

***Minebea***

**CC-Link**

***GRAPHIC DIGITAL INDICATOR***

***CC-Link Interface***

***CSD-912-73***

# **Instruction Manual**

**MINEBEA Co., Ltd.**  
Measuring Components Business Unit

EN294-1424

## FOREWORD

Thank you very much for your purchasing Minebea's Graphic Digital Indicator, model CSD-912-73.

This manual explains the handling procedures and the notes when it would be used. Make use of it properly after reading through the manual carefully.

Be sure to deliver the manual to the end user. Moreover, the end user should keep the manual at hand after reading it over.

This manual is intended for the technical experts to read. When you read this instruction manual, the program basic knowledge of Mitsubishi general-purpose sequencer and the CC-Link interface are needed.

### Marks and arrangements used in this manual

The following marks are attached to the explanation on the matters that indicate "Don't do this.", "Take care" and "For reference".

Be sure to read these items where these marks are attached.



#### Warning

Warning may cause injury or accident that may harm to the operator.  
Don't do these things described here.



#### Caution

It is a description when the occurrence only of assumption of danger by which the user owes injury when handling is mistaken, and material damage is assumed.



Caution during operation and working.  
Be sure to read the item to prevent malfunction.

## **About the view of this book**

This instruction manual explains the connection method and use of the CC-Link interface specification of the option for CSD-912 are explained. Please see the CSD-912 instruction manual about other main body functions and a basic method of handling and notes.

CSD-912 instruction manual (DRW No. EN294-1404\*)

Moreover, please refer to the instruction manual of sequencer and its CC-Link interface for the sequencer program and CC-Link.

- CC-Link is an abbreviation of “Control & Communication Link”

**Divisional history**

Date	Instruction manual No.	Details of revised point
2011/02	DRW. NO.EN294-1424	First Version

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## 1. General

This unit is a remote device station of CC-Link Ver.1.10.

This unit can be connected with the mastering station of CC-Link Ver.1.10.

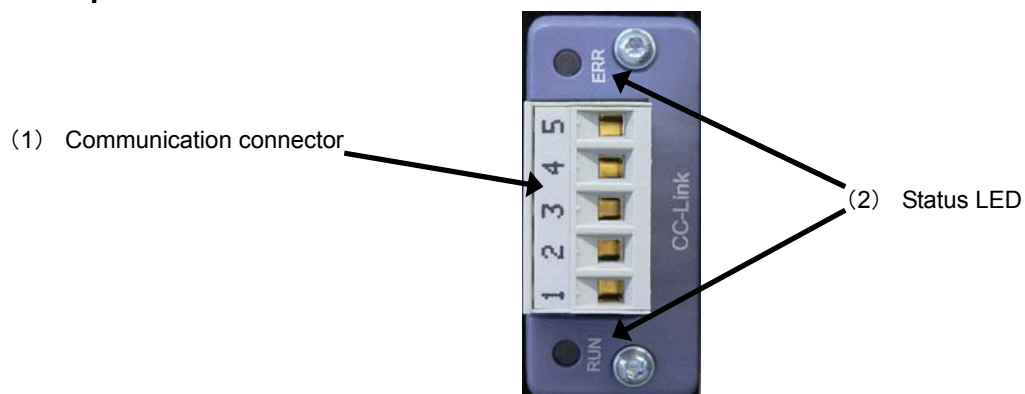
### 1-1.Features

Main features for CSD-912-73 are as follows:

- (1) This unit can be controlled by using remote I/O and register of the sequencer, so the program volume of the sequencer can be reduced.
- (2) The wiring with the sequencer can be reduced.

## 2. Name and function of each point

### 2-1.Rear panel for CC-Link I/F



#### (1) Communication connector

Connector type terminal block for CC-Link interface.

Connector pin configuration for communication is as follows

5	FG	Pin No.	Signal name	Contents
4	SLD	1	DA	Signal line DA side
3	DG	2	DB	Signal line DB side
2	DB	3	DG	Signal line ground
1	DA	4	SLD	Shield
		5	FG	Frame ground

※ Suitable plug : MSTB 2,5-ST-5,08 ABGY AU by PHOENIX CONTACT. ※to be attached.

※ "SLD" and "FG" are connected inside.

※ The internal circuit and photo coupler are insulated.

#### (2) Status LED

The communication status is expressed with two LED.

Status	RUN	ERR
Light off	—	Normal
Green LED Light on	Normal	—
Red LED Light on	Hardware error	Hardware error
Red LED Light on/off	—	CRC error

### 3. Connecting method

#### 3-1.Connector pin configuration for communication

Refer to 2-1. Rear panel for CC-Link I/F (1), Connector for communication.

#### 3-2.Notes of Connection

- When the wiring, be sure to the instrument power supply is OFF.
- Do not supply the AC power until complete the installation. This instrument does not have power switch (ON/OFF).
- Do not fell or make a strong impact on this instrument rear panel terminal block because it is made of resin.
- Striped electrical cable tip length is 6 mm.
- The tightening torque of terminal screws on the terminal block is 0.5~0.6 N·m.
- Cables which connecting this instrument isolate from noise sources, for example, power supply line and I/O for control's as much as possible.
- Be sure to connect the ground wire must be D single ground. Do not common the ground with a kind of power supply.
- For CC-Link cable connection, use twist pear cable wire with shield (Cable for CC-link) and connect the shield in terminal block's SLD terminal or F.G.terminal.



- **Connect the termination to the CC-Link connector to electrical termination which is far from PLC as possible.**
- **Use the connecting cable for CC-Link.**
- **Refer to the “Construction and specification of network system” from the latest version of CC-Link Cable Wiring Manual published by CC-Link Partner Association about communication speed and cable length**

## 4. Setting of CC-Link connecting

Please set the following when you use CC-LINK interface.

### 4-1. Changeover of CC-Link communication setting change screen

Change from the standard measurement mode to the function mode by the following operations.

- 1) Touch the  key.
- 2) Touch the  key.
- 3) Touch the  key.
- 4) Touch the  setting key.

### 4-2. Items of CC-Link setting

- (1) The number of occupied stations.  
Number of occupied stations is set.  
Selectable from [1 station], [2stations], [4 stations].  
Default has set as [4 stations].



- Setting changes for occupied stations No. is corresponding to this software after ROM Ver.1.300. Before ROM Ver.1.200 is 4 station occupied station No.

- (2) Setting of the stations

Execute the setting of the station No.

When 1 station is occupied : selectable from station No.01 to 64.

When 2 stations are occupied : selectable from station No.01 to 63

When 4 stations are occupied : selectable from station No.01 to 61.

The occupied station of this instrument is 1., 2, 4 stations.

※When 2 stations are occupied, and station No. is set as "01", 01 to 02 stations are occupied.

