

Graphical Digital Panel Meter
WPMZ-5
WPMZ-6

RS-232C

Originalcommand/Originaloutput
communication manual

IM-0861-01
Ver.1.20

watanabe

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Introduction

This instruction manual explains notes and information on using WPMZ series "original command" "original output" communication.

The Modbus RTU protocol can also be used with the WPMZ series RS - 232C output mounted products. For the Modbus RTU protocol, another manual is available so please inquire.

Be sure to observe the contents of this instruction manual in order to use the product correctly and safely.

- Please read this manual carefully before setting and connecting.
- When building the system, carefully read the instructions of the product you use and other equipment and use it properly
- After reading this manual, please keep it and read it when necessary.

RESTRICTION FOR USE

- **Do not use this product as a part of equipment which aimed at life maintenance of human bodies.**
- **Please avoid usages of this product which bring physical accident or property damage when it breaks down.**

We do not take any responsibility about the special damage, the indirect damage and the passivity damage that occurred due to this product under any circumstance.

In this manual, hexadecimal data is indicated by appending "H" after the numeric value. Nothing is appended to decimal data.

ex) Hexadecimal number: 123H, decimal number: 123

1. Overview

Describe the specifications of WPMZ series original command communication.

This manual is intended for engineers who connect WPMZ series to the the master device and create control / data collection processing.

As a master device, it is assumed to be a PC or Programmable Logic Controller (PLC).Please prepare the equipment to be used for the master in advance.

First of all, please refer to "2. Communication condition " and set so that the module (WPMZ - 5/6) connected to the master device conforms to the communication specifications.

If the communication protocol is original, refer to "4. Originalcommand" of the corresponding module according to "3. Original command communication specification" and control and read necessary items. Or, if the communication protocol is unique and continuous output, refer to "6. Unique continuous output response" of the corresponding module according to "5. Originaloutput communication specification" and read the necessary items.

For the Modbus RTU protocol, another manual is available so please inquire.

2. Communication condition

2-1. Supported Modules

The corresponding modules assumed in this manual are as follows.

- WPMZ-5
- WPMZ-6

2-2. Communication condition of module

The communication conditions for connecting to each module are as shown in the table below.

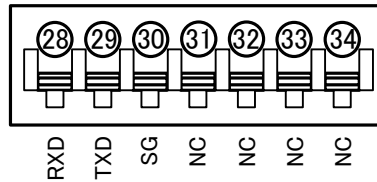
table 2.1 Communication specification

	WPMZ-5/6
standard	based on RS-232C
protocol	OriginalCommand,OriginalOutput
Synchronization method	Asynchronous
Communication method	Full duplex
Error detection	None
Baud rate	9600bps,19200bps,38400bps
Data length	7bit,8bit
Start bit	1bit,
Parity bit	None, Odd, Even
Stop bit	1bit,2bit
Used signal names	TXD,RXD,SG
Terminating resistance	Not equipped
Number of connectable units	1 Master / 1 Slave (WPMZ)
Cable length	Max. 15m

2-2. Wiring Connection

2-2-1. Connection terminal

The figure below shows the RS - 232C connection terminal of WPMZ - 5/6.



Conductor cross-section : AWG24~16

fig 2.1 Terminal diagram

table 2.2 terminal descriptions

Terminal number	symbol	descriptions
28	RXD	receive data terminal
29	TXD	transmit data terminal
30	SG	Signal ground
31~34	NC	Do not connect

2-2-2. Connection diagram example

The figure below shows an example connection diagram of WPMZ-5/6.

Master and slave (WPMZ) connect with 1: 1.

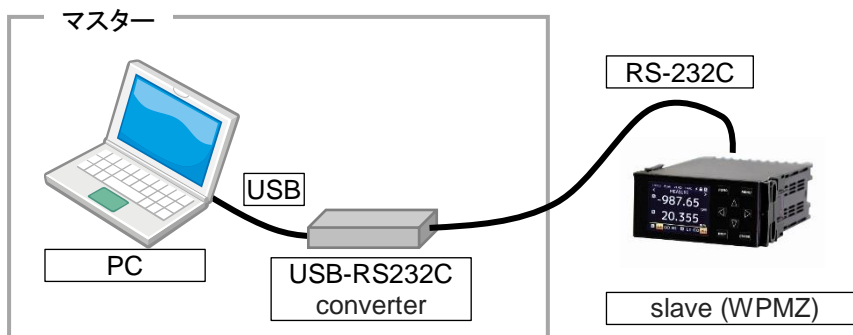


fig 2.2 using USB-RS232C converter

3. Originalcommand communication specification

Describe the behavior when protocol setting is set to "originalcommand".

