noise resistance		600Vp-p Pulse width 100nsce, 1 μ sec
Mechanical vibration proof	Durability	10Hz to 150Hz to 10Hz 1 octave / min. 15 sweeps in the 3 each axis of X, Y and Z while the half amplitude is 0.75mm or 10G whichever smaller.
	Wrong operation	10Hz to 150Hz to 10Hz 1 octave / min. 4 sweeps in the 3 each axis of X, Y and Z while the half amplitude is 0.75mm or 10G whichever smaller.
Mechanical shock proof		30G 3 directions 3 times
Ambient temperature		0 to 50°C
Ambient humidity		30 to 85%RH (No dew fall)
Working environment		No corrosive gas
Protection structure		IP64 (Dust-proof & drip-proof structure)
Communication object		CompoBus/S (High-speed communication mode only)
No. of output points		OPP2-0C : 8 points, OPP2-1C : 16 points
Output insulation type		Photo coupler insulation
Max. load current		100mA/1 point
Leak current		0.1mA or lower
Residual voltage		0.5V or lower
Output model		NPN Transistor, Open collector output
Fuse		48 V, 2A (LM20 – DAITO TSUSHINKI)
Operating indication		LED (power lamp and communication status indicator only)
No. of monopolized stations		OPP2-0C : 8 points, OPP2-1C : 16 points

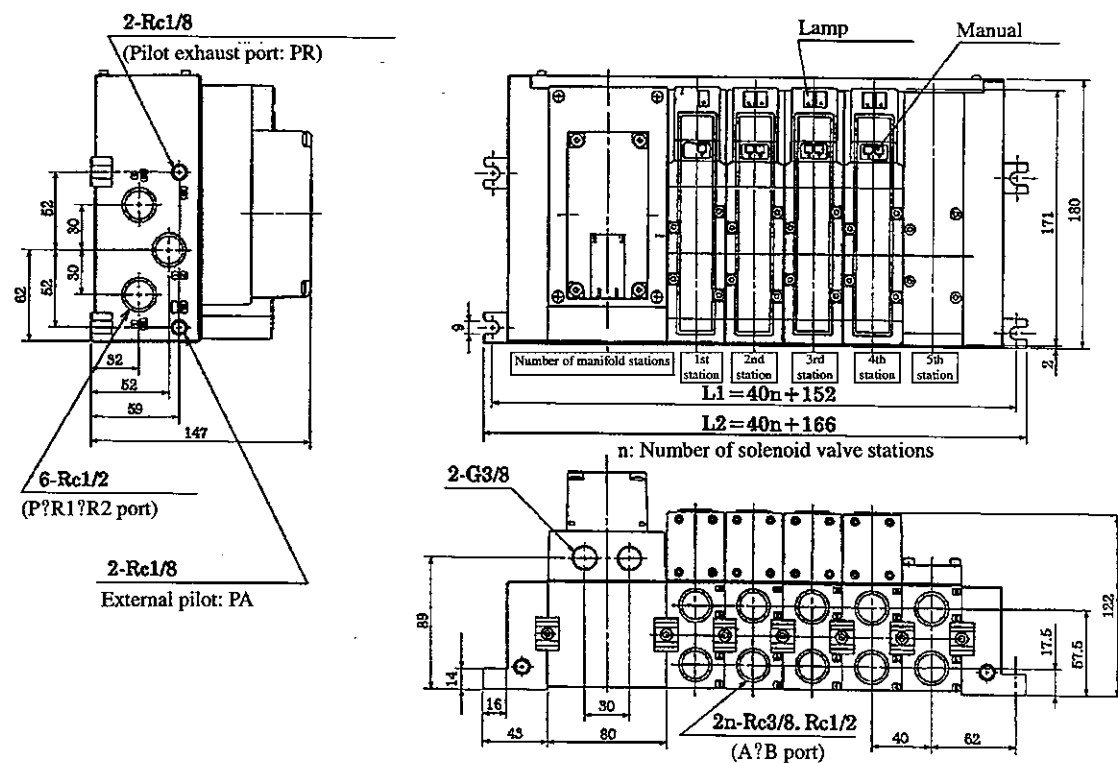
Note) This slave station is not applicable to the long distance communication mode.