※When 4 stations are occupied, and station No. is set as "01", 01 to 04 stations are occupied.

Therefore, the station number must not overlap.

Default has selected [01].

- (3) Setting of baud rate

Communication speed (unit: bps) is set.

Selectable from [156k], [625k], [2.5M], [5M] or [10M].

Default has set as [156k].

(4) Data display method of 32 bit

32 bits data indication method is set.

Selectable from [Expression of standard binary] or [Sign in MSB].

Default has set as [Expression of standard binary].

Load value	32 bits data expression method	Upper 16 bit	Lower 16 bit
-1	Expression of standard binary	FFFFH	FFFFH
	Sign in MSB	8000H	0001H
-10	Expression of standard binary	FFFFH	FFF6H
	Sign in MSB	8000H	000AH
-99999	Expression of standard binary	FFFEH	7961H
	Sign in MSB	8001H	869FH



- Setting value becomes effective at restarting the power supply. Please restart the power supply after the changes.

## 5. PLC memory explanation

### 5-1.Address

A remote I/O(RX/RY:Bit handling register) and a remote register(RWw/RWr:Word handling register) secures the zone in the master station depends on the occupied station number. As shown in the table below in case of this unit.

Type		Occupied station number			Remarks
		4 stations occupied	2 stations occupied	1 station occupied	
Remote input		128points	64points	32points	I/O for each 16 points is occupied as a system area.
Remote output		128points	64points	32points	
Remote register	Master→Remote	16points	8points	4points	
	Remote→Master	16points	8points	4points	

The address number of the remote station allocated to the mastering station is as shown in the table below.

Station No.	Remote input	Remote output	Remote register		Remarks
			Master→Remote	Remote→Master	
0	-----	-----	-----	-----	Specify the master station
1	RX0000	RY0000	RWw0000	RWr0000	
2	RX0020	RY0020	RWw0004	RWr0004	
3	RX0040	RY0040	RWw0008	RWr0008	
~	~	~	~	~	
10	RX0120	RY0120	RWw0024	RWr0024	
~	~	~	~	~	
64	RX07E0	RY07E0	RWw00FC	RWr00FC	

## 5-2.Address map

### 5-2-1.Data detail

#### 1) Batch/Discharge mode Remote register

4 stations occupied (Master→Instrument)			
Station	Remote register	Contents	Remarks
1	RWwn	①Final (24 bit)	Special data area
	RWwn+1	①Brand number (8bit)	
	RWwn+2	①Preliminary 2 (32 bit)	
	RWwn+3		
2	RWwn+4	①Preliminary 1 (16 bit)	
	RWwn+5	①Free Fall (16 bit)	
	RWwn+6	①Over (16 bit)	
	RWwn+7	①Under (16 bit)	
3	RWwn+8	①Full (32 bit)	
	RWwn+9		
	RWwn+A	①Near zero (32 bit)	
	RWwn+B		
4	RWwn+C	②General data area	
	RWwn+D		
	RWwn+E	③Command No. (Return)	
	RWwn+F	④Operating mode (Return)	

n : Value decided by setting of station No.

2 stations occupied (Master→Instrument)			
Station	Remote register	Contents	Remarks
1	RWwn	①Final (24 bit)	Special data area
	RWwn+1	①Brand number (8bit)	
	RWwn+2	Undefined (16 bit)	
	RWwn+3	①Free Fall (16 bit)	
2	RWwn+4	②General data area	
	RWwn+5		
	RWwn+6	③Command No. (Return)	
	RWwn+7	④Operating mode (Return)	

n : Value decided by setting of station No.

1 station occupied (Master→Instrument)			
Station	Remote register	Contents	Remarks
1	RWwn	Undefined	
	RWwn+1		
	RWwn+2		
	RWwn+3		

n : Value decided by setting of station No.

① Special data area (4 stations, 2 stations)

When the set value is registered by using the set value writing request (request 1), the set value is set in each area.

Details of each set value are shown as follows;

	Data type	Setting range
Final	32 bit binary with sign	0 ~ 999999
Brand number (8bit)	8 bit binary with sign	0 ~ 99
Preliminary 2	32 bit binary with sign	0 ~ 999999
Preliminary 1	16 bit binary with sign	0 ~ 32767
Free Fall	16 bit binary with sign	-32768 ~ 32767
Over	16 bit binary with sign	0 ~ 32767
Under	16 bit binary with sign	0 ~ 32767
Full	32 bit binary with sign	0 ~ 999999
Near zero	32 bit binary with sign	0 ~ 999999

② General data area (4 stations, 2 stations)

When the command order is executed by using the general command request (request 2), the set value or the operating order code is set in this area.

Data type : 32 bit binary with sign  
Setting range : Depends on the set value.

③ Command No. (4 stations, 2 stations)

When the command order is executed by using the general command request (request 2), the command No. is set in this area.

The content of the general data area is set depending on the command set in this area.

Data type : 8 bit binary  
Setting range : 0 ~ 255

④ Operation mode (4 stations, 2 stations)

When the operation mode is changed by using the operation mode changeover request (request 3), the mode number is set in this area.

This function is prepared for future expansion.

Data type : 8 bit binary  
Setting range : 0 ~ 255

2) Command list

The command No. and the value which is set in General data area when the command order is executed by using the general command request (request 2) are shown in the next page.

Writing set value and command order (Writing/reading selection = Writing [OFF])

Setting value or command order	Command No. (RWwnE)	General data area (RWwnC~RWwnD)
Brand name 1 (The first ~4 <sup>th</sup> character)	1	Katakana, alphabet, and numeric values of 15 characters
Brand name 2(The 5 <sup>th</sup> ~8 <sup>th</sup> character)	2	
Brand name 3(The 9 <sup>th</sup> ~12 <sup>th</sup> character)	3	
Brand name 4(The 13 <sup>th</sup> ~15 <sup>th</sup> character)	4	
Hopper number	5	0~99
Final /S1	6	0~999999/-999999~999999
Free fall /S4	7	0~999999/-999999~999999
Preliminary 1 /S3	8	0~999999/-999999~999999
Preliminary 2 /S2	9	0~999999/-999999~999999
Over	10	0~999999
Under	11	0~999999
Near zero	12	0~999999
Full	13	0~999999
Preset Tare	14	0~999999
Supplementary time	15	0~9999
Waiting time for judge after supplementary flow	16	0~9999
Automatic free fall compensation	17	0~999999
Initial full flow	18	0~999999
Initial medium flow	19	0~999999
Target of S1 operation	60	1:GROSS , 2:NET
Target of S2 operation	61	1:GROSS , 2:NET
Target of S3 operation	62	1:GROSS , 2:NET
Target of S4 operation	63	1:GROSS , 2:NET
Undefined	64	
S1 operation	65	1:MORE THAN, 2: LESS THAN
S2 operation	66	1:MORE THAN, 2: LESS THAN
S3 operation	67	1:MORE THAN, 2: LESS THAN
S4 operation	68	1:MORE THAN, 2: LESS THAN
Zero	0	1
Zero clear	0	2
Tare	0	3
Tare clear	0	4
Batch start	0	5
Discharge start	0	7
Accumulation command	0	10
Clear the last accumulated data	0	11
Pause	0	12
Restart	0	13
Clear the accumulated data of Brand	0	14
Clear the accumulated data of all Brand	0	15
Error reset	0	21
Print command	0	22
Net display	0	23
Gross display	0	24
The minimum Division	1000	1:[1],2:[2],3:[5],4:[10],5:[20],6:[50]
Weighing capacity	1001	1~999999
Zero adjustment	1002	Impossible to input.
Span adjustment	1003	1~999999

