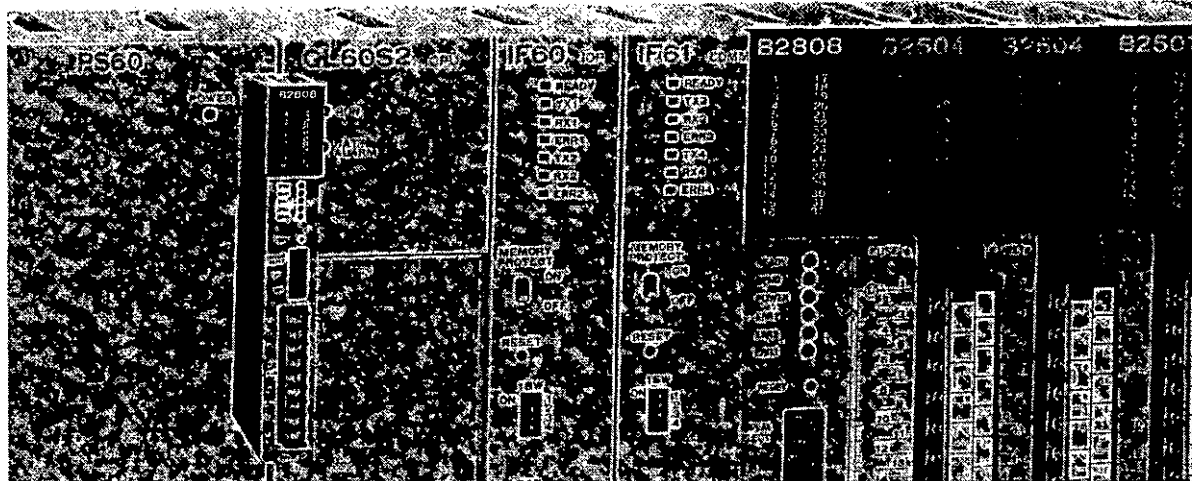# UNI-WIRE INTERFACE MODULE
DESCRIPTIVE INFORMATION

DISTRIBUTE I/O

MODEL: JAMSC-B2808, JAMSC-B2808-1
JAMSC-B2808-2, JAMSC-B2808T

YASKAWA

MANUAL CONTENTS

This manual describes wiring and cable selection of the UNI-WIRE Interface Module for the GL40S, GL60S, GL60H and GL70H PLCs.

Please read this manual carefully and be sure you understand the information provided before attempting to install or use the UNI-WIRE Interface Module.

NOTICE

The following conventions are used to indicate precautions in this manual. Failure to heed precautions provided in this manual can result in injury to people or damage to the products.

⚠ **WARNING** : Indicates precautions that, if not heeded could possibly result in loss of life or serious injury.

⚠ **CAUTION** : Indicates precautions that, if not heeded, could result in relatively serious or minor injury, damage to the product, or faulty operation.

CONTENTS

* UNI-WIRE system is an NKE CO., LTD. product.

I.1 OVERVIEW OF MANUAL

· This manual describes wiring and cable selection of the MEMOCON-SC GL40S, GL60S, GL60H, GL70H.

· Read this manual carefully in order to use the UNI-WIRE system properly. Also, keep it in a safe place so that it can be used whenever necessary.

· Refer to the following manuals as necessary.

		Manual Name	Manual Number	Content
CPU Module		MEMOCON-SC GL60S DESCRIPTIVE INFORMATION	SIE-C815-14.1	Describes system configuration devices and their functions, specifications, application methods, etc., for the MEMOCON-SC GL60S.
		MEMOCON-SC GL40S DESCRIPTIVE INFORMATION	SIE-C815-15.1	Describes system configuration devices and their functions, specifications, application methods, etc., for the MEMOCON-SC GL40S.
		MEMOCON-SC GL60H, GL70H DESCRIPTIVE INFORMATION	SIE-C815-17.1	Describes system configuration devices and their functions, specifications, application methods, etc., for the MEMOCON-SC GL60H/GL70H.
Man/ Machine Interface		MEMOCON-SC GL60S P150 PROGRAMMING PANEL DESCRIPTIVE INFORMATION	SIE-C815-14.2	Describes functions, specifications, application methods, etc., for the P150 PROGRAMMING PANEL.
		MEMOCON-SC GL60S, GL60H, GL70H P150 PROGRAMMING PANEL DESCRIPTIVE INFORMATION	SIE-C815-14.3	Describes the SFC functions, specifications, application methods, etc., for the P150 PROGRAMMING PANEL.
		MEMOCON-SC GL40S P150 PROGRAMMING PANEL DESCRIPTIVE INFORMATION	SIE-C815-15.2	Describes functions, specifications, application methods, etc., for the P150 PROGRAMMING PANEL.

· Thoroughly check the specifications and conditions or restrictions of the product before use.

I.2 PRECAUTIONS

This section outlines general precautions that apply to using this manual and the product. You must read this section before reading the remainder of this manual.

I.2.1 SAFETY PRECAUTIONS

- MEMOCON-SC was not designed or manufactured for use in devices or systems that concern people's lives. Users who intend to use the product described in this manual for special purposes such as devices or systems relating to transportation, medical, space aviation, atomic power control, or underwater use must contact Yaskawa Electric Corporation beforehand.

- This product has been manufactured under strict quality control guidelines. However, if this product is to be installed in any location in which a failure of MEMOCON-SC involves a life and death situation or in a facility where failure may cause a serious accident, safety devices must be installed to minimize the likelihood of any accident.

- Any illustrations, photographs, or examples used in this manual are provided as examples only and may not apply to all products to which this manual is applicable.

- The products and specifications described in this manual or the content and presentation of the manual may be changed without notice to improve the product and/or the manual. A new version of the manual will be re-released under a revised document number when any changes are made.

- Contact your Yaskawa representative or a Yaskawa office listed on the back of this manual to order a new manual whenever this manual is damaged or lost. Please provide the document number listed on the front cover of this manual when ordering.

- Contact your Yaskawa representative or a Yaskawa office listed on the back of this manual to order new nameplates whenever a nameplate becomes worn or damaged.

- Yaskawa cannot make any guarantee for products which have been modified. Yaskawa assumes no responsibility for any injury or damage caused by a modified product

I.2.2 INSTALLATION PRECAUTIONS

⚠ CAUTION

· The installation environment must meet the environmental conditions given in the product catalog and manuals.

Using the MEMOCON-SC in environments subject to high temperatures, high humidity, excessive dust, corrosive gases, vibration, or shock can lead to electric shock, fire, or faulty operation. Do not use the MEMOCON-SC in the following location.

· Locations subject to direct sunlight or ambient temperatures not between 0 and 55 ℃.

· Locations subject to relative humidity in excess of 95%, rapid changes in humidity, or condensation.

· Locations subject to corrosive or flammable gas.

· Locations that would subject the MEMOCON-SC to direct vibration or shock.

· Locations subject to contact with water, oil, chemicals, etc.

· Do not remove the cover of the connector where a module is not mounted.
Foreign matter can cause malfunction in the MEMOCON-SC.

· Be sure all screws are tight.
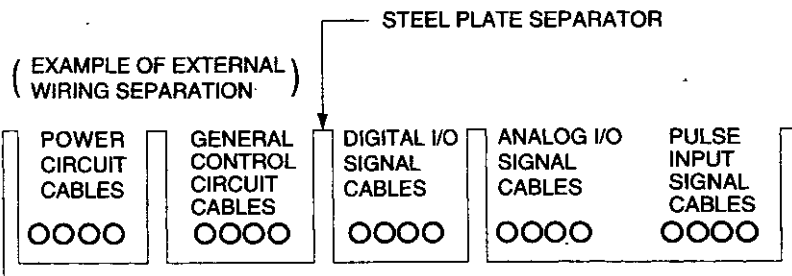Malfunctions may occur as a result of loose screws.