1.4 Solenoid Valve External Dimensions

- M4TB3*0-*T6C0-T6C11-*



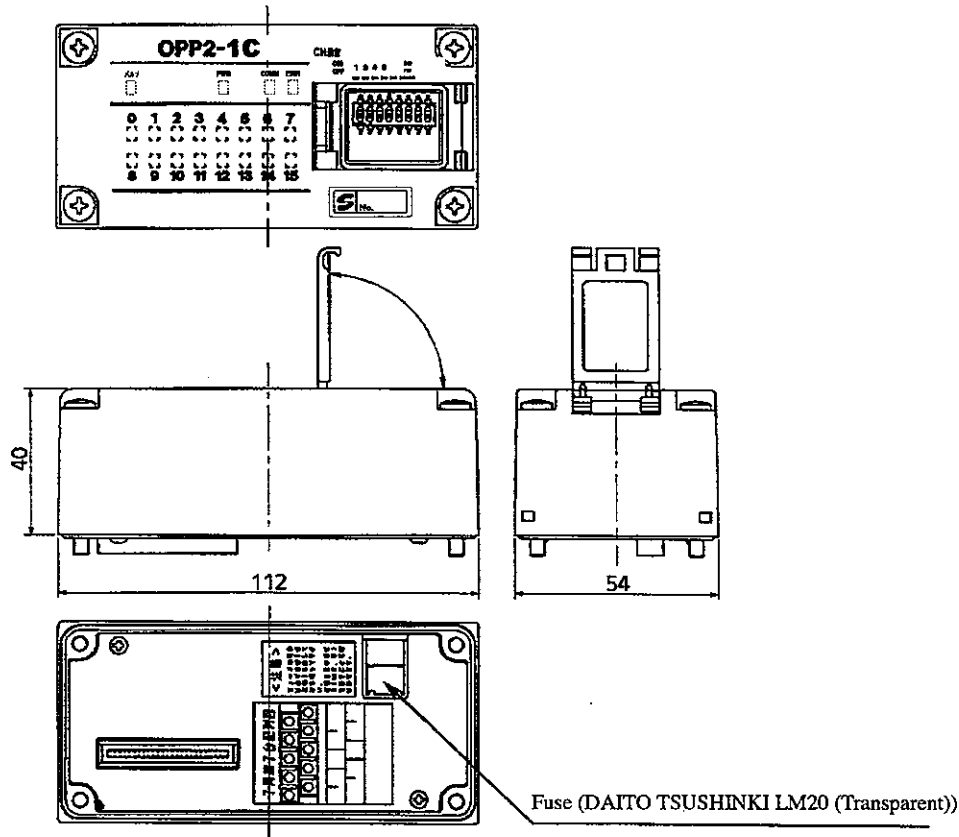
- M4TB4*0-*T6C0-T6C11-*





1.5 Serial transmission unit block for valve

1) External shape of serial transmission unit block for valve

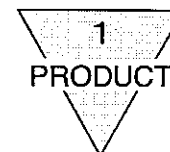


2) Fuse

It is possible to check for a blown fuse from the lower part of the serial transmission unit block for valve. When replacing the fuse, be sure to remove the bottom plate (metallic plate), then insert the fuse straight into the fuse socket to the full depth. For a replacement fuse, use the following purchased one. Also, never fail to dispose of the fuse thus replaced immediately to avoid mixture with the normal fuse. To check the fuse for melting, use a tester or the like.

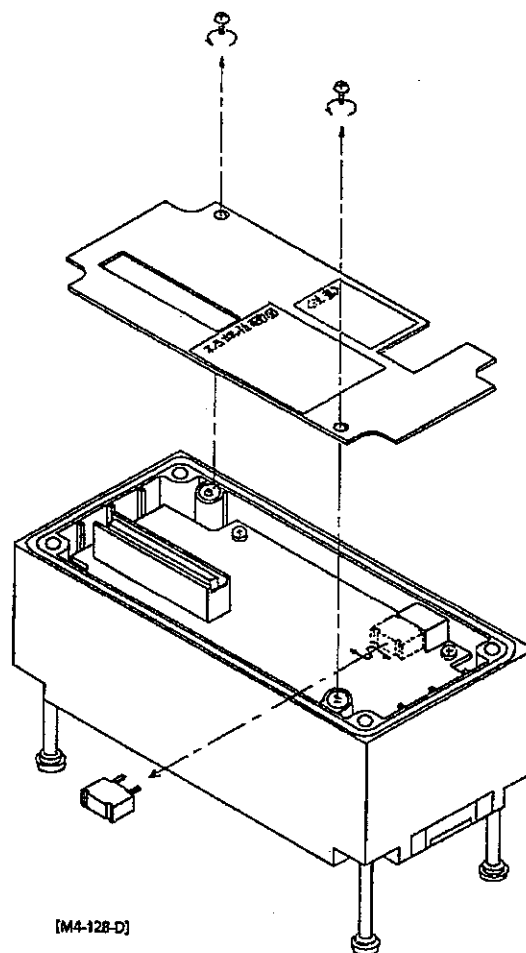
Fuse for replacement: LM20 (Transparent) made by DAITO TSUSHINKI K.K
CKD Model No. 4T9-LM20

A fuse may be blown because there occurred some abnormal condition in most cases, such as shortcircuit. If a blown fuse results from such an abnormality, be sure to remove the cause of its abnormality, then turn the power ON. (There may be some cases of the fuse being blown due to aging, which is rare.)