Reading set value (Writing/reading selection = Reading [OFF])

Setting value or command order	Command No. (RWwnE)	General data area (RWrnC~RWrnD)
Brand name 1 (The first ~4 <sup>th</sup> character)	1	Katakana, alphabet, and numeric values of 15 characters
Brand name 2(The 5 <sup>th</sup> ~8 <sup>th</sup> character)	2	
Brand name 3(The 9 <sup>th</sup> ~12 <sup>th</sup> character)	3	
Brand name 4(The 13 <sup>th</sup> ~15 <sup>th</sup> character)	4	
Hopper number	5	0~99
Final /S1	6	0~999999/-999999~999999
Free fall /S4	7	0~999999/-999999~999999
Preliminary 1 /S3	8	0~999999/-999999~999999
Preliminary 2 /S2	9	0~999999/-999999~999999
Over	10	0~999999
Under	11	0~999999
Near zero	12	0~999999
Full	13	0~999999
Preset Tare	14	0~999999
Supplementary time	15	0~9999
Waiting time for judge after supplementary flow	16	0~9999
Automatic free fall compensation	17	0~999999
Initial full flow	18	0~999999
Initial medium flow	19	0~999999
Brand accumulation total	20	-99999999~99999999
Brand accumulation count	21	0~999999
Brand number	32	0~99
Undefined	57	
Target of S1 operation	60	1:GROSS , 2:NET
Target of S2 operation	61	1:GROSS , 2:NET
Target of S3 operation	62	1:GROSS , 2:NET
Target of S4 operation	63	1:GROSS , 2:NET
Undefined	64	
S1 operation	65	1:MORE THAN, 2: LESS THAN
S2 operation	66	1:MORE THAN, 2: LESS THAN
S3 operation	67	1:MORE THAN, 2: LESS THAN
S4 operation	68	1:MORE THAN, 2: LESS THAN
Undefined	69	
The minimum Division	1000	1:[1],2:[2],3:[5],4:[10],5:[20],6:[50]
Weighing capacity	1001	1~999999
Zero adjustment	1002	Impossible to input.
Span adjustment	1003	1~999999
Adjustment condition reading	1004	10 <sup>1</sup> :0= During measurement, 1= During Zero adjustment, 2= During Span adjustment 10 <sup>0</sup> :0= None, 1= Occurrence of error



• Zero point mV/V registration and Span point mV/V registration can not be done.

3) Remote register (Instrument→Master)

4 stations occupied			
Station	Remote register	Contents	Remarks
1	RWrn	①Net value	
	RWrn+1		
	RWrn+2	②Gross value	
	RWrn+3		
2	RWrn+4	③Accumulation value	
	RWrn+5		
	RWrn+6	④Error code	
	RWrn+7	⑤Error assistance code	
3	RWrn+8	⑥Brand number (8bit)	
	RWrn+9	Undefined	
	RWrn+A		
	RWrn+B		
4	RWrn+C	⑦General data area	
	RWrn+D		
	RWrn+E	⑧Command No.(Response)	
	RWrn+F	⑨Operation mode(Response)	

n : Value decided by setting of station No.

2 stations occupied			
Station	Remote register	Contents	Remarks
1	RWrn	⑩Indicate value (Net value/Gross value)	
	RWrn+1		
	RWrn+2	④Error code	
	RWrn+3	⑤Error assistance code	
2	RWrn+4	⑦General data area	
	RWrn+5		
	RWrn+6	⑧Command No.(Response)	
	RWrn+7	⑨Operation mode(Response)	

n : Value decided by setting of station No.

1 station occupied			
Station	Remote register	Contents	Remarks
1	RWrn	⑩Indicate value (Net value/Gross value)	
	RWrn+1		
	RWrn+2	④Error code	
	RWrn+3	⑤Error assistance code	

n : Value decided by setting of station No.

① Net value (4 stations)

Area for displaying the net value

Data type : 32 bit binary with sign

Setting range : -999999 ~ 999999

② Gross value (4 stations)

Area for displaying the gross value

Data type : 32 bit binary with sign

Setting range : -999999 ~ 999999

③ Accumulation value (4 stations)

Area for displaying the accumulation value

Data type : 32 bit binary with sign

Setting range : -99999999 ~ 99999999

④ Error code (4 stations, 2 stations, 1 station)

Area for displaying the error generating in the main body of the indicator

Refer to below table of ⑤ Error assistance code too.

Data type : 16 bits binary

Setting range : 0~255

⑤ Error assistance code (4 stations, 2 stations, 1 station)

Area for displaying the error No. generating in the main body of the indicator

Data type : 16 bits binary

Setting range : 0~255

Error code	Error assistance code	Contents
0	0	No error
1 (Weighing sequence error)	1	SQERR 0 : When measurement is stopped compulsorily by inputting the temporary stop while weighing.
	2	SQEER 1 : When the condition of SAFETY CHECK is not satisfied.
	3	SQEER 2 : When the load value is under even if the supplementary flow is executed.
	4	SQEER 3 : When there is contradiction in the amount of the comparison value.
	5	SQEER 4 : When the batching time exceeds the limited time.
	6	SQERR 5 : When the discharging time exceeds the limited time.
	7	SQERR 6 : When the gross value < Final in discharge control.
	8	SQERR 7 : When the net value > (Final – free fall) in the start
	9	SQERR 8 : In controlling the nozzle, when the change of the load value exceeds the zero band.
	10	SQERR 9 : The measurement begins in the condition that [START ABOVE ZERO BAND] is [VALID], however the container is not put on the measuring section.
2 (Operation error)	1	Zero set error In case of execute ZERO out of range of zero
	2	A/Z error In case of execute TARE out of range of tare.
3 (Other error)	3	A/D conversion error.
	31	EEPROM writing error.
	32	EEPROM reading error.
4 (Calibration error)	0	TE-L error
	1	TE-H error
	2	SP-L error
	3	SP-H error
	4	When the setting is Span adjustment value > Weighing capacity.
99 (Setting error)	0	Receiving undefined command When undefined data is set at command No.
	1	Setting range error
	2	Read-only state



• Refer to Error display in main body instruction manual about the contents of Error code.