I.2.3 WIRING PRECAUTIONS

⚠ CAUTION

· Connect a power supply complying with the rated specifications.

A power supply that does not comply with the rating may cause a fire.

· Wiring must be performed by qualified personnel.

Mistakes in wiring can cause fires, product failure, or malfunctions.

· When wiring, do not allow foreign matters such as wire ship to enter the mounting base or the module.

Foreign matter can cause fires, product failure, or malfunctions.

· Separate wiring properly.

· I/O lines connecting external devices to the UNI-WIRE system must be selected based on the following considerations:

Mechanical strength, resistance to noise, wiring distance, signal voltage, etc.

⚠ CAUTION

· I/O lines must be separated from power lines both inside and outside of the control panel to minimize the affects of noise. Faulty operation may occur if I/O lines are not sufficiently separated from power lines.

┌─── STEEL PLATE SEPARATOR

(EXAMPLE OF EXTERNAL)
(WIRING SEPARATION)

| POWER CIRCUIT CABLES | GENERAL CONTROL CIRCUIT CABLES | DIGITAL I/O SIGNAL CABLES | ANALOG I/O SIGNAL CABLES | PULSE INPUT SIGNAL CABLES |
| OOOO | OOOO | OOOO | OOOO | OOOO |

I.2.4 APPLICATIONS PRECAUTIONS

⚠ CAUTION

· Operations such as RUN, STOP, program change and forced output must be carried out with care during operation.

Operational errors may damage the machine or cause accidents.

I.2.5 MAINTENANCE

⚠ CAUTION

· Do not attempt to disassemble or modify the Module or Mounting Base in any way.

Doing so can cause fires, product failure, or malfunctions.

I.3 USING THIS MANUAL

This manual is written for those who already have a basic knowledge of MEMO-CON-SC. We recommend reading the MEMOCON-SC GL40S, GL60S, GL60H, GL70H Descriptive Information before attempting to read this manual.

MEANING OF BASIC TERMS

In this manual, the following terms indicate the meanings as described below, unless otherwise specified.

- B2808, B2808-1   = UNI-WIRE Interface Module
  B2808-2, B2808T
- PLC = Programmable (Logic) Controller
- PP = Programming Panel
- GL40S, GL60S = MEMOCON-SC GL40S, GL60S, GL60H, GL70H
 GL60H, GL70H   Programmable Controllers

1 FEATURES AND SYSTEM CONFIGURATION

1.1 FEATURES

- B2808 can be easily connected with the UNI-WIRE system by a single 2-core cable.
- I/O service of up to 128 points is available.
- The maximum number of slave stations: 20 stations
- The maximum total expanding distance: 200 m/500 m.
- A system can be constructed at a low cost because of reduced of wiring.

1.2 SYSTEM CONFIGURATION

Fig. 1.1 shows a typical system configuration.
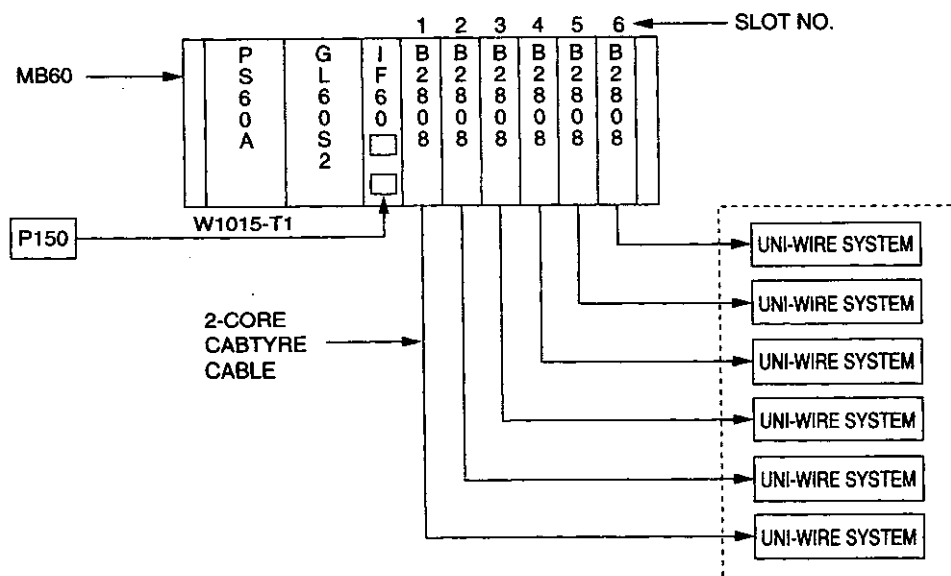
Name	Type	Remarks
UNI-WIRE Interface	JAMSC-B2808 , JAMSC-B2808-1 JAMSC-B2808-2 , JAMSC-B2808T	Inserted into 2000 series I/O slot. Note: B2808 is changed the model to B2808-1 or B2808-2.
UNI-WIRE System	(Refer to technical manual from NKE CO., LTD.)	To be supplied by Yaskawa Control.
CPU	DDSCR-GL20, GL40S, GL60S, GL60H, GL70H	
Main Power Supply	JRMSP-PS60	
Mounting Base	JRMSI-MB60	
Programming Panel	DISCT-P150-10	
Programming Panel Connection Cable	JZMSZ-W1015-T1	

Fig. 1.1 Typical System Configuration

2 SPECIFICATIONS

2.1 GENERAL SPECIFICATIONS

Table 2.1 General Specifications

Item	Specifications
Operating Ambient Temperature	0 to 55℃
Storage Temperature	-20 to 85℃
Humidity	30 to 95% RH (Non-condensing)
Vibration-resistance	Vibration range: 10 to 55 Hz Single amplitude: 0.075 mm Number of sweeps: 10 times
Shock-resistance	In compliance with JIS* C 0912
Environmental Condition	Free of flammable or corrosive gases