Fuse Replacement Procedure

After ensuring that the fuse has been blown, replace it according to the procedure given in the figure below.

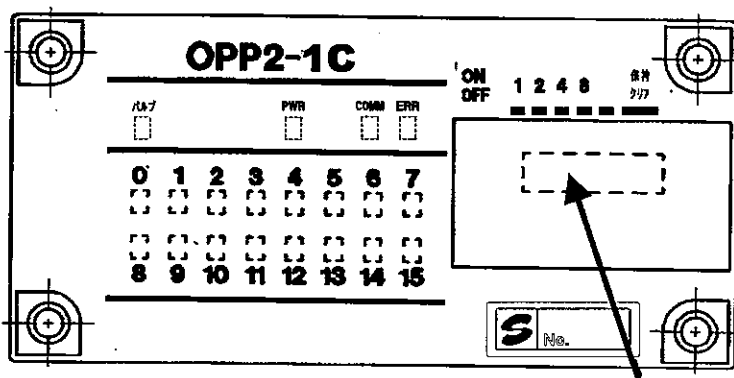


- (1) Remove 2 screws (M2.5). Always use a screwdriver matching the screw tip profile.
- (2) Detach the bottom plate.
- (3) Pull out the fuse by hand. At that time, pull it out while moving it to the right and left: it can be pulled out with ease. In this case, avoid using a tool: if it is used when pulled out, damage may be caused to the wiring pattern on the printed circuit board: always pull it out "by hand".
- (4) Insert the replacement fuse straight into the fuse socket to the full depth.
- (5) Ensure that no foreign matter is intruding therein, such as chips, and return the bottom plate as it was.



3) Indication and Setting Switch

- (1) The serial transmission unit block for valve is provided with different types of LED lamps so that the running condition can be checked from the outside. The lamp function indication is printed on the resin cover in the upper part. The running condition as shown below is indicated. During operation check or maintenance work, refer to these indications.



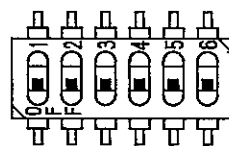
DIP switch for setting

LED Name	Indication Contents
Valve (green)	Lights up when the valve power is ON.
PWR (green)	Lights up when the valve power is ON.
COMM(orange)	Lit during normal communication. Off if the communication error occurs or the system is in the standby mode.
ERR (red)	Lit if the communication error occurs. Off during normal communication or if the system is in the standby mode.
0-15	The output condition is indicated. The LED lights up at "ON".

NOTE 1: This LED does not light up when the G730 interface unit (Type CQM1-G7M) for CQM1 is used for the master block in "Multi-link".

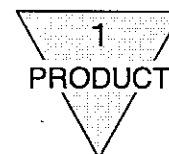
Switch Name	Setting Contents
Node address setting switch (Switch No.1 to 4)	Allocates the output contacts of the slave station to the channels of PLC.
Output mode setting switch (Switch No.6)	Selects to hold or clear the output data status if the communication error occurs.

※Switch No. 5 is not used.



DIP SW for Setting

- (2) The node address of the slave station for the valve and output mode if the communication error occurs are set using the setting switches. (Refer to "Chapter 3. Operation".) Be sure to set it before turning power to valve slave station ON.
- The cover of the slave station unit for the solenoid valve system can easily be opened and closed. Keep the cover closed except when you have to change switch positions or reconnect wires. If you keep the cover open unnecessarily, foreign matter may enter the circuit board causing an unexpected failure, or the cover may be broken by accidental contact. While the cover is open as you change switch positions or reconnect wires, be careful not to cause the entry of foreign matter.
 - Setting switch has been precisely built. Disorderly handling may cause damage of switch. To set station number, never touch internal circuit printed board.