⑥ Brand number (4 stations)

It is area which showing the Brand number.

Data type : 8 bit binary

⑦ General data area (4 stations, 2 stations)

When the set value reading out command is ordered by using the general command request (Request 2), this area represents the set value.

Data type : 32 bit binary with sign

⑧ Command No. (Response) (4 stations, 2 stations)

When the command order is executed by the general command request (Request 2), this area represents that command No.

Data type : 8 bit binary

⑨ Operation mode (Response) (4 stations, 2 stations)

When the operation mode is changed by the operation mode changeover request (request 3), this area represents that command No.

This function is prepared for future expansion.

Data type : 8 bit binary

⑩ Indicate value (Net value/Gross value) (2 stations, 1 station)

It is area which showing the Net value or Gross value by specified bit.

Data type : 32 bit binary with sign

Setting range : -999999 ~ 999999

## 5-2-2.Relay zone

### 1) Remote input (Master→Instrument)

4 stations occupied				
Device No.	Contents		Classification	
RYn0	①Setting value writing request (Request 1)		Communication	
RYn1				
RYn2	②General command request (Request 2)			
RYn3	③Selection of writing/Reading out. (R/W)			
RYn4	④Operation mode changeover request (Request 3)			
RYn5				
RYn6				
RYn7				
RYn8				
RYn9				
RYnA				
RYnB				
RYnC				
RYnD				
RYnE				
RYnF				
RY(n+1)0	⑤Zero		Control signal	
RY(n+1)1	⑥Zero clear			
RY(n+1)2	⑦Tare			
RY(n+1)3	⑧Tare clear			
RY(n+1)4	⑨Hold			
RY(n+1)5	⑩Net display			
RY(n+1)6	⑪Gross display			
RY(n+1)7				
RY(n+1)8	⑫Accumulation signal			
RY(n+1)9	⑬Accumulation clear			
RY(n+1)A	⑭Error cancellation request flag			
RY(n+1)B				
RY(n+1)C				
RY(n+1)D				
RY(n+1)E				
RY(n+1)F				
RY(n+2)0	⑮Brand number	10 <sup>0</sup>	1	
RY(n+2)1			2	
RY(n+2)2			4	
RY(n+2)3			8	
RY(n+2)4		10 <sup>1</sup>	10	
RY(n+2)5			20	
RY(n+2)6			40	
RY(n+2)7			80	
~				
RY(n+7)0	System reservation zone			
RY(n+7)1				
RY(n+7)2				
RY(n+7)3				
RY(n+7)4				
RY(n+7)5				
RY(n+7)6				
RY(n+7)7				
RY(n+7)8				
RY(n+7)9	⑯Initialed data setting request flag			
RY(n+7)A	⑰Error reset requesting flag			
RY(n+7)B				
RY(n+7)C				
RY(n+7)D				
RY(n+7)E				
RY(n+7)F				

n : Value decided by setting of station No.

2 stations occupied				
Device No.	Contents		Classification	
RYn0	①Setting value writing request (Request 1)		Communication	
RYn1				
RYn2	②General command request (Request 2)			
RYn3	③Selection of writing/Reading out. (R/W)			
RYn4	④Operation mode changeover request (Request 3)			
RYn5				
RYn6				
RYn7				
RYn8				
RYn9				
RYnA				
RYnB				
RYnC				
RYnD				
RYnE				
RYnF				
RY(n+1)0	⑤Zero		Control signal	
RY(n+1)1	⑥Zero clear			
RY(n+1)2	⑦Tare			
RY(n+1)3	⑧Tare clear			
RY(n+1)4	⑨Hold			
RY(n+1)5	⑩Net display			
RY(n+1)6	⑪Gross display			
RY(n+1)7				
RY(n+1)8	⑫Accumulation signal			
RY(n+1)9	⑬Accumulation clear			
RY(n+1)A	⑭Error cancellation request flag			
RY(n+1)B				
RY(n+1)C				
RY(n+1)D				
RY(n+1)E				
RY(n+1)F	⑯Indicate value changeover flag ( Net value/ Gross value)			
RY(n+2)0	⑮Brand number	10 <sup>0</sup>	1	
RY(n+2)1			2	
RY(n+2)2			4	
RY(n+2)3			8	
RY(n+2)4		10 <sup>1</sup>	10	
RY(n+2)5			20	
RY(n+2)6			40	
RY(n+2)7			80	
~				
RY(n+3)0	System reservation zone			
RY(n+3)1				
RY(n+3)2				
RY(n+3)3				
RY(n+3)4				
RY(n+3)5				
RY(n+3)6				
RY(n+3)7				
RY(n+3)8				
RY(n+3)9	⑰Initialed data setting request flag			
RY(n+3)A	⑱Error reset requesting flag			
RY(n+3)B				
RY(n+3)C				
RY(n+3)D				
RY(n+3)E				
RY(n+3)F				

n : Value decided by setting of station No.

1 station occupied				
Device No.	Contents		Classification	
RYn0	⑤Zero		Control signal	
RYn1	⑥Zero clear			
RYn2	⑦Tare			
RYn3	⑧Tare clear			
RYn4	⑨Hold			
RYn5	⑫Accumulation signal			
RYn6	⑬Accumulation clear			
RYn7	⑭Indicate value changeover flag ( Net value/ Gross value)			
RYn8	⑮Brand number	10 <sup>0</sup>	1	
RYn9			2	
RYnA			4	
RYnB			8	
RYnC		10 <sup>1</sup>	10	
RYnD			20	
RYnE			40	
RYnF			80	
RY(n+1)0	System reservation zone			
RY(n+1)1				
RY(n+1)2				
RY(n+1)3				
RY(n+1)4				
RY(n+1)5				
RY(n+1)6				
RY(n+1)7				
RY(n+1)8				
RY(n+1)9	⑯Initialed data setting request flag			
RY(n+1)A	⑰Error reset requesting flag			
RY(n+1)B				
RY(n+1)C				
RY(n+1)D				
RY(n+1)E				
RY(n+1)F				

n : Value decided by setting of station No.



- Error reset is operated by main body side because Error cancellation request flag is not defined when 1 occupied station. (Synchronize with reset of the main body)

① Setting value writing request (Request 1)

Writing of the data set in special data area (RWwn0~RWwnB) is requested.

ON : In the request of writing

OFF : After confirming "Setting value writing response (Response 1)".

② General command request (Request 2)

Writing or reading out is requested by the command order.

Use with selection of writing or reading out (R/W) at the same time.

ON : In the request of writing/reading out

OFF : After confirming "Setting value writing response (Response 2)".

③ Selection of writing or reading out(R/W)

Writing or reading out is selected by the command order.