* Japanese Industrial Standard

2.2 PERFORMANCE SPECIFICATIONS

Table 2.2 Performance Specifications

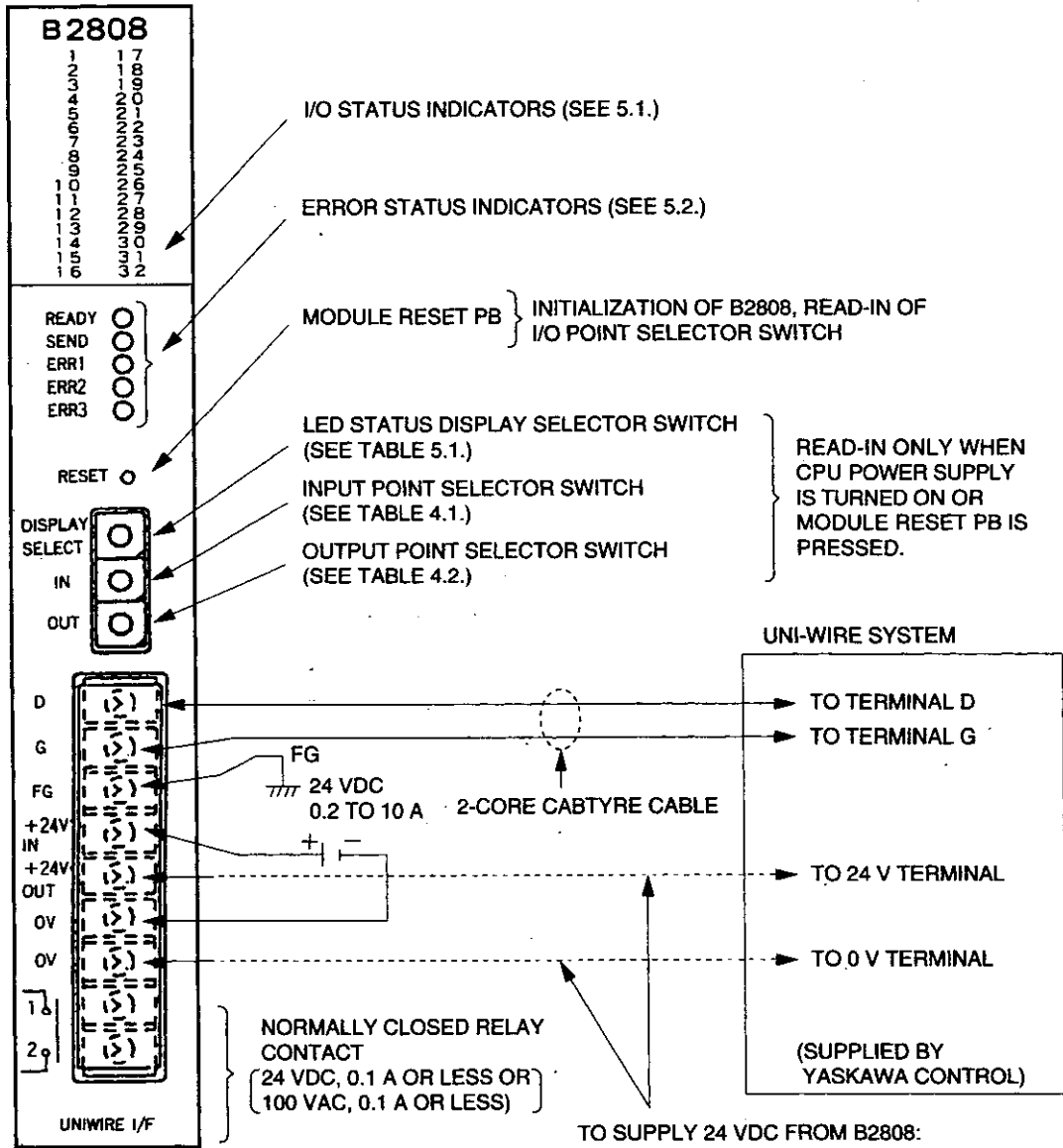| Item	Specifications			
Type	B2808	B2808-1	B2808-2	B2808T
Communication Mode	Bidirectional multi method time division			
Synchronization	Bit synchronous			
Transmission Procedure	UNI-WIRE protocol			
Transmission distance (Total Distance)	200 m/500 m (Switch selection)	200 m	500 m	500 m
Refresh Time	At 200 m transmission distance: Approx. 13 ms At 500 m transmission distance: Approx. 26 ms	Approx. 13 ms	Approx. 26 ms	Approx. 52 ms
	(double verification time on UNI-WIRE system)			
Transmission Speed	At 200 m transmission distance: 28.5 kbps At 500 m transmission distance: 14.3 kbps	28.5 kbps	14.3 kbps	14.3 kbps
Transmission Cable	Cabtyre cable of 0.5 mm² or more			
Number of Connectable Units	Maximum 20 units			Maximum 40 units
Maximum Transmission I/O Points	128 points	128 points	128 points	256 points
	(total value of bits for each of digital and register)			
Internal Current consumption	5 VDC, 0.3 A TYP			
External Power Supply	22.8 to 26.4 VDC, ripple 0.5 V P-P or less 0.2 A TYP (excluding power at UNI-WIRE system)			

NOTE
1 B2808 is changed the model to B2808-1 or B2808-2.
2 Transmission distance cannot be selected for B2808-1, 2 and T.

3 PART NAMES AND CONNECTIONS

Example using B2808 is shown below.

```
B2808
  1   17
  2   18
  3   19
  4   20
  5   21
  6   22
  7   23
  8   24
  9   25
 10   26
 11   27
 12   28
 13   29
 14   30
 15   31
 16   32

READY  O
SEND   O
ERR1   O
ERR2   O
ERR3   O

RESET  O

DISPLAY  [O]
SELECT
   IN    [O]
  OUT    [O]

D
G
FG
+24V
IN
+24V
OUT
0V
0V

UNIWIRE I/F
```

I/O STATUS INDICATORS (SEE 5.1.)

ERROR STATUS INDICATORS (SEE 5.2.)

MODULE RESET PB } INITIALIZATION OF B2808, READ-IN OF I/O POINT SELECTOR SWITCH

LED STATUS DISPLAY SELECTOR SWITCH (SEE TABLE 5.1.)

INPUT POINT SELECTOR SWITCH (SEE TABLE 4.1.)

OUTPUT POINT SELECTOR SWITCH (SEE TABLE 4.2.)

} READ-IN ONLY WHEN CPU POWER SUPPLY IS TURNED ON OR MODULE RESET PB IS PRESSED.

UNI-WIRE SYSTEM

TO TERMINAL D

TO TERMINAL G

FG

$\perp$ 24 VDC 0.2 TO 10 A   2-CORE CABTYRE CABLE

TO 24 V TERMINAL

TO 0 V TERMINAL

NORMALLY CLOSED RELAY CONTACT
[24 VDC, 0.1 A OR LESS OR]
[100 VAC, 0.1 A OR LESS)]

(SUPPLIED BY YASKAWA CONTROL)

TO SUPPLY 24 VDC FROM B2808:
[Pay attention to voltage drop at the ends when power]
supply cables extend over a long distance.
If voltage drop is out of the allowable range (22.8 VDC
[or less), DC power supply must be provided separately.]

4 HOW TO USE

4.1 B2808, -1, -2 USAGE

① Connect the B2808 with the UNI-WIRE system according to the procedures described in Chap. 6. For connection of UNI-WIRE system modules other than the AD-120, consult the UNI-WIRE SYSTEM TECHNICAL MANUAL from NKE CO., LTD.

② For I/O assignment to the CPU Module, at least one input register must be allocated in addition to the allocation for the UNI-WIRE system. The first input register allocated is used by the PC to monitor the status of the UNI-WIRE system. (See the NOTE in 4.2.)

③ Set the number of I/O points to be used by the UNI-WIRE system with the IN and OUT selector switches of the B2808 according to Tables 4.1 and 4.2. Always depress the reset button of the B2808 after making any changes to the I/O settings.

Table 4.1 Relation between Input Point Selector Switch and Input Points

Input Point Selector Switch	Number of Input Relays	Number of Register Sets (Points)
0	0	0
1	16	0
2	32	0
3	48	0
4	64	0
5	80	0
6	96	0
7	112	0
8	128	0
9	0	2 (32)
A	0	4 (64)
B	0	6 (96)
C	0	7 (112)
D	32	2 (32)
E	48	1 (16)
F*	Test mode (Prohibited)	

Table 4.2 Relation between Output Point Selector Switch and Output Points

Output Point Selector Switch	Number of Output Coils	Number of Register Sets (Points)
0	0	0
1	16	0
2	32	0
3	48	0
4	64	0
5	80	0
6	96	0
7	112	0
8	128	0
9	0	2 (32)
A	0	4 (64)
B	0	6 (96)
C	0	8 (128)
D	32	2 (32)
E	48	1 (16)
F*	Test mode (Prohibited)	

*Do not use this switch since it is for test mode only.

NOTE The total number of points selected by the IN and OUT selector switches can be no more than 128 points. I/O data is communicated in the order of input points, input registers, output points and output registers. I/O points exceeding 128 will be disregarded.

[Example] IN selector switch: 6 (96 input points)
OUT selector switch: 6 (96 output points)
96 + 96 = 192, therefore, 64 output points will be disregarded.

4.2 I/O ALLOCATION AND SIGNAL PROCESSING ON UNI-WIRE SYSTEM

The following describes I/O allocation to GL60S CPU, typical setting of I/O point selector switches in B2808 and signal processing.