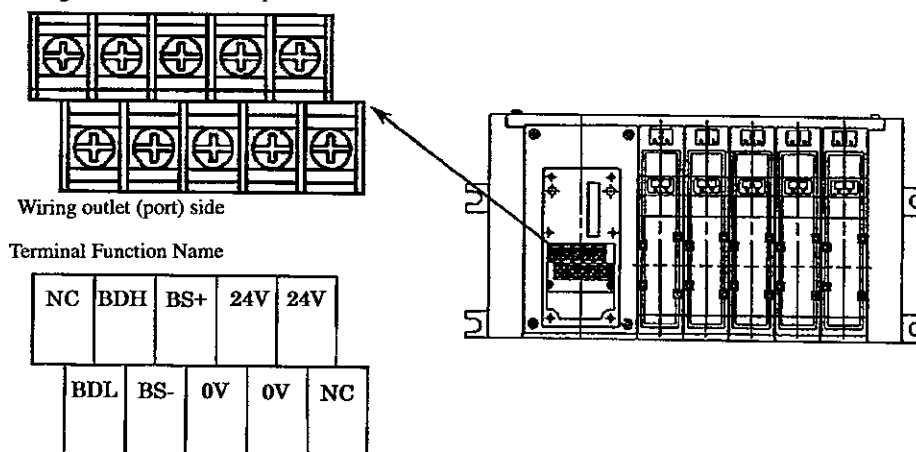


1.6 Mounting part of serial transmission unit block for valve

By removing four M4 screws of the OPP2-0C,1C serial transmission unit block for valve, the serial transmission unit block for valve can be detached right above. In attaching the serial transmission unit block for valve, ensure that the connector on the bottom surface of serial transmission unit block for valve is connected correctly with that in the mounting part of serial transmission unit block, and that no cable or the like is caught between the serial transmission unit block and mounting part, then tighten the screw. (Tightening torque: 0.5 to 0.7N·m) Avoid storing it with only the connector connected, prying and applying unrequired force; otherwise, the serial transmission unit block will fall off, and damage will be caused to the connector. Also, avoid storing the valve manifold with the serial transmission unit block removed; otherwise, some dust or dirt and foreign matter may intrude into the connector part and electrical connection part, resulting in shortcircuit and poor contact. Similarly, during wiring work, avoid touching the connector part and wiring board, and putting dust and foreign matter therein.

The mounting part of serial transmission unit block is as shown in the figure below.

Arrangement of Terminal Strip for Serial Transmission Unit Block



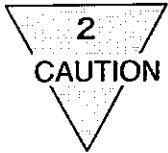
The terminal strip is provided in the serial transmission unit block mounting part. For connection wiring to the serial transmission unit block, this terminal strip is used. Each terminal function is printed and indicated on the mounting surface of serial transmission unit block for valve.

- Use a 6 mm or less wide crimp terminal for M3 and fix it to the tightening torque of 0.3 to 0.5N·m.
- Since this mounting part is an extremely important place, take special care so that no water, dust or dirt and foreign matter, etc. do not intrude therein.

Symbol	Function	Major objects to be connected
BD H BD L	Data terminal	To be connected to the communication terminals BD H and BD L of the master station or other slave station.
BS + BS - ※2	Power for Units	Apply source of power with less noise, such as DC24V ± 10%.
24V ※1 0V ※2	Power for valves	To be connected to the power supply (DV24V +10%, -5%) with less noise.
N · C	Not used	Do not use this terminal.

※1 24V terminals (two locations) on the upper stage are internally short-circuited. Additionally, 0V terminals (two locations) on the lower stage are also internally short-circuited. These terminals are used to supply the power to other I/O devices. However, note that the maximum allowable current to be flown into this slave station is 7A or less.

※2 Carefully carry out the wiring work while referring to the polarities of the power supply.



2. CAUTION

1) Output transmission delay time

The transmission delay time of the system may vary depending on the scanning time of the PLC main unit and/or devices connected to the master unit. For details, see the manuals for PLC main unit and master unit.

Solenoid valve responding time, of course, varies depending on model. It is advisable of referring to valve specification.

As for OFF time, there is another delay factor of approx. 20ms due to flywheel diode being used for surge absorbing circuit to valve slave station.

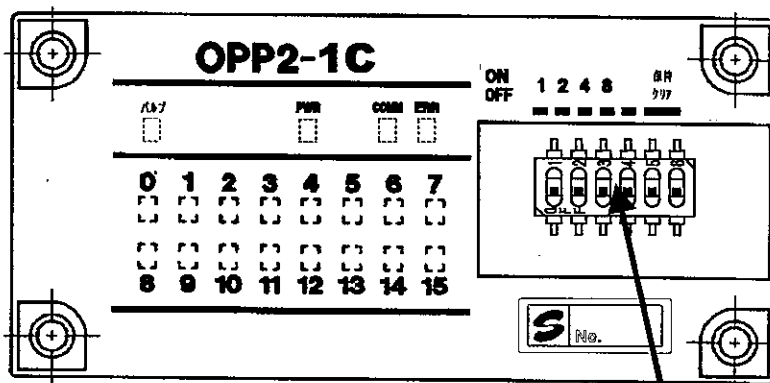
3. OPERATION

3.1 Switch Setting

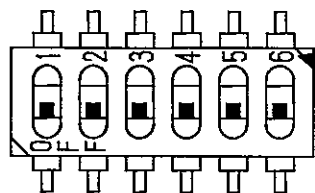
The setting switches are used to set two kinds of functions, node address and output mode if the communication error occurs.

