

PROFIBUS Communication Converter **Communication Data List**
COM-JG [For FB100/FB400/FB900] **Data List**

All Rights Reserved, Copyright © 2005, RKC INSTRUMENT INC.

IMR01Y18-E4

This manual describes the communication data of the COM-JG. For the installation, the detail handling procedures and various function settings, please read if necessary the following separate manuals.

- COM-JG [For FB100/FB400/FB900] Installation Manual (IMR01Y03-E□): Enclosed with COM-JG
- COM-JG [For FB100/FB400/FB900] Quick Instruction Manual (IMR01Y13-E□): Enclosed with COM-JG
- COM-JG [For FB100/FB400/FB900] Instruction Manual (IMR01Y08-E□): Separate (Download free or purchase hard copy)

These manuals can be downloaded from our website:
 URL: http://www.rkcinst.com/english/manual_load.htm

1. COMMUNICATION DATA

Describes data to use by PROFIBUS communication.

■ Data access types

- Static data read/write
- Dynamic data read/write
- Error state register
- Write permission register

■ Communication data length

Up to 170 bytes including both read and write data.

- Static data request
 The maximum number of communication items which can be specified:
 40 items (Read items + Write items)

The communication items which can be specified:
 Data of the 2. COMMUNICATION DATA MAP

- Dynamic data request
 The communication items which can be requested:
 Data of the 2. COMMUNICATION DATA MAP

The number of communication items becomes as follows depending on the number of connecting controllers.

Number of static data × Number of connection controller × 2 + Number of dynamic data × 6 + 4 ≤ 170

| Number of connection controllers | Number of static data |
|----------------------------------|---|
| 1 controller | Up to 40 items including both read and write items. |
| 16 controllers | Up to 5 items including both read and write items. |
| 31 controllers | Up to 2 items including both read and write items. |

■ Static data request

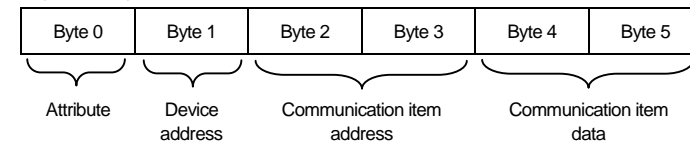
- Static data is that which is always read/written from/to the PROFIBUS master such as the PLC. The data item is selected by the configuration tool such as the PLC.
- As the Modbus register address is directly specified, data items of all the controllers connected to the COM-JG can be selected.
- When static data is requested, 1-word (2-bytes) data is used for both read and write.

■ Dynamic data request

- Dynamic data is that which is freely read/written from/to the PROFIBUS master such as the PLC. The data item is freely selected by the sequence program.
- As the Modbus register address is directly specified, data items of all the controllers connected to the COM-JG can be selected.
- When dynamic data is requested, 3-word (6-bytes) data is used for both read and write.

- Send register to the COM-JG

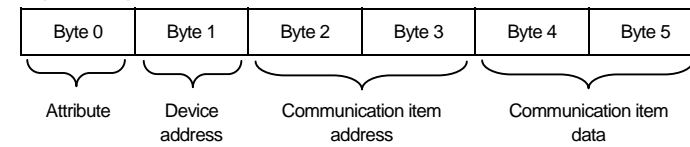
Register configuration:



| Byte position | Content | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|--|--------|--|-------|-------|-------|-------|-------|-------|--|--|--------|--|--|--|--|--|--|--|--|-------------------------------|--|--|--|--|
| 0 | Attribute: <table border="1"> <tr> <td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td>Bit 4</td><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td> </tr> <tr> <td></td><td></td><td>Unused</td><td>0: Send data is valid 1: Send data is invalid</td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>0: Data read 1: Data write</td><td></td><td></td><td></td><td></td> </tr> </table> | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | | | Unused | 0: Send data is valid 1: Send data is invalid | | | | | | | | 0: Data read 1: Data write | | | | |
| Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | | | | | | | | | | | | | | | | | | |
| | | Unused | 0: Send data is valid 1: Send data is invalid | | | | | | | | | | | | | | | | | | | | | | |
| | | | 0: Data read 1: Data write | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Device address: Specify an accessing device address of controller. Data range: 0 to 99 ("0" at Modbus is invalid) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2, 3 | Communication item address: The communication item address of controller, to/from which data is written/read is specified. | | | | | | | | | | | | | | | | | | | | | | | | |
| 4, 5 | Communication item data: Write data of a communication item. For data read, data is ignored. | | | | | | | | | | | | | | | | | | | | | | | | |

- Receive register from the COM-JG

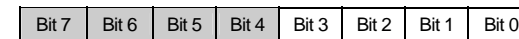
Register configuration:



| Byte position | Content | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|--|--------|---|-------|-------|-------|-------|-------|-------|--|--|--------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-------------------------------|--|--|--|--|
| 0 | Attribute: <table border="1"> <tr> <td>Bit 7</td><td>Bit 6</td><td>Bit 5</td><td>Bit 4</td><td>Bit 3</td><td>Bit 2</td><td>Bit 1</td><td>Bit 0</td> </tr> <tr> <td></td><td></td><td>Unused</td><td>0: Controller data updated 1: Controller data non-update</td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>0: Send data is valid 1: Send data is invalid</td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td>0: Data read 1: Data write</td><td></td><td></td><td></td><td></td> </tr> </table> | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | | | Unused | 0: Controller data updated 1: Controller data non-update | | | | | | | | 0: Send data is valid 1: Send data is invalid | | | | | | | | 0: Data read 1: Data write | | | | |
| Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Unused | 0: Controller data updated 1: Controller data non-update | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 0: Send data is valid 1: Send data is invalid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 0: Data read 1: Data write | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Device address: The specified controller device address is returned. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2, 3 | Communication item address: The communication item address of controller, to/from which data is written/read is returned. However, if any communication item address out of the data range or of unused item is specified, "FFFFH" is returned. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4, 5 | Communication item data: The current value of relevant communication item is stored. When the data is written, there is a delay in rewriting the data in this register as the COM-JG updates the register after rereading the data on the controller. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