[Example]

- I/O allocation to GL60S CPU
  Input relay: 32 points (10001 to 10032)
  Input register: 3 sets (30001* to 30003)
  Output coil: 32 points (1 to 32)
  Output register: 2 sets (40001 to 40002)

  Total 128 points
  * The beginning of input registers (30001) is not added to the total I/O points since it is used for status information.
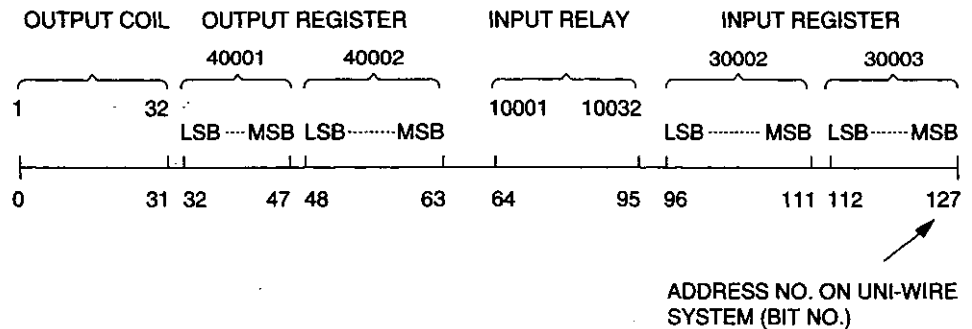
- Setting of I/O point selector switches in B2808 (See Tables 4.1 and 4.2.)
  * Input point selector switch: D (input relay) 32 points, input register 2 sets)
    Output point selector switch: D (output coil 32 points, output register 2 sets)

  Total 128 points

  * For allocation to CPU, one extra input register is added for status information. However, for selection at the UNI-WIRE system, select the required number of I/O points by the switch.
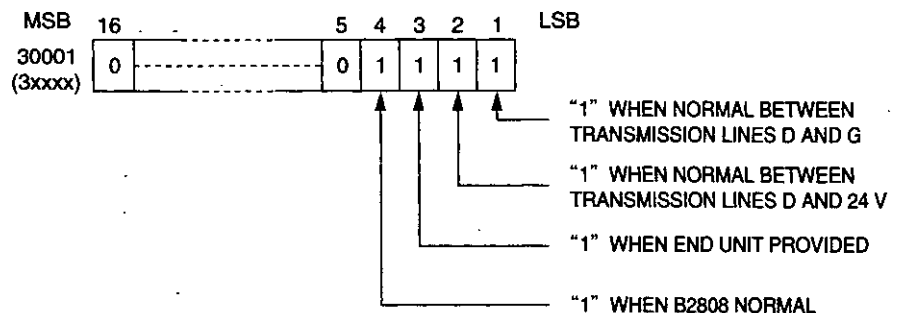
In the UNI-WIRE system, 128 points of signals (addresses 0 to 127) are always sent to output coils, output registers, input relays and input registers in this order from the starting number.
The registers are sent to the LSB side first.

| OUTPUT COIL	OUTPUT REGISTER		INPUT RELAY	INPUT REGISTER	
	40001	40002		30002	30003
1 32	LSB ---- MSB	LSB ------- MSB	10001 10032	LSB ------- MSB	LSB ------ MSB
0 31	32 47	48 63	64 95	96 111	112 127

ADDRESS NO. ON UNI-WIRE SYSTEM (BIT NO.)

NOTE The status information of UNI-WIRE system can be monitored by the lower 4 bits at the beginning of the input register. (30001 in the above figure.)

MSB	16		5	4	3	2	1	LSB
30001 (3xxxx)	0	----	0	1	1	1	1	

"1" WHEN NORMAL BETWEEN TRANSMISSION LINES D AND G

"1" WHEN NORMAL BETWEEN TRANSMISSION LINES D AND 24 V

"1" WHEN END UNIT PROVIDED

"1" WHEN B2808 NORMAL

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## 4.3 B2808 SETTING AND TYPICAL SETTING ON UNI-WIRE SYSTEM

[Example] · Setting of B2808-1 I/O point selector switches

> Input point selector switch 4 (input relay 64 points)
>
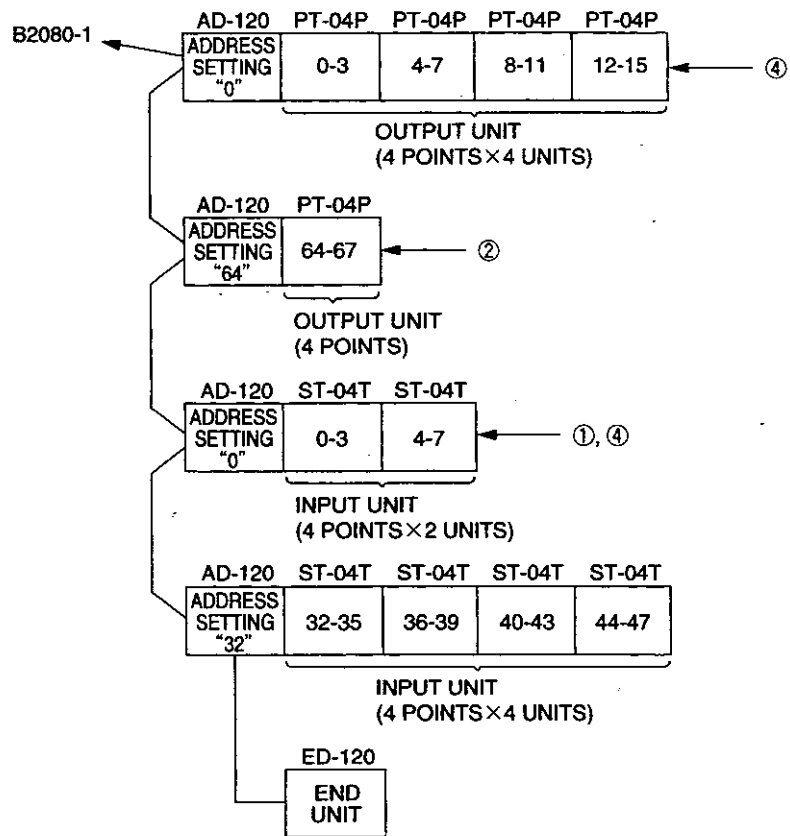> Output point selector switch 4 (output coil 64 points)


```
0        31 32        63 64      95 96          127 ◄──── ADDRESS NO. (BIT NO.)
└──────────┴─┴──────────┴─┴───────┴─┴────────────┘       ON UNI-WIRE SYSTEM
   ╰────────────────────╯   ╰─────────────────────╯
   OUTPUT COIL 64 POINTS     INPUT RELAY 64 POINTS
```
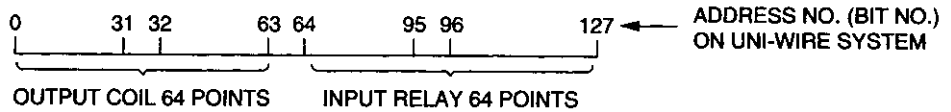
Output coils occupy 64 points in the order from the smallest address number, and input relays occupy the remaining.