Since different switches are used for different kinds of setup, you must correctly identify the switch to be used.

Before changing the switch positions, be sure to cut the power.



DIP switch for various



Switch No.

DIP SW for Setting



(1) Setting the node address (Switch No. 1 to 4)

The node address of the remote I/O terminal to be connected to the slave station for this valve and the same signal line can be set in a range of #0 to #15. However, the I/O allocation of the slave unit may vary depending on the type of PLC main unit to be used and values set on the master unit. (For details of I/O allocation, see the User's Manual for CompoBus/S prepared by Omron.) The following table shows the correspondence between the node address and switch on this slave station.

※ To set a node address, set it so that it is not duplicated with the node address of other slave station.

If the node address is duplicate, the correct communication cannot be performed.

Additionally, if the 4-point mode is set on the master unit for CQM1, OPP2-1C (occupation of 16 points) cannot be used. (OPP2-0C (occupation of 8 points) can be used.)

※ A node address is set using the switch No. 1 to 4 as shown in the following table.

Node address	Switch No.			
	1(1)	2(2)	3(4)	4(8)
0	○	○	○	○
1	●	○	○	○
2	○	●	○	○
3	●	●	○	○
4	○	○	●	○
5	●	○	●	○
6	○	●	●	○
7	●	●	●	○

Node address	Switch No.			
	1(1)	2(2)	3(4)	4(8)
8	○	○	○	●
9	●	○	○	●
10	○	●	○	●
11	●	●	○	●
12	○	○	●	●
13	●	○	●	●
14	○	●	●	●
15	●	●	●	●

● : Switch is ON. ○ : Switch is OFF.

Note) Value in () corresponds to each switch (case marking).

(2) Setting the output mode (Switch No. 6)

The output status if the communication error occurs is set as shown below.

Switch No.6	Output data setting
ON	Hold
OFF	Clear

※ DIP switch No. 5 for setting is not used.

3.2 Correspondence Among Channel Data, Serial Transmission Unit Block Output No. and Internal Connector

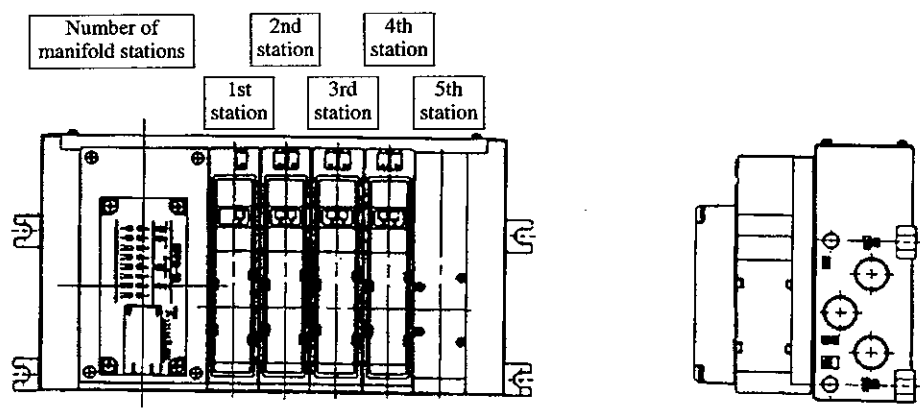
Channel internal data No., serial transmission unit block output No. and connector pin No. correspond to one another as follows.

Channel data	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Output No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Internal connector pin No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

OPP2-0C:0~7

3.3 Correspondence between output of serial transmission unit block for valve and valve solenoid

- 1) The correspondence between connector pin No. and manifold solenoid is shown in the table below.
- 2) The number of manifold stations is set sequentially from the left with the piping port toward the operator side regardless of the position on the piping block side.





Manifold Wiring Row

● Single solenoid valve:

	Connector Pin No.															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1st station	○															
2nd station		○														
3rd station			○													
4th station				○												
5th station					○											
6th station						○										
7th station							○									
8th station								○								
9th station									○							
10th station										○						
11th station											○					
12th station												○				
13th station													○			
14th station														○		
15th station															○	
16th station																○
Symbol	○ SOL. (a) side / ● SOL. (b) side															

(The maximum number of manifold stations available is 16.) ※OPP2-0C :The maximum number is 8

● Double solenoid valve:

	Connector Pin No.															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1st station	○	●														
2nd station			○	●												
3rd station					○	●										
4th station							○	●								
5th station									○	●						
6th station											○	●				
7th station													○	●		
8th station															○	●
9th station																
10th station																
11th station																
12th station																
13th station																
14th station																
15th station																
16th station																
Symbol	○ SOL. (a) side / ● SOL. (b) side															