Writing the data set in General data area (RWwnC~RWwnD) is ordered for writing by command No. (RWwnE).

Reading out the data set in General data area (RWrnC~RWrnD) is ordered for reading out by command No. (RWwnE).

ON : Reading out

OFF : Writing

④ Operation mode changeover request (Request 3)

Writing of the data set in operation mode (RWwnF) is requested.

This function is prepared for future expansion.

ON : In the request of writing request.

OFF : After confirming "Operation mode changeover response (Response 3)"

⑤ Zero

Zero set is executed.

ON : In requesting the execution of Zero set. (Operated by OFF→ON)

OFF : Normal

⑥ Zero clear

Zero clear is executed.

ON : In requesting the execution of Zero clear. (Operated by OFF→ON)

OFF : Normal

⑦ Tare

Tare is executed.

ON : In requesting the execution of Tare. (Operated by OFF→ON)

OFF : Normal

⑧ Tare clear

Tare clear is executed.

ON : In requesting the execution of Tare clear. (Operated by OFF→ON)

OFF : Normal

⑨ Hold

A measurement value of the display is maintained.

ON : Hold display (Level input)  
OFF : Hold release

⑩ Net display

The display is changed to Net value.

ON : In requesting the execution of Net display. (Operated by OFF→ON)  
OFF : Normal

⑪ Gross display

The display is changed to Gross value.

ON : In requesting the execution of Gross display. (Operated by OFF→ON)  
OFF : Normal

⑫ Accumulation signal

Accumulation is executed.

ON : Turning on the Accumulation signal. (Operated by OFF→ON)  
OFF : Normal

⑬ Accumulation clear

Accumulation clear is executed.

ON : In requesting the execution of Accumulation clear. (Operated by OFF→ON)  
OFF : Normal

⑭ Error cancellation request flag

Sequence error, Zero set error, A/Z error is canceled, and operation of ⑰Error reset requesting flag is executed.

ON : In requesting the execution of Error cancellation. (Operated by OFF→ON)  
OFF : Normal

⑮ Brand number

The measurement brand is set by BCD code.

When there is change of the BCD code, the setting change is executed.

⑯ Initialed data setting request flag

The initialization of the instrument is requested.

ON : In the requesting initialization.  
OFF : Normal

⑰ Error reset requesting flag

Error reset is requested when the occurrent error is notified with Error condition flag (RX(n+7)A).

ON : In the requesting of clear (Operated by OFF→ON)  
OFF : Normal

⑱ Indicate value NET value/GROSS value command

Indication value set in remote resistor area is selected as follows, when the station occupied 1 or 2.

ON : Net value (Same as Net value of remote resistor when 4 stations occupied.)

OFF :Gross value (Same as Gross value of remote resistor when 4 stations occupied.)

2) Remote output (Instrument→Master)

4 stations occupied			
Device No.	Contents		Classification
RXn0	①Setting value writing response (Response 1)		Communication
RXn1			
RXn2	②General command response (Response 2)		
RXn3	③Writing/reading out selection response (R/W response)		
RXn4	④Operation mode changeover response(Response 3)		
RXn5			
RXn6	⑤CPU normal operation		
RXn7			
RXn8	⑥Decimal point position 1		
RXn9	⑥Decimal point position 2		
RXnA	⑥Decimal point position 4		
RXnB			
RXnC			
RXnD			
RXnE			
RXnF			
RX(n+1)0	⑦Near Zero		Control output
RX(n+1)1	⑦F.Flow/S1		
RX(n+1)2	⑦M.Flow/S2		
RX(n+1)3	⑦D.Flow/S3		
RX(n+1)4	⑦Over/S4		
RX(n+1)5	⑦OK		
RX(n+1)6	⑦Under		
RX(n+1)7	⑦Stable		
RX(n+1)8	⑦Finish		
RX(n+1)9	⑧Weighing value over		
RX(n+1)A	⑨During hold		
RX(n+1)B	⑦Full		
RX(n+1)C			
RX(n+1)D	⑩Discharge (Gate open)		
RX(n+1)E	⑪Sequence error		
RX(n+1)F	⑫Abnormal weight		
RX(n+2)0	⑬Brand number	10 <sup>0</sup>	1
RX(n+2)1			2
RX(n+2)2			4
RX(n+2)3			8
RX(n+2)4		10 <sup>1</sup>	10
RX(n+2)5			20
RX(n+2)6			40
RX(n+2)7			80
~			
RX(n+7)0	System reservation zone		
RX(n+7)1			
RX(n+7)2			
RX(n+7)3			
RX(n+7)4			
RX(n+7)5			
RX(n+7)6			
RX(n+7)7			
RX(n+7)8			
RX(n+7)9	⑭Initialed data setting complete flag		
RX(n+7)A	⑮Error condition flag		
RX(n+7)B	⑯Remote READY		
RX(n+7)C			
RX(n+7)D			
RX(n+7)E			
RX(n+7)F			

n : Value decided by setting of station No.

2 stations occupied				
Device No.	Contents		Classification	
RXn0	①Setting value writing request (Response 1)		Communication	
RXn1				
RXn2	②General command response (Response 2)			
RXn3	③Writing/reading out selection response (R/W response)			
RXn4	④Operation mode changeover response(Response 3)			
RXn5				
RXn6	⑤CPU normal operation			
RXn7				
RXn8	⑥Decimal point position 1			
RXn9	⑥Decimal point position 2			
RXnA	⑥Decimal point position 4			
RXnB				
RXnC				
RXnD				
RXnE				
RXnF				
RX(n+1)0	⑦Near Zero		Control output	
RX(n+1)1	⑦F.Flow/S1			
RX(n+1)2	⑦M.Flow/S2			
RX(n+1)3	⑦D.Flow/S3			
RX(n+1)4	⑦Over/S4			
RX(n+1)5	⑦OK			
RX(n+1)6	⑦Under			
RX(n+1)7	⑦Stable			
RX(n+1)8	⑦Finish			
RX(n+1)9	⑧Weighing value over			
RX(n+1)A	⑨During hold			
RX(n+1)B	⑦Full			
RX(n+1)C				
RX(n+1)D	⑩Discharge (Gate open)			
RX(n+1)E	⑪Sequence error			
RX(n+1)F	⑫Abnormal weight			
RX(n+2)0	⑬Brand number	10 <sup>0</sup>	1	
RX(n+2)1			2	
RX(n+2)2			4	
RX(n+2)3			8	
RX(n+2)4		10 <sup>1</sup>	10	
RX(n+2)5			20	
RX(n+2)6			40	
RX(n+2)7			80	
~				
RX(n+3)0	System reservation zone			
RX(n+3)1				
RX(n+3)2				
RX(n+3)3				
RX(n+3)4				
RX(n+3)5				
RX(n+3)6				
RX(n+3)7				
RX(n+3)8				
RX(n+3)9	⑭Initialed data setting complete flag			
RX(n+3)A	⑮Error condition flag			
RX(n+3)B	⑯Remote READY			
RX(n+3)C				
RX(n+3)D				
RX(n+3)E				
RX(n+3)F				

n : Value decided by setting of station No.