[Typical setting and installation in UNI-WIRE system (At 200 m transmission distance (B2808-1))]
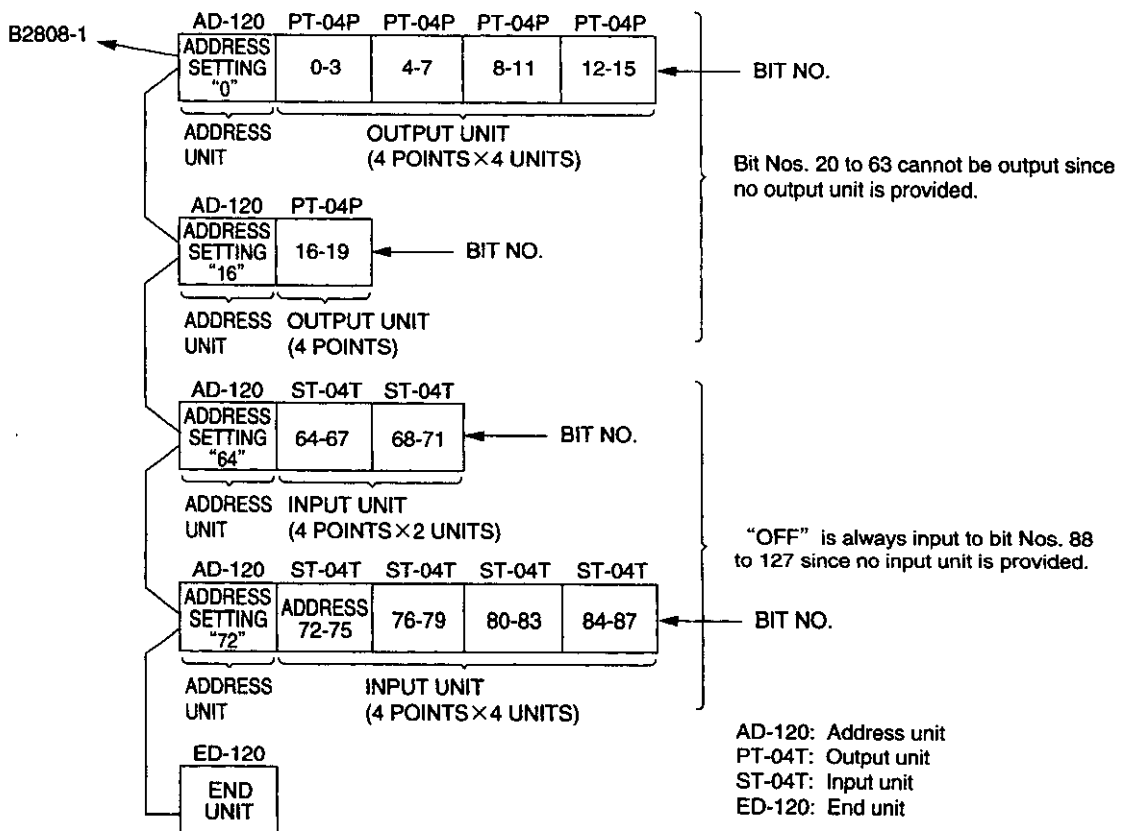
NOTE
1 Do not overlap the bit No. on the UNI-WIRE system as shown in the example (poor example) on the next page.
2 When transmission distance is 500 m (B2808-2), a 500 m compatible UNI-WIRE system must also be used.

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[Poor Example] (Setting of B2808-1 I/O point selector switches is to be the same as that in 4.3.)

B2080-1

	AD-120	PT-04P	PT-04P	PT-04P	PT-04P
	ADDRESS SETTING "0"	0-3	4-7	8-11	12-15	← ④

OUTPUT UNIT
(4 POINTS×4 UNITS)

	AD-120	PT-04P
	ADDRESS SETTING "64"	64-67	← ②

OUTPUT UNIT
(4 POINTS)

	AD-120	ST-04T	ST-04T
	ADDRESS SETTING "0"	0-3	4-7	← ①, ④

INPUT UNIT
(4 POINTS×2 UNITS)

	AD-120	ST-04T	ST-04T	ST-04T	ST-04T
	ADDRESS SETTING "32"	32-35	36-39	40-43	44-47

INPUT UNIT
(4 POINTS×4 UNITS)

	ED-120
	END UNIT

NOTE For address setting, pay special attention to the following points.

① Do not install the UNI-WIRE system input unit on the address to which output is assigned by B2808-1 I/O point selector switches. (If both input and output are installed on the same address by mistake, both the input and output signal are output.)

② Do not install the UNI-WIRE system output unit on the address to which input is assigned by B2808-1 I/O point selector switches. (Installing it means inputting the OFF signal.)

③ If more than one input unit is installed with the same bit number, the signals are overlapped.

④ Do not install an input unit and output unit with the same bit number. Otherwise, the data cannot be input or output correctly. (In this case, inputting and outputting signal contents are the same as those of ① and ②.)

⑤ If more than one output unit is installed with the same bit number, the same signal is output.

4.4 B2808T USAGE

B2808T usage is basically the same as B2808-1, 2 usages. The following describes different items between them.

(1) Each type of terminals and modules for use with the UNI-WIRE system are specified as M (transmission distance 500 m, 256 point for exclusive use). For further details, contact your Yaskawa Control representative.

(2) Setting of I/O Point Selector Switches

Set I/O point selector switch according to UNI-WIRE output and input points.

Table 4.3 Functions of I/O Point Selector Switches

I/O Point Selector Switch	Number of Input Relays	Number of Input Register Sets	Number of Output Coils	Number of Output Register Sets
0	128	7	16	0
1	128	6	32	0
2	128	4	64	0
3	128	2	96	0
4	128	0	128	0
5	96	0	128	2
6	64	0	128	4
7	32	0	128	6
8 to E	0	0	128	8
*F	Test mode (Prohibited)			

NOTE *Do not use this switch since it is for test mode only.

(3) Setting of Transmission Mode Selector Switches

Set the transmission mode selector switch according to CPU module models. When using the MEMOCON-SC GL60 series, set it to "0".

Table 4.4 Functions of Transmission Selector Switches

| Transmission Mode Selector Switch	Transmission Specifications	Applicable CPU Modules
0	500 m	
1	(Disabled)	GL40S
2	(Disabled)	GL60S
3	(Disabled)	GL60H
4 to 7	500 m Same as "0" select	GL70H
8	500 m	
9	(Disabled)	
A	(Disabled)	
B	(Disabled)	CP3300
C to E	500 m Same as "8" select	
*F	Test mode (Prohibited)	

NOTE *Do not use this switch since it is for test mode only.

(4) I/O Allocation and Signal Processing on UNI-WIRE System

(a) B2808T can send a maximum of 256 points for input or output. Input and output registers are used for the input relays and output coils exceeding 128 points.

Because the input relay signal and input register signal sequence (LSB and MSB) are in reverse order, be careful when using a ladder program to input a signal to the input register.

In the same way, because the output coil signal and output register signal sequence (LSB and MSB) are also in reverse order, be careful when converting the output coil to the output register.
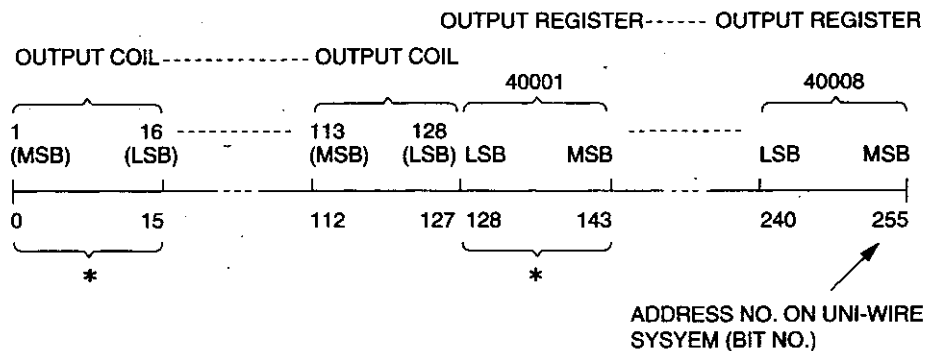
NOTE * The output coil signal sequence (LSB and MSB) and output register signal sequence (LSB and MSB) are in reverse order.