(The maximum number of manifold stations available is 8.) ※OPP2-0C :The maximum number is 4

- Mixed solenoid valves – single & double:

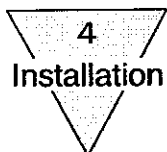
	Connector Pin No.															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1st station	○															
2nd station		○														
3rd station			○	●												
4th station					○	●										
5th station							○									
6th station								○								
7th station									○	●						
8th station											○					
9th station												○				
10th station													○	●		
11th station															○	●
12th station																
13th station																
14th station																
15th station																
16th station																
Symbol	○ SOL. (a) side / ● SOL. (b) side															

(The maximum number of solenoids available is 16.) ※OPP2-0C :The maximum number is 8

- 3) Since these valves are arranged and set in sequence, a vacant number may be produced in Output No. according to the number of manifold valve stations.
It is impossible to utilize the output not connected as a vacant number for drive of other equipment.

3.4 Programming

The programming of the slave station for this valve is made in the same manner as the remote terminal (output type) made by Omron. For details, see Omron's User's Manual.



4. INSTALLATION

4.1 Wiring Method

It is required to connect signal circuit with power line to make this model T6C0, T6C1 function. Erroneous connection causes not only malfunction but in some cases, vital transmission damage to this station including other related devices. Before starting the wiring work, see the manuals for Omron's programmable controllers SYSMAC α , C200HS, and CQM1 series, and CompoBus/S. Always carry out the wiring work in a correct manner.

1) Cable type and distance

The following shows the cable types and specifications.

Type	Specifications
VCTF cable (general purchase item)	Vinyl cable VCTF JIS C 3306 2-core nominal cross section: 0.75 mm^2 (Signal line $\times 2$) Resistance of conductor (at 20°C): $25.1 \Omega/\text{km}$
Special flat cable Model SCA1-4F10 (100m long)	Nominal cross section: $0.75 \text{ mm}^2 \times 4$ (signal line $\times 2$ and power line $\times 2$) Operating ambient temperature: 60°C or less

The following shows the distance of each communication cable.

Type	Length of main line	Length of branch line	Total length of branch lines
VCTF cable	100m or less	3m or less	50m or less
Special flat cable	30m or less	3m or less	30m or less

※ Even though the special flat cable is used, the length of the main line and the total length of branch lines are set to 100 m or less and 50 m or less, respectively if the number of connected slave stations is 16 or less
 Note) This slave station is not applicable to the long distance communication mode.

2) Connecting the communication cable to this slave station

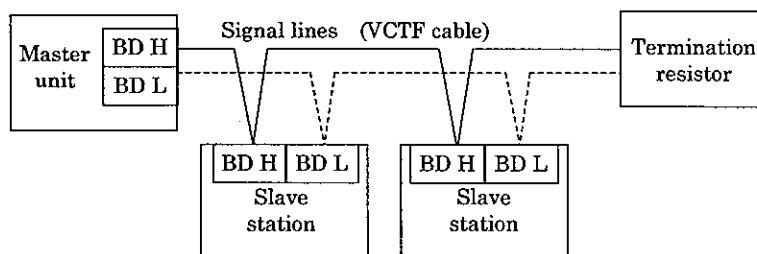
To connect the communication cable to this slave station, connect the BDH and BDL signal lines to the BDH and BDL terminals, respectively.

Additionally, to supply the unit power of the slave station, connect the BS+ (positive side of power) and BS- (negative side of power) lines to the BS+ and BS- terminals, respectively.

The following shows an example of connection to this slave station.

• VCTF cable

(a) Wiring the signal lines



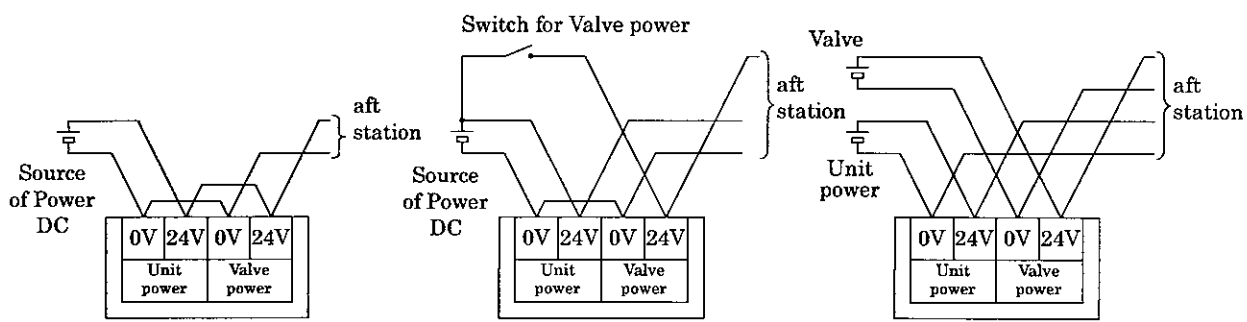
(b) Wiring the source of power

The power supply lines are connected by means of wiring method shown below.