■ Error state register

Bit configuration:



| Bit position | Content |
|--------------|--|
| 0 | Instrument error: 0: No instrument error 1: Instrument error In case of the following either, become an error. <ul style="list-style-type: none"> • None of the controllers is connected. • COM-JG is hardware abnormally. |
| 1 | Time-out error: 0: No time-out error 1: Time-out error Successive communication time-out occurring twice in the same controller after PROFIBUS is initialized causes a time-out error. Communication continues even during the time-out error and recovers with no time-out error when the communication returns to normal. Time-out time: 3 seconds |
| 2 | Controller communication valid/invalid: 0: Controller communication is valid 1: Controller communication is invalid Interlocked with dip switch No. 7 at the side of the controller. |
| 3 | Controller communication initialization: 0: Completed initialization of controller communication 1: During initialization of controller communication Indicates the controller communication initialized state when the power is turned on and at this state invalidates the data on each communication item. |
| 4 to 7 | Unused |

■ Write permission register

Register to control data write permission/not permission.

00h: Not permission

0Fh: Permission

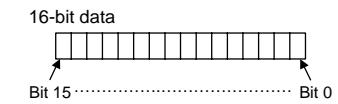
The operation of writing a hexadecimal value of "0FH" to the write permission register is necessary for both static and dynamic data requests.

2. COMMUNICATION DATA MAP

The communication data map shows data which can be used for communication between the PLC and COM-JG.



- Modbus register address
 HEX: Hexadecimal DEC: Decimal
- Attribute
 RO: Only reading data is possible.
 R/W: Reading and writing data is possible.
- Data



■ Communication data

| No. | Name | Modbus register address | | Attribute | Data range | Factory set value |
|-----|--|-------------------------|-----|-----------|---|-------------------|
| | | HEX | DEC | | | |
| 1 | Measured value (PV) | 0000 | 0 | RO | Input scale low to Input scale high | — |
| 2 | Current transformer 1 (CT1) input value monitor | 0001 | 1 | RO | CTL-6-P-N: 0.0 to 30.0A | — |
| 3 | Current transformer 2 (CT2) input value monitor | 0002 | 2 | RO | CTL-12-S56-10L-N: 0.0 to 100.0 A | — |
| 4 | Set value (SV) monitor | 0003 | 3 | RO | Setting limiter low to Setting limiter high | — |
| 5 | Remote setting (RS) input value monitor | 0004 | 4 | RO | Setting limiter low to Setting limiter high | — |
| 6 | Burnout state monitor | 0005 | 5 | RO | 0: OFF 1: ON | — |
| 7 | Burnout state monitor of feedback resistance input | 0006 | 6 | RO | 0: OFF 1: ON | — |
| 8 | Event 1 state monitor | 0007 | 7 | RO | 0: OFF | — |
| 9 | Event 2 state monitor | 0008 | 8 | RO | 1: ON | — |
| 10 | Event 3 state monitor | 0009 | 9 | RO | | — |
| 11 | Event 4 state monitor | 000A | 10 | RO | | — |
| 12 | Heater break alarm 1 (HBA1) state monitor | 000B | 11 | RO | 0: OFF 1: ON | — |
| 13 | Heater break alarm 2 (HBA2) state monitor | 000C | 12 | RO | | — |
| 14 | Manipulated output value (MV1) monitor [heat-side] | 000D | 13 | RO | PID control or Heat/Cool PID control: -5.0 to +105.0 % Position proportioning control with feedback resistance (FBR) input: 0.0 to 100.0 % | — |
| 15 | Manipulated output value (MV2) monitor [cool-side] | 000E | 14 | RO | -5.0 to +105.0 % | — |
| 16 | Error code | 000F | 15 | RO | Bit data Bit 0: Adjustment data error Bit 1: Back-up error Bit 2: A/D conversion error Bit 3 to Bit 4: Unused Bit 5: Custom data error Bit 6: Unused Bit 7: Watchdog timer error Bit 8: Stack overflow Bit 9 to Bit 10: Unused Bit 11: Program error (busy) Bit 12 to Bit 15: Unused Data 0: OFF 1: ON [Decimal number: 0 to 4095] | — |
| 17 | Digital input (DI) state monitor | 0010 | 16 | RO | Bit data Bit 0: DI1 Bit 1: DI2 Bit 2: DI3 Bit 3: DI4 Bit 4: DI5 Bit 5: DI6 ¹ Bit 6: DI7 ¹ Bit 7 to Bit 15: Unused Data 0: Contact open 1: Contact closed [Decimal number: 0 to 127] | — |

¹ Unused on the FB100.