The originalcommand is a single master / single slave method.
A message is sent from one master to the slave (WPMZ).

3-1. Communication procedure (Protocol setting "Originalcommand")

When the protocol setting is set to "Originalprotocol", the following operation is performed.
Master sends a command message, the slave (WPMZ) sends a response message to the contents of the message.

The operations of the master side message and the slave side message are as follows.

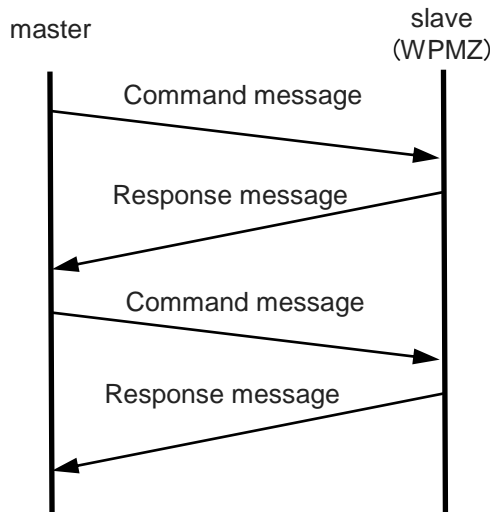


fig 3.1 Communication procedure

3-2. Communication procedure (Protocol setting "Originaloutput")

The following operation is performed under the condition that the protocol setting is set to "Original output".

The slave (WPMZ) periodically sends messages to the master and does not receive messages from the master. The operations of the master side message and the slave side message are as follows.

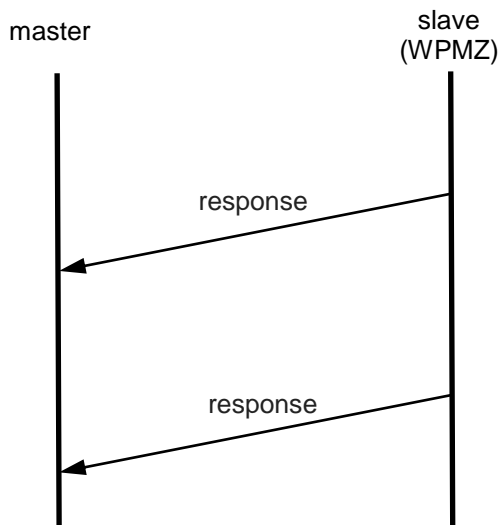


fig 3.2 Communication procedure

For each baud rate, the transmission interval with Original output setting is as follows..

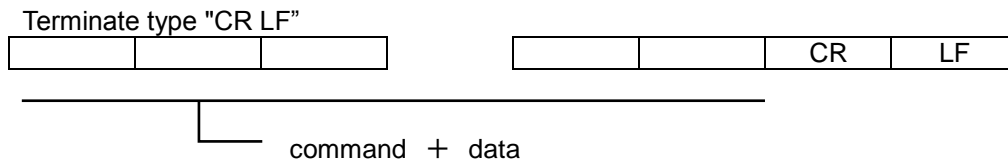
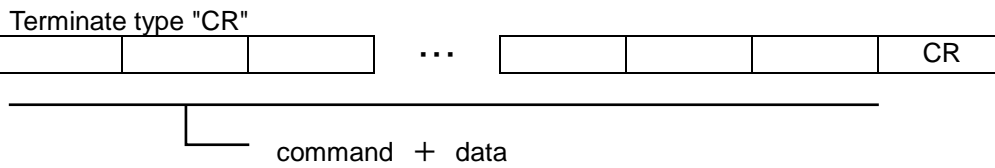
table 3.1 baud rate-Transmission cycle

baud rate	Transmission cycle (msec)
9600bps	150msec
19200bps	100msec
38400bps	50msec

3-3. Command format

3-3-1. Command composition

It consists of the ASCII character string command part and delimiter part.
 Control codes such as STX and ETX and error detection codes such as BCC are not included.



3-3-2. Communication example

An example of acquiring measurement data with the MESA command is as follows.
 Terminate type is "CR LF".