① Common connection of Unit power and Valve power

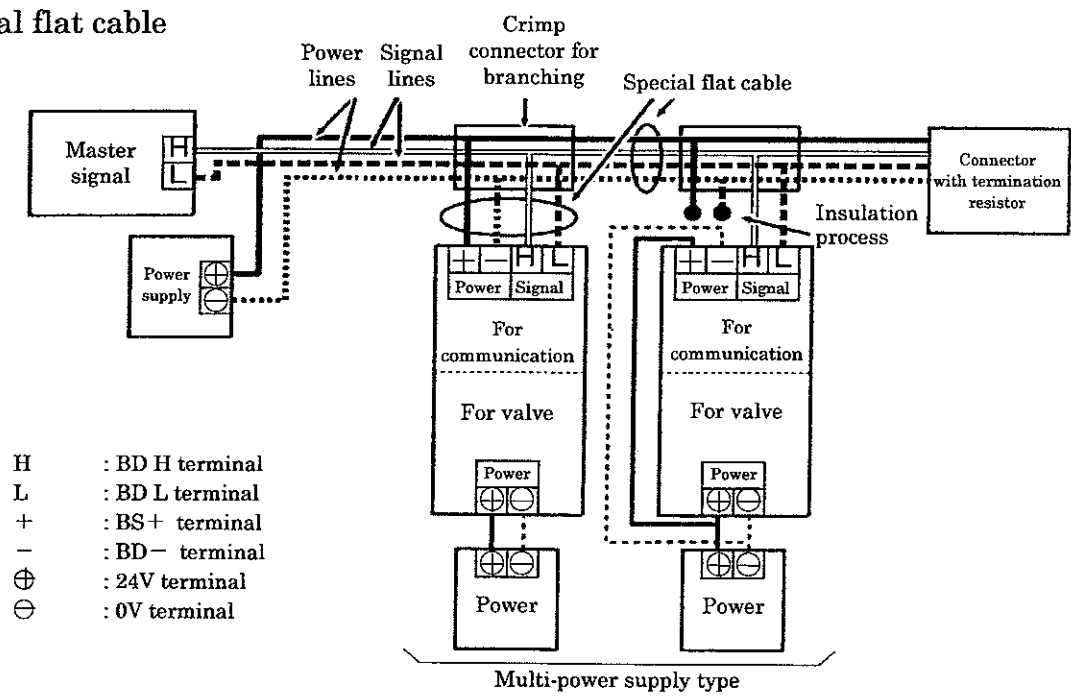
② Wiring to enable Valve power to be turned On · Off.

③ Separate connection Unit power with Valve power



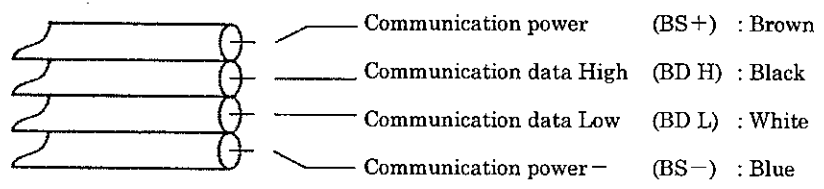
Note) When designing the system to supply power to duplex number of slave stations and remote I/O stations, choose and wire the source of power cord with a consideration of voltage drop. Secure ample voltage within rating by providing dual wiring, if necessary, to keep as small voltage loss of single system as possible or installing source of power near-by solenoid

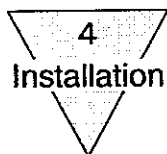
• Special flat cable



- H : BD H terminal
- L : BD L terminal
- + : BS+ terminal
- : BD- terminal
- ⊕ : 24V terminal
- ⊖ : 0V terminal

※ The signal lines of the special flat cable are determined as shown below.
 If the power is not supplied through this cable, the BS+ and BS- power lines need to be insulated.





5. MAINTENANCE

5.1 Troubleshooting

Troubleshooting should address the entire system rather than a particular slave station. The same LED indicators as those on the remote I/O terminal made by Omron are provided on the slave station for this valve. According to these indications and those on the master unit, the cause of the error is located and appropriate remedy is taken. When taking the remedial action, see Chapter 4, Maintenance, in Omron's User's Manual for CompoBus/S. Additionally, a valve LED specially designed for the slave station for the valve is also provided. If only this LED is off, check the voltage supplied to the valve and power cable connection.