(b) When using output coils 1 to 256 in UNI-WIRE system, output coils 129 to 256 are used for the output register. If a ladder program is not created, signal sequence (LSB and MSB) as shown in the above chart will be in reverse order. Typical ladder program corresponding output coils 1 to 256 to address 0 to 255 in UNI-WIRE system is shown below.
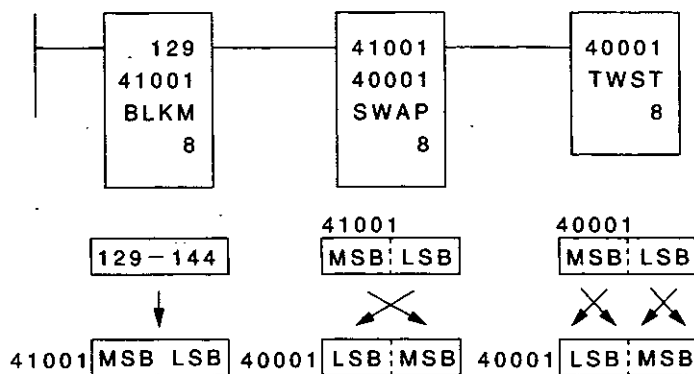
UNI-WIRE system handles addresses 0 to 127 without creating ladder program for output coils 1 to 128. After replacing output coils 129 to 256 in a holding register, bits are laid out in a row. Outputting output coils 129 to 256 after this procedure restores them to the same order as signal sequence (LSB and MSB) as output coils 1 to 128.

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5 STATUS DISPLAY·TRANSMISSION DISTANCE

5.1 I/O STATUS DISPLAY SELECTION · TRANSMISSION DISTANCE SELECTION

According to Tables 5.1, 5.2 and 5.3, set the bit No. to be indicated in the I/O status indicators by using the LED status display selector switch.

Table 5.1 Status Display Selector Switch Functions (for B2808)

Setting of LED Status Display Selector Switch	I/O Status Indicators	Transmission Distance
0	Status of bit Nos. 0 to 31 are indicated in 1 to 32.	200 m
1	Status of bit Nos. 32 to 63 are indicated in 1 to 32.	200 m
2	Status of bit Nos. 64 to 95 are indicated in 1 to 32.	200 m
3	Status of bit Nos. 96 to 127 are indicated in 1 to 32.	200 m
4	Status of bit Nos. 0 to 31 are indicated in 1 to 32.	500 m
5	Status of bit Nos. 32 to 63 are indicated in 1 to 32.	500 m
6	Status of bit Nos. 64 to 95 are indicated in 1 to 32.	500 m
7	Status of bit Nos. 96 to 127 are indicated in 1 to 32.	500 m
8 ⋮ F	Do not use since these are in the test mode.	

NOTE Read-in the transmission distance switching only when CPU supply is turned ON or module reset PB is depressed. Do not use selector switches "8 to F" since they are for test mode only.

Table 5.2 Status Display Selector Switch Functions (for B2808-1, -2)

Setting of LED Status Display Selector Switch	I/O Status Indicators
0	Status of bit Nos. 0 to 31 are indicated in 1 to 32.
1	Status of bit Nos. 32 to 63 are indicated in 1 to 32.
2	Status of bit Nos. 64 to 95 are indicated in 1 to 32.
3	Status of bit Nos. 96 to 127 are indicated in 1 to 32.
4	Status of bit Nos. 0 to 31 are indicated in 1 to 32.
5	Status of bit Nos. 32 to 63 are indicated in 1 to 32.
6	Status of bit Nos. 64 to 95 are indicated in 1 to 32.
7	Status of bit Nos. 96 to 127 are indicated in 1 to 32.
8 ⋮ F	Do not use since these are in the test mode.

NOTE Do not use selector switches "8 to F" since they are for test mode only.

Table 5.3 Status Display Selector Switch Functions (for B2808T)

Setting of LED Status Display Selector Switch	I/O Status Indicators
0	Status of bit Nos. 0 to 31 are indicated in 1 to 32.
1	Status of bit Nos. 32 to 63 are indicated in 1 to 32.
2	Status of bit Nos. 64 to 95 are indicated in 1 to 32.
3	Status of bit Nos. 96 to 127 are indicated in 1 to 32.
4	Status of bit Nos. 128 to 159 are indicated in 1 to 32.
5	Status of bit Nos. 160 to 191 are indicated in 1 to 32.
6	Status of bit Nos. 192 to 223 are indicated in 1 to 32.
7	Status of bit Nos. 224 to 255 are indicated in 1 to 32.
8 ⋮ F	Do not use since these are in the test mode.

NOTE Do not use selector switches "8 to F" since they are for test mode only.
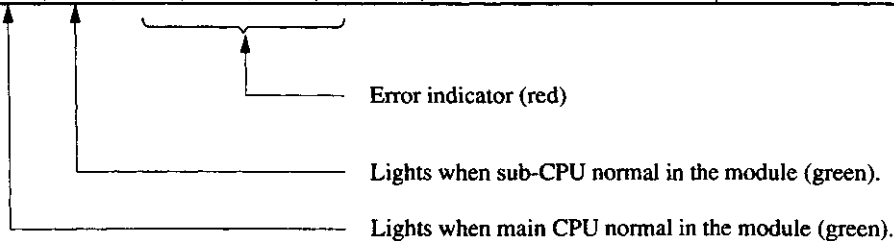
5.2 LED DISPLAY AT FAULT OCCURRENCE

The fault error contents are indicated by LEDs of READY, SEND, ERR 1, 2 and 3.

Table 5.4 Error Display

◐: Blinks, ○: Lights, ×: Extinguished

	LED Indicating Status					Starting Input Register Lower 4 Bits	Fault Contents	Corrective Action	Relay Contact	I/O Service on UNI-WIRE System	Input Data to PC
	READY	SEND	ERR1	ERR2	ERR3						
At Normal Operation	○	○	×	×	×	1111			Closed		
①	◐	×	×	×	×	0000	Main CPU ROM/RAM fault diagnosis	Replace the module.		"0" is output	
②	×	○	×	○	×	0000	Main CPU watchdog timer fault	Replace the module.			
③	×	×	◐	×	×	0000	Sub-CPU ROM fault diagnosis	Replace the module.	Open	Trans-mission stops	OFF
④	×	×	×	◐	×	0000	Sub-CPU RAM fault diagnosis	Replace the module.			
⑤	×	×	×	×	×	0000	Sub-CPU watchdog timer fault	Replace the module.			
⑥	○	○	×	×	×	(1111)	CPU RUN stop	Run the CPU by PP.	Closed		
⑦	×	○	×	×	×	0111	Main CPU communication error	Replace the module.			
⑧	○	○	×	×	◐	0111	Sub-CPU communication error	Replace the module.		"0" is output	OFF
⑨	○	○	○	×	×	1110	Shortcircuit between UNI-WIRE D and G	Recheck the wiring. Automatic recovery.			
⑩	○	◐	○	×	○	1010	Shortcircuit between UNI-WIRE D and G. Reverse connection between D and G	Recheck the wiring. Automatic recovery.	Open		
⑪	○	○	○	○	○	1010	Shortcircuit between UNI-WIRE D and G. Reverse connection between D and G.	Recheck the wiring. Automatic recovery.			
⑫	○	○	○	○	○	1011	Reverse connection between D and G.	Recheck the wiring. Automatic recovery.			

Error indicator (red)

Lights when sub-CPU normal in the module (green).
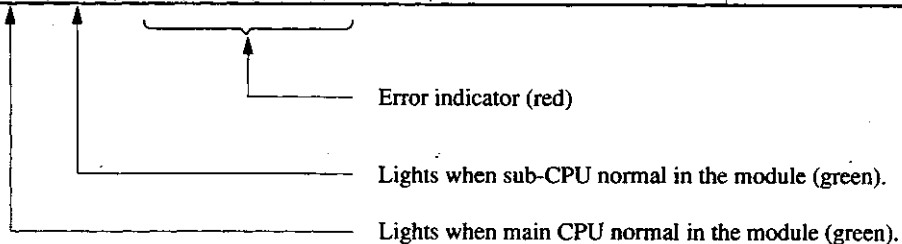
Lights when main CPU normal in the module (green).