Request

1	2	3	4	5	6
M	E	S	A	CR	LF

Response(for -1.23457)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
		-	1	.	2	3	4	5	7			CR	LF

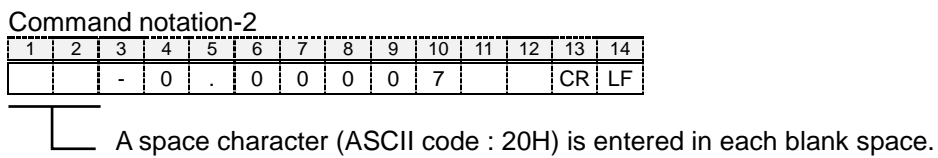
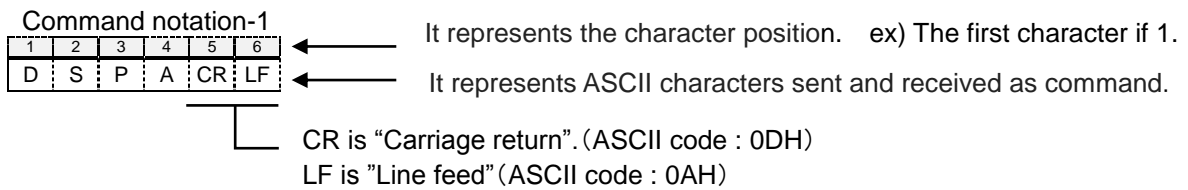
4. Originalcommand

In this section, the command when the protocol setting is "Originalcommand" is described.
 If protocol setting is "Originaloutput", refer to chapter 5 and later.

4-1. WPMZ-5/6

The command of WPM - 5/6 is explained below.

The delimiter is for CRLF. If the delimiter is CR, LF will be deleted.



4-1-1. DSPA command

DSPA is a command that responds to the display value of the instantaneous value of Ach and the comparison result.

Command

1	2	3	4	5	6
D	S	P	A	CR	LF

Response

(In 999999 display, AL1 to AL4 are allotted to instantaneous value Ach, and all channels are turned ON)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			9	9	9	9	9	9		A	L	1		A	L	2		A	L	3		A	L	4	CR	LF

Response

(In 9999.99 display, AL1 to AL4 are allotted to instantaneous value Ach and all the channels are turned ON)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
			9	9	9	9	.	9	9		A	L	1		A	L	2		A	L	3		A	L	4	CR	LF

Response

(In 9 display, AL1 assigned to instantaneous value Ach is ON)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
								9		A	L	1	CR	LF

Response

(In 0.9 display, all the comparison outputs allocated to instantaneous value Ach are OFF)

1	2	3	4	5	6	7	8	9	10	11	12
							0	.	9	CR	LF

Response

(In -7 display, AL1 and AL2 allocated to instantaneous value Ach are ON)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
							-	7		A	L	1		A	L	2	CR	LF

Response

(It is assumed that there is no decimal point setting and "over" is displayed, and the response when AL 3 allocated to the instantaneous value Ach is ON)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<	=		9	9	9	9	9	9		A	L	3	CR	LF

Response

(In the situation where the decimal point setting is "#.#####" and "- over" is displayed, the response when the comparison output allocated to the instantaneous value Ach is OFF.)

1	2	3	4	5	6	7	8	9	10	11	12
<	=	-	9	.	9	9	9	9	9	CR	LF

Response

(Response when measurement value is invalid)

1	2	3	4	5	6
N	O	N	E	CR	LF

- ※ First and second characters...Two blank spaces are normal. "<=" Is over displayed
3rd character...polarity indication at maximum digit number.
If there is no polarity at maximum digit, blank.
- 4th to 10th characters...Display value. If there are no decimal points and the number of digits is small, right-justified.
After the eleventh character...comparison result. When there is no comparison result, the comparison result is not output.
- ※ Calculated value of instantaneous value A, instantaneous value B, instantaneous value in the analog input specification is a numerical value of up to 5 digits and a numerical value after the decimal point.

4-1-2. DSPAT command

DSPAT is a command that responds to the display value of the total value of Ach and the comparison result.

Command

1	2	3	4	5	6	7
D	S	P	A	T	CR	LF

Response...Same as DSPA command

※ The total display value returns a 6-digit value not including the over count.

4-1-3. DSPB command

DSPB is a command that responds to the instantaneous value display value of Bch and the comparison result.