Meanings of LED indicators

Indicator	Name	Color	Status	Meaning
PWR (POWER OUT)	Power	Green		Communication power is being supplied.
			●	Communication power is not turned ON.
COMM	Communication	Yellow		During normal communication
			●	Communication error occurs or system is in the standby mode.
ERR (BUS/S ERR)	Communication error	Red		Communication error occurs.
			●	During normal communication or system is in the standby mode.

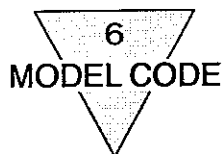
: Lit ● : Off

List of errors and alarms

Item	LED status			Cause of error	Remedy
	PWR	COMM	ERR		
Unit power OFF	●	●	●	Unit power is turned OFF.	Turn ON the unit power.
Area duplication	⊗	●	⊗	When the master unit for CQM1 is used and the number of occupied points per node address is set at the 4-point mode, the area is duplicated by slave stations. If this occurs, the communication is stopped.	Check the area of the 8-point slave station, where the error occurs. Eliminate the duplication with other slave station and turn ON the power to the master unit and PLC main unit.
Address over	⊗	⊗	●	When the master unit for CQM1 is used and the number of channels occupied by the PLC main unit is 2 or 4, a disable address is set in a node address of 0 to 7.	Check the LED indicator on the master unit and correct the node address to a level within the set range.
Out of node address range	⊗	●	●	When the master unit for CQM1 is used, a node address ranging from 8 to 15 is set.	Check the LED indicator on the master unit and correct the node address to a level within the set range.
Communication error	⊗	●	⊗	Communication error occurs in the slave station communicating the data, and then the communication fails.	Check the LED indicator on the master unit and remove the cause of the communication error.
Master power OFF	⊗	●	—	Master power is OFF.	Turn ON the master power.

: Lit
 ● : Off
 — : Unknown

The node address of the slave station where the error occurs is displayed in the status information (only master unit for C200HX/HG/HE and C200HS) or on the LED indicator of the master unit.

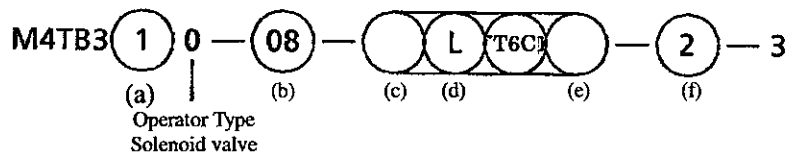


6. Model Coding

- Solenoid valve unit for manifold



- Block manifold



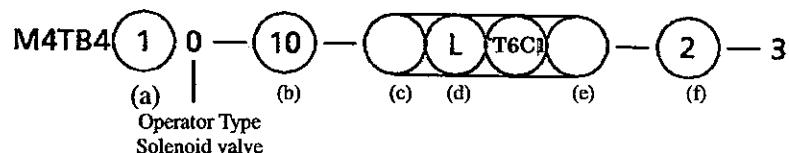
(a) Position type		(b) Connecting port diameter (size) (Cylinder port)		(c) Manual override	
Symbol	Contents	Symbol	Contents	Symbol	Contents
1	2-position single operator	08	Rc1/4	No code (marking)	Non-locking type manual override
2	2-position double operator	10	Rc3/8	M1	Locking type manual override (optional)
3	3-position all-port closed (blocked)	08Y	Rc1/4 (Bottom porting)		
4	3-position load ports open to exhaust ports (AB port connection)				
5	3-position load ports open to center port (PAB port connection)				
8	Mix manifold				

(d) Indication & protection circuit		(e) Other options		(f) Number of manifold solenoid valve stations	
Symbol	Contents	Symbol	Contents	Symbol	Contents
L	With lamp surge killer	No code	None	2	2 stations
No code	Without lamp surge killer	K	External pilot		
		P	Drip-proof		

- Solenoid valve unit for manifold



- Block manifold



(a) Position type		(b) Connecting port diameter (size) (Cylinder port)		(c) Manual override	
Symbol	Contents	Symbol	Contents	Symbol	Contents
1	2-position single operator	10	Rc3/8	No code (marking)	Non-locking type manual override
2	2-position double operator	15	Rc1/2	M1	Locking type manual override (optional)
3	3-position all-port closed (blocked)	10Y	Rc3/8 (Bottom porting)		
4	3-position load ports open to exhaust ports (AB port connection)				
5	3-position load ports open to center port (PAB port connection)				
8	Mix manifold				

(d) Indication & protection circuit		(e) Other options		(f) Number of manifold solenoid valve stations	
Symbol	Contents	Symbol	Contents	Symbol	Contents
L	With lamp surge killer	No code	None	2	2 stations
No code	Without lamp surge killer	K	External pilot		
		P	Drip-proof		