NOTE
1 The status information of the UNI-WIRE system can be monitored by the input register lower 4 bits. (See the NOTE in 4.2.)
2 In order to prevent improper output by communication error, build a safe circuit such as cutting the UNI-WIRE system output module power supply line by using B2808 relay contacts.

Table 5.4 Error Display (Cont'd)

◐: Blinks, ○: Lights, ×: Extinguished

	LED Indicating Status					Starting Input Register Lower 4 Bits	Fault Contents	Corrective Action	Relay Contact	I/O Service on UNI-WIRE System	Input Data to PC
	READY	SEND	ERR1	ERR2	ERR3						
⑬	○	-○	×	○	×	1101	Shortcircuit between uni-wire D and 24 V. 24 VDC power not supplied.	Recheck the wiring. Automatic recovery. Recheck 24 VDC power supply.	Open	"0" is output	OFF
⑭	○	○	×	○	○	1011	Shortcircuit between UNI-WIRE D and G. Shortcircuit between UNI-WIRE D and 24 V. End unit fault. Reverse connection between D and G. D line disconnect.	Recheck the wiring. Automatic recovery.			
⑮	○	○	×	○	○	1001	Shortcircuit between UNI-WIRE D and 24 V 24 VDC power not supplied	Recheck the wiring. Automatic recovery. Recheck 24 VDC power supply.			
⑯	○	○	×	×	○	1011	Shortcircuit between UNI-WIRE D and G. Shortcircuit between UNI-wire D and 24 V. End unit fault. Reverse connection between D and G. D line disconnect.	Recheck the wiring Automatic recovery.			

———— Error indicator (red)

———— Lights when sub-CPU normal in the module (green).

———— Lights when main CPU normal in the module (green).

NOTE

1 The status information of the UNI-WIRE system can be monitored by the input register lower 4 bits. (See the NOTE in 4.2.)

2 In order to prevent improper output by communication error, build a safe circuit such as cutting the UNI-WIRE system output module power supply line by using B2808 relay contacts.

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6 TYPICAL CONNECTIONS (B2808-1)
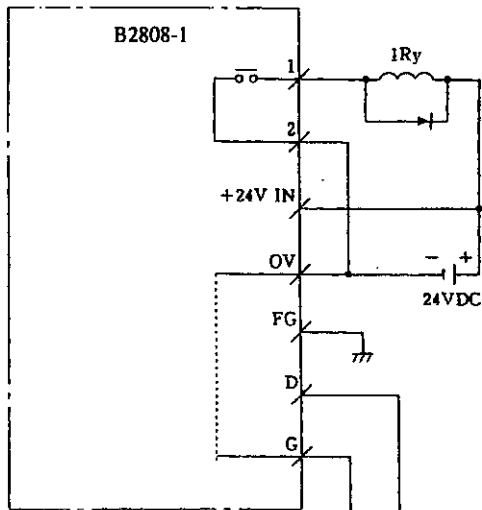
Precautions on handling

1. Use a 24 VDC regulated power supply (22.8 to 26.4 VDC) with UNI-WIRE system devices.

2. Separate communication and I/O cables from high voltage or power lines as much as possible in order to protect the system from electrical interference.

3. +24 V-0 V is used for power supply and D-G is used for the serial communication between devices. Use one cabtyre cable per UNI-WIRE system. Do not combine several systems on one multi-conductor cable.
Communications errors may occur due to cross talk.

4. The total distance between units is up to 200 m. When the load capacity (consumed power) of sensors, lamps and coils connected to the UNI-WIRE system modules becomes too large, voltage drop of the power supply line (+24 V-0 V) can become large enough to cause the sensors, coils and modules to malfunction. In this case, provide power at the modules and connect between the modules with only 2 conductor cable for D and G.
The total distance from the module to last UNI-WIRE system module may be up to 200 m with a maximum number of 20 connected units (AD-120). 2 conductor cable of 0.5 mm² or more should be used.
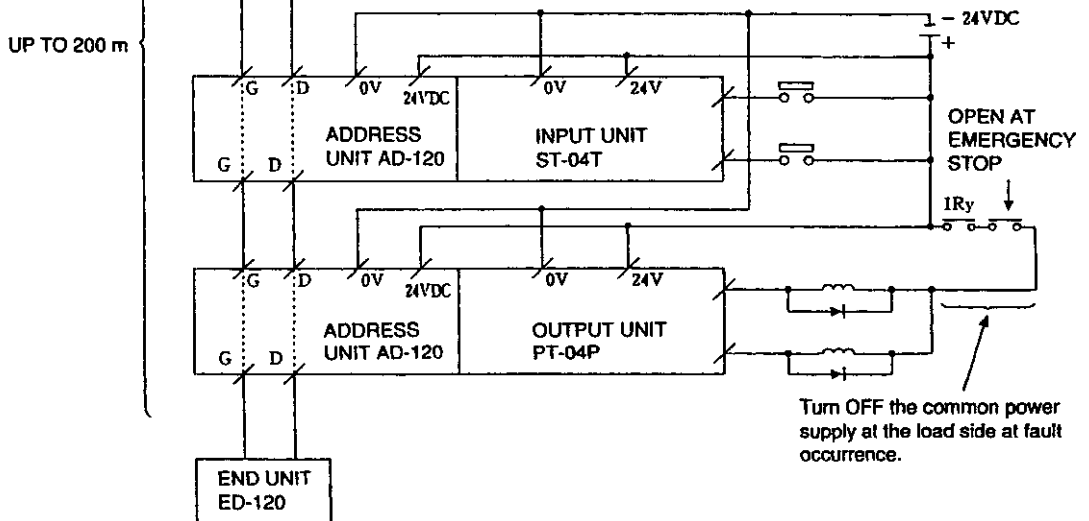
NOTE When transmission distance is 500 m (B2808-2), a 500 m compatible UNI-WIRE system must also be used.

7 TYPICAL SYSTEM CONFIGURATION

The following describes the typical system configuration using UNI-WIRE Interface Module B2808-1.

(1) Communication Contents

Use the UNI-WIRE Interface Module B2808-1 to perform the following communications.

- Digital output: 32 points
- Register (numerical value) output: 2 sets
- Digital input: 32 points
- Register (numerical value) input: 2 sets

(2) Allocation to CPU Module

Reference number allocated to CPU module is as follows:

- Digital output: 00001 32 points
- Register (numerical value) output: 40001 2 sets
- Digital input: 10001 32 points
- Register (numerical value) input: 30001 3 sets

> **NOTE** Add 1-set to register input set numbers for UNI-WIRE system. UNI-WIRE system status information is stored in the leading register.

(3) Allocation to B2808-1

Selector switch settings for UNI-WIRE Interface Module B2808-1 I/O points are shown below.

- Output point selector switch setting: D (digital 32 points, register 2 sets)
- Input point selector switch setting: D (digital 32 points, register 2 sets)

(4) UNI-WIRE System Settings

Typical UNI-WIRE system setting is shown in Fig. 7.1.