Command

1	2	3	4	5	6
D	S	P	B	CR	LF

Response...Same as DSPA command.

4-1-4. DSPBT command

DSPBT is a command that responds to the display value of total value of Bch and the comparison result.

Command

1	2	3	4	5	6	7
D	S	P	B	T	CR	LF

Response...Same as DSPAcommand .

※ The total display value returns a 6-digit value not including the over count.

4-1-5. DSPC command

DSPC is a command that responds to display value of instantaneous calculation value and comparison result.

Command

1	2	3	4	5	6
D	S	P	C	CR	LF

Response...Same as DSPAcommand.

※ "NONE" is returned when the instantaneous operation expression is "None".

4-1-6. DSPCT command

DSPCT is a command that responds to the display value of the totalize calculation value and the comparison result.

Command

1	2	3	4	5	6	7
D	S	P	C	T	CR	LF

Response...Same as DSPAcommand.

※ The total display value returns a 6-digit value not including the over count.

※ "NONE" is returned when the integration calculation expression is "None"

4-1-7. MESA command

MESA is a command that responds to the displayed value of the instantaneous value of Ach.

Command

1	2	3	4	5	6
M	E	S	A	CR	LF

Response

(Response of condition displaying 0)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
			0									CR	LF

Response

(Response of condition displaying 0.15)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
			0	.	1	5						CR	LF

Response

(Response of condition displaying 99999)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
			9	9	9	9	9	9				CR	LF

Response

(Response of condition displaying -1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
		-	1									CR	LF

Response

(Response of condition displaying 0.0007)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
		-	0	.	0	0	0	0	7			CR	LF

Response (Set the decimal point setting to "###. ###" and respond to conditions in over display)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
<	=		9	9	9	.	9	9	9			CR	LF

Response (Response at the condition without decimal point and with display "-OVER")

1	2	3	4	5	6	7	8	9	10	11	12	13	14
<	=	-	9	9	9	9	9	9				CR	LF

Response (Response when measurement value is invalid)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
N	O	N	E									CR	LF

- ※ All responses are fixed length of 12 characters
- ※ Instantaneous value A, instantaneous value B, instantaneous operation value of analog input are a numerical value of 5 digits at the maximum and a decimal point.

4-1-8. MESAT command

MESAT is a command that responds to the display value of the total value of Ach.

Command

1	2	3	4	5	6	7
M	E	S	A	T	CR	LF

Response...Same as MESAcommand.

※ The totalized display value returns a 6-digit value not including over count.

4-1-9. MESB command

MESB is a command that responds to the instantaneous value display value of Bch.

Command

1	2	3	4	5	6
M	E	S	B	CR	LF

Response...Same as MESA command.

4-1-10. MESBT command

MESBT is a command that responds to the display value of the total value of Bch.

Command

1	2	3	4	5	6	7
M	E	S	B	T	CR	LF

Response...Same as MESA command.

※ The total display value returns a 6-digit value not including the over count.

4-1-11. MESC command

MESC is a command that responds to display value of instantaneous calculation value.

Command

1	2	3	4	5	6
M	E	S	C	CR	LF

Response

Same as MESA command.

※ "NONE" is returned when the instantaneous operation expression is "None".

4-1-12. MESCT command

MESCT is a command that responds to the displayed value of the Calculated value of total value.

Command

1	2	3	4	5	6	7
M	E	S	C	T	CR	LF

Response...Same as MESAcommand.

※ The total display value returns a 6-digit value not including the over count.

※ "NONE" is returned when the total expression is "None".

4-1-13. JGMA command

JGMA is a command that responds to the comparison result of instantaneous value of Ach.

Command

1	2	3	4	5	6
J	G	M	A	CR	LF

Response

(Assign AL1 to AL4 to instantaneous value Ach, and respond when all channels are turned ON.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	L	1		A	L	2		A	L	3		A	L	4	CR	LF

Response

(Response of the case where the comparison output allocated to the instantaneous value Ach is OFF for all the channels.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
O	F	F													CR	LF

Response

(AL1 and AL2 are assigned to the instantaneous value Ach, and the responses of cases where both channels are ON.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	L	1		A	L	2									CR	LF

Response

(Comparative output is not allocated to the instantaneous value Ach)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
N	O	N	E												CR	LF

※ All responses are fixed length of 12 characters

4-1-14. JGMAT command

JGMAT is a command that responds the comparison result to the total value of Ach.