1 station occupied		
Device No.	Contents	Classification
RXn0	⑦Near Zero	Control output
RXn1	⑦F.Flow/S1	
RXn2	⑦M.Flow/S2	
RXn3	⑦D.Flow/S3	
RXn4	⑦Over/S4	
RXn5	⑦OK	
RXn6	⑦Under	
RXn7	⑦Stable	
RXn8	⑦Finish	
RXn9	⑧Weighing value over	
RXnA	⑨During hold	
RXnB	⑦Full	
RXnC		
RXnD	⑩Discharge (Gate open)	
RXnE	⑪Sequence error	
RXnF	⑫Abnormal weight	
RX(n+1)0	System reservation zone	
RX(n+1)1		
RX(n+1)2		
RX(n+1)3		
RX(n+1)4		
RX(n+1)5		
RX(n+1)6		
RX(n+1)7		
RX(n+1)8		
RX(n+1)9	⑭Initialed data setting complete flag	
RX(n+1)A	⑮Error condition flag	
RX(n+1)B	⑯Remote READY	
RX(n+1)C		
RX(n+1)D		
RX(n+1)E		
RX(n+1)F		

n : Value decided by setting of station No.

① Setting value writing response (Response 1)

The end of writing by the Setting value writing request (request 1) is notified.

ON : In completion of writing

OFF : After confirming OFF of Setting value writing request. (Request 1)

② General command response (Response 2)

The end of the command order by the General command request (request 2) is notified.

ON : In the completion of command order

OFF : After confirming OFF of the General command request (Request 2)

③ Writing/Reading out selection response (R/W response)

The status of write/reading out is notified by command order when the General command response (Response 2) is notified.

ON : Reading out

OFF : Writing

④ Operation mode changeover response (Response 3)

The end of changing operation mode by the Operation mode changeover request (Request 3) is notified.

ON : In the completion of the changeover

OFF : After confirming the OFF of the Operation mode changeover request (Request 3)

⑤ CPU normal operation

CC-Link interface operating normally is notified.

ON→OFF→ON reversing is notified at 0.5 seconds intervals

⑥ Decimal point position 1, 2, 4

The Decimal point position of the load value is notified by the 3 bits binary.

Position	Decimal point position 1	Decimal point position 2	Decimal point position 4
None	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON

⑦ Near Zero, and the other status

Statuses of Near Zero, F.Flow/S1, M.Flow/S2, D.Flow/S3, Over/S4, OK, Under, Stable, Finish, and Full are notified.

⑧ Weighing value over

The occurrence of abnormal status (OL, OVF, -OL, -OVF) is notified when the status is over range.

ON : In the occurrence of abnormal status

OFF : Normal

⑨ During hold

The status of the display is notified.

ON : During hold  
OFF : Free running

⑩ Discharge (Gate open)

The Discharge is notified.

ON : During discharge  
OFF : Normal

⑪ Sequence error

The occurrence of Sequence error is notified.

ON : In the occurrence of Sequence error  
OFF : Normal

⑫ Abnormal weight

Weighing value over or Zero set error are notified.

ON : In the occurrence of abnormal status  
OFF : Normal

⑬ Brand number

The measurement brand is outputted by BCD code at all times.

⑭ Initialed data setting complete flag

The end of initialization when there is a request with initialed data setting request flag [RY(n+7)9] is notified.

ON : In the completion of initialization  
OFF : Normal

⑮ Error condition flag

The occurrence of the error in the indicator is notified.

It is reset by Error cancellation request flag [RY(n+1)A] or Error reset requesting flag [RY(n+7)A] after the cancellation of error.

ON : In the occurrence of the error.  
OFF : Normal

⑯ Remote READY

Being able to complete initialization and to communicate is notified.

ON : Possible to communicate  
OFF : In the initialization

## 6. Operation method

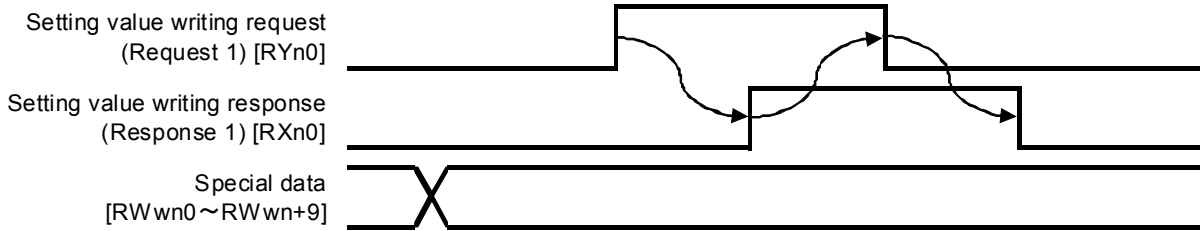
### 6-1. Writing the set value (Special data area)

The set value is set in the Special data area.

The instrument recognizes that "Setting value writing request (request 1) [RYn0]" was turned on, and it writes the data set in "Special data area (RWwn ~ RWwn+B)" into the indicator.

It responds to the master station by "Setting value writing response (Response 1) [RXn0]" after writing is completed.

Timing chart



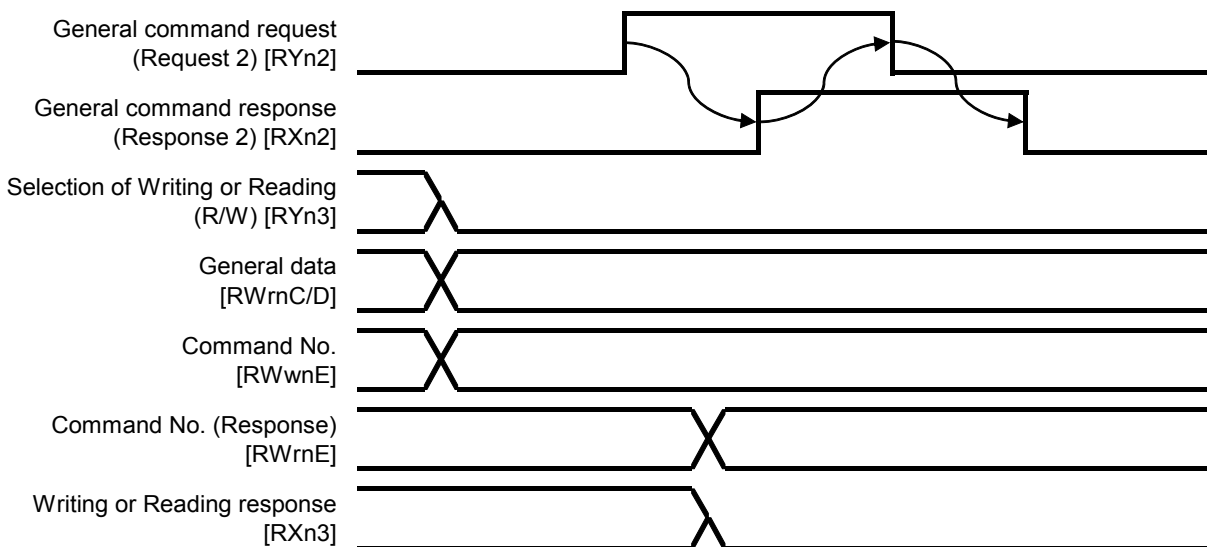
### 6-2. Writing/Reading by general command

Data is set in the General data area and command No. is set in the command No. area.