(5) UNI-WIRE System Configuration

Typical UNI-WIRE system configuration model as described above is shown in Fig. 7.2.
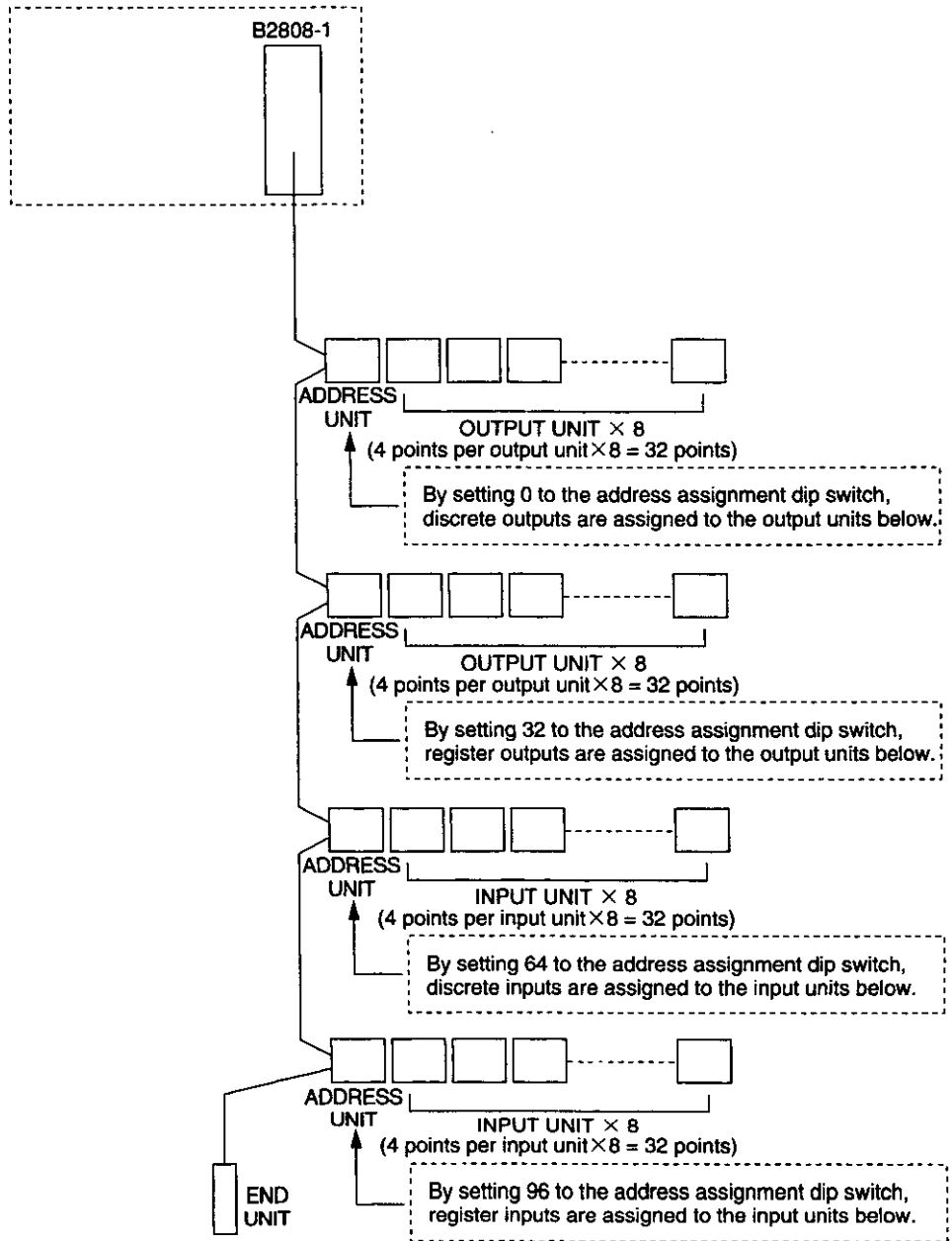
M-SC GL60 SERIES (APPICABLE REMOTE I/O SECTION)

Fig. 7.1 Typical UNI-WIRE System Setting

B2808-1

ADDRESS UNIT
AD-120

POWER TERMINAL UNIT
IN UNITS OF 4 POINTS
- PT-04T (24 VDC, 50 mA/point, transistor output)
- PT-04P (24 VDC, 200 mA/point, transistor output with shortcircuit protection)
- PT-04R (24 VDC, 200 VAC, 2 A/point, relay output)
- PT-04S (100 VAC, 0.5 A/point, triac output)

TERMINAL CABLE (fixed length, 24 VDC, 2 A, max.) TC-05

OR ADDRESS INCORPORATED
POWER TERMINAL UNIT
- PTA-08T (24 VDC, output, 200 mA/point, 8 points)
- PTA-16T (24 VDC, output, 200 mA/point, 16 points)

UNI-WIRE MANIFOLD MAGNETIC VALVE

ADDRESS UNIT
AD-120

SENSOR
TERMINAL UNIT
4-POINT UNIT
- ST-04T (24 VDC input)
- ST-04A10 (100 VAC input)

TERMINAL CABLE (fixed length, 24 VDC, 2 A max.)

OR ADDRESS INCORPORATED
SENSOR TERMINAL UNIT
- STA-08T (24 VDC, input, 8 points)
- STA-16T (24 VDC, input, 16 points)

END UNIT
(for terminal processing)
ED-120

MAXIMUM DISTANCE: 200 m

Fig. 7.2 Typical UNI-WIRE System Configuration

(6) Cautions for UNI-WIRE System Configuration

Observe the following cautions when using the UNI-WIRE Interface Module B2808-1 for UNI-WIRE system construction.

① Distance between units when using the B2808-01 should be 200 m.

② When the load capacity (consumed power) of sensors, coils and lamps connected with I/O units becomes too large, voltage drop of the power supply line (+24 V-0 V) will become large enough to cause malfunction of the UNI-WIRE system. In this case, provide power (22.8 to 26.4 VDC) at the modules.

③ Even when not using the input register, enter 1 input register set to the CPUmodule. UNI-WIRE system status information is stored in the head input register.

NOTE When transmitting distance is 500 m, the following construction equipment must be used.
UNI-WIRE Interface Module: JAMSC-B2808-2, JAMSC-B2808T
UNI-WIRE System Configuration Equipment:
500 m compatible UNI-WIRE System Configuration Equipment

8 DIMENSIONS in mm (inches)

(1) JAMSC-B2808, -1, -2

When using B2808-1,
"B2808-1" is marked.
When using B2808-2,
"B2808-2" is marked.

B2808

1	17
2	18
3	19
4	20
5	21
6	22
7	23
8	24
9	25
10	26
11	27
12	28
13	29
14	30
15	31
16	32

STATUS INDICATORS

READY
SEND
ERR1
ERR2
ERR3

MODULE RESET PB

LED STATUS INDICATOR
SELECTOR SWITCH

RESET

INPUT POINT SELECTOR
SWITCH

DISPLAY
SELECT

OUTPUT POINT SELECTOR
SWITCH

IN

OUT

D
G
FG
+24V IN
+24V OUT
OV
OV
T1
2

M3.5

UNIWIRE I/F

60 (2.36)

250 (9.84)

190 (7.48)

37.3 (1.47)

A

2-M4 MODULE
MTG SCREWS

VIEW A

5 (0.20)

79 (3.11)

13 (0.51)

92 (3.70)

APPROX. MASS: 0.4 kg (0.88 ℓ b)

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(2) JAMSC-B2808T

B2808T

STATUS INDICATORS

READY
SEND
ERR1
ERR2
ERR3

MODULE RESET PB

LED STATUS INDICATOR
SELECTOR SWITCH

RESET O

I/O POINT SELECTOR
SWITCH

DISPLAY
SELECT

IN/OUT

MODE

TRANSMISSION MODE
SELECTOR SWITCH

D
G
FG
+24V IN
+24V OUT
OV
OV
1
2

M3.5

2-M4 MODULE
MTG SCREWS

UNIWIRE I/F

VIEW A

60 (2.36)

250 (9.84)

190 (7.48)

37.3 (1.47)

A

5 (0.20) 79 (3.11) 13 (0.51)

92 (3.70)

APPROX. MASS: 0.4 kg (0.88 ℓ b)

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UNI-WIRE INTERFACE MODULE
DESCRIPTIVE INFORMATION

YASKAWA ELECTRIC CORPORATION

YASKAWA

Specifications are subject to change without notice
for ongoing product modifications and improvements.