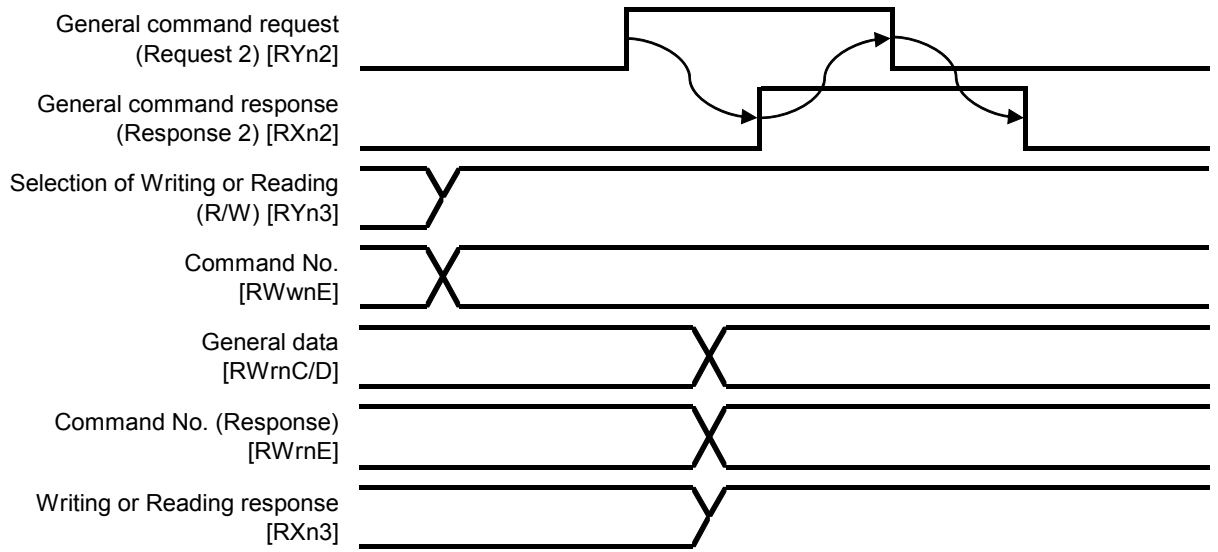
The instrument recognizes that "General command request (Request 2) [RYn2]" was turned on, and it executes to write the data set in "General data area [RWrn+C~D]" or to read the data into "General data area [RWrn+C~D]" to the instrument by "Selection of writing or reading out(R/W) [RYn3]" and "Command No. [RWwn+E]".

It responds to the master station by "General command response (Response 2) [RXn2]" after writing is completed.

#### ① Writing request



② Reading out request



### 6-3. Shift to status where it is possible to communicate

Shifting to status where it is possible to communicate is notified after the power supply is turned on or Initialied data setting is requested from the master station.

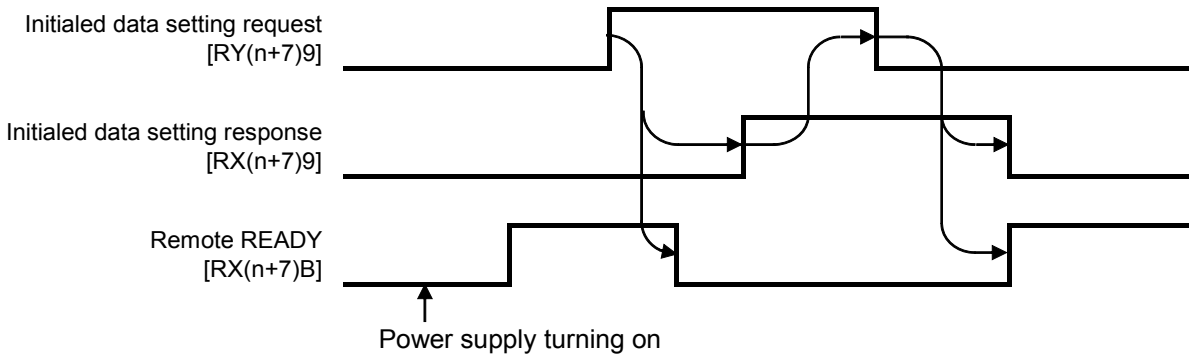
“Remote READY [RX(n+7)B]” is turned on along with the power supply turning on after initialization (set initialing) completion is done and it is assumed the status where it is possible to communicate.

Remote READY is turned off when “Initialied data setting request [RY(n+7)9]” transmitted by the master station is turned on, and initialization is executed.

It responds to the master station after initialization is completed by turning on “Initialied data setting response [RX(n+7)9]”.

That the master station recognizes turning on “Initialied data setting response [RX(n+7)9]”, and “Initialied data setting response [RX(n+7)9]” is turned off makes that “Initialied data setting request [RY(n+7)9]” is turned off, and remote READY is turned on.

Timing chart



### 6-4. Error condition/Reset requesting flag

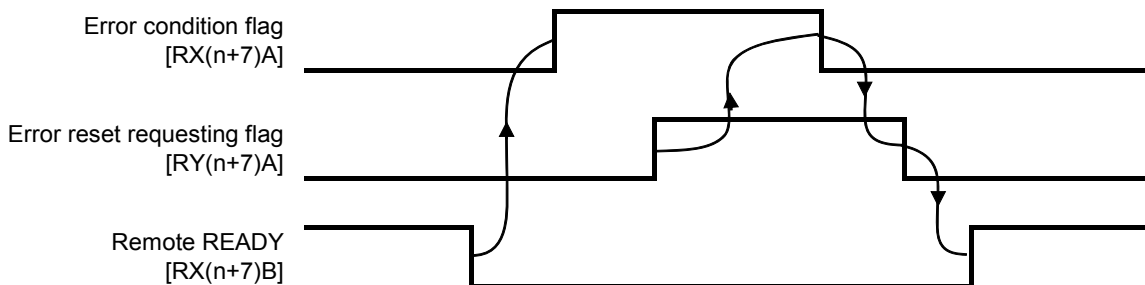
The status sequence when an error is detected and the reset sequence are shown.

The remote READY [RX(n+7)B] is turned off and the Error condition flag [RX(n+7)A] is turn on when an error is detected,

The Error condition flag [RX(n+7)A] is turn off when the Error reset requesting flag [RY(n+7)A] transmitted by the Master station is turned on.

Afterwards, the Remote READY [RX(n+7)B] is turn on when the error reset requesting flag [RY(n+7)A] transmitted by the master station is turned off.

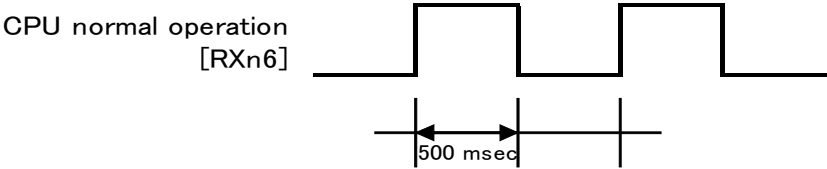
When an error is detected, reset the error as the following sequence.



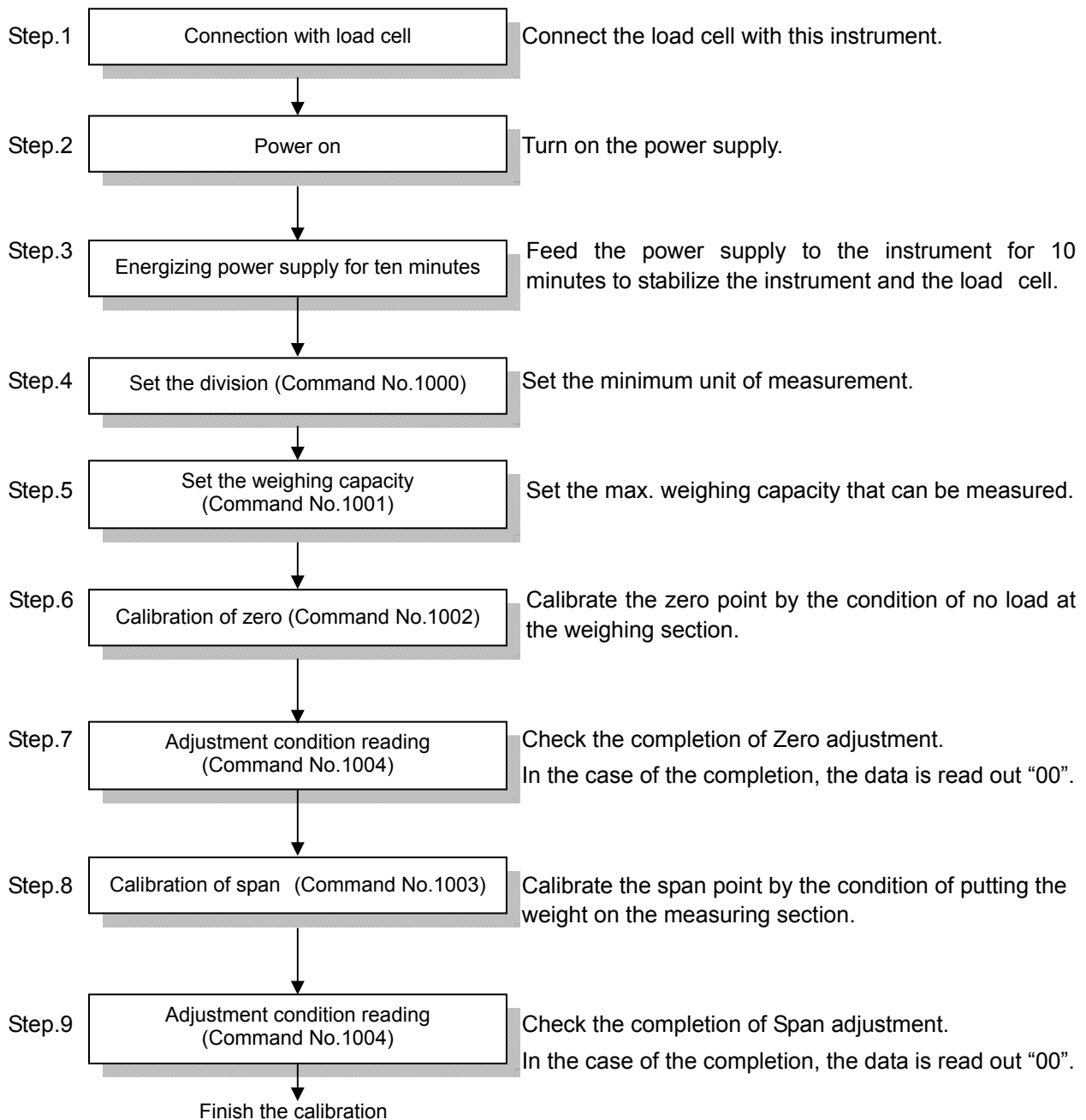
**6-5.CPU normal operation signal**

The instrument operating normally is notified to the Master station.

When the instrument operates normally, the condition of “CPU normal operating signal [RXn6]” is reversed at 0.5 seconds interval.



## 6-6. Calibration procedure by CC-Link communication



- When the span calibration is executed, use the weight of 2/3 or more of the weighing capacity to reduce the calibration error.
- Calibration procedure by CC-Link communication is corresponding to this software after ROM Ver.1.600.

## 7. Specifications of interface

### 7-1.Specifications of CC-Link interface

Specifications	Contents
Version	Ver.1.10
The number of occupied stations	Selectable from 1, 2 or 4 stations.
Communication method	Polling method
Synchronous method	Bit synchronization method
Baud rate	Selectable from 156 k, 625 k, 2.5 M, 5 M and 10 Mbps
Transmission path form	RS485 bus
Transmission format	HDLC conforming
Remote station number	In the case of 1 station occupied, No's.01 to 64 can be selectable. In the case of 2 stations occupied, No's.01 to 63 can be selectable. In the case of 4 stations occupied, No's.01 to 61 can be selectable.
Numbers of connection	In the case of 1 station occupied, 64 units at maximum. In the case of 2 stations occupied, 32 units at maximum. In the case of 4 stations occupied, 16units at maximum.
Termination	Resistance externally attached.
Status LED	RUN, ERR

### 7-2.Accessories

CC-Link Instruction Manual	1 piece
CC-Link communication connector	1 piece ※Attached to main body. (MSTB 2,5-ST-5,08 ABGY AU by PHOENIX CONTACT)

- The contents of this manual may subject to change without notice.

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