Command

1	2	3	4	5	6	7
J	G	M	A	T	CR	LF

Response...Same as JGMA command.

4-1-15. JGMB command

JGMB is a command that responds to the comparison result of instantaneous value of Bch.

Command

1	2	3	4	5	6
J	G	M	B	CR	LF

Response

Same as JGMA command.

4-1-16. JGMBT command

JGMBT is a command that responds to the comparison result of Bch total value.

Command

1	2	3	4	5	6	7
J	G	M	B	T	CR	LF

Response...Same as JGMA command.

4-1-17. JGMC command

JGMC is a command that responds to the comparison result of the instantaneous calculation value.

Command

1	2	3	4	5	6
J	G	M	C	CR	LF

Response...Same as JGMA command.

4-1-18. JGMCT command

JGMCT is a command that responds to the comparison result of total calculation value.

Command

1	2	3	4	5	6	7
J	G	M	C	T	CR	LF

Response...Same as JGMAcommand

4-1-19. COMR command

COMR is a command to check the instruction status of output reset.
 Instruction state with "COMR ON" and "COMR OFF" command is returned instead of the actual output reset state.

Command

1	2	3	4	5	6
C	O	M	R	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instructions)

1	2	3	4
O	N	CR	LF

4-1-20. COMR ON command

COMR ON is a command that instructs output reset. WPMZ enters the output reset state.

Command

1	2	3	4	5	6	7	8	9
C	O	M	R		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-21. COMR OFF command

COMR OFF is a command to cancel the output reset instruction. The output reset state of WPMZ is canceled.

Command

1	2	3	4	5	6	7	8	9	10
C	O	M	R		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-22. TREA ON command

TREA ON is a command that instructs resetting the total value of Ach. Instructions are automatically cleared after processing.

Command

1	2	3	4	5	6	7	8	9
T	R	E	A		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-23. TREB ON command

TREB ON is a command that instructs resetting the total value of Bch. Instructions are automatically cleared after processing.

Command

1	2	3	4	5	6	7	8	9
T	R	E	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-24. TREAB ON command

TREAB ON is a command that instructs Ach and Bch to reset the Total value at the same time. Instructions are cleared automatically after processing execution.

Command

1	2	3	4	5	6	7	8	9	10
T	R	E	A	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-25. MBKA command

MBKA is a command to check the indication state of Ach measurement prohibition.
 Instruction status with "MBKA ON", "MBKA OFF" command is returned instead of actual measurement prohibited state

Command

1	2	3	4	5	6
M	B	K	A	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-26. MBKA ON command

MBKA ON is a command that instructs measurement prohibition of Ach.

Command

1	2	3	4	5	6	7	8	9
M	B	K	A		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-27. MBKA OFF command

MBKA OFF is a command which cancels Ach measurement prohibition instruction.

Command

1	2	3	4	5	6	7	8	9	10
M	B	K	A		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-28. MBKB command

MBKB is a command to check the indication state of Bch measurement prohibition.
 Instruction state with "MBKB ON", "MBKB OFF" command is returned instead of actual measurement prohibition state..

Command

1	2	3	4	5	6
M	B	K	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-29. MBKB ON command

MBKB ON is a command to instruct Bch measurement prohibition.

Command

1	2	3	4	5	6	7	8	9
M	B	K	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-30. MBKB OFF command

MBKB OFF is a command which cancels Bch measurement prohibition instruction.

Command

1	2	3	4	5	6	7	8	9	10
M	B	K	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-31. MBKAB command

MBKAB is a command to check the instructed state of measurement prohibition simultaneous with Ach and Bch.

Instruction state with "MBKAB ON", "MBKAB OFF" command is returned instead of actual measurement prohibited state.

Command

1	2	3	4	5	6	7
M	B	K	A	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-32. MBKAB ON command

MBKAB ON is a command that instructs Ach and Bch simultaneous measurement prohibition.

Command

1	2	3	4	5	6	7	8	9	10
M	B	K	A	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-33. MBKAB OFF command

MBKAB OFF is a command to cancel measurement prohibition instruction of Ach and Bch at the same time.

Command

1	2	3	4	5	6	7	8	9	10	11
M	B	K	A	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-34. DHDA command

DHDA is a command to check the indication state of holding the current value of Ach.
 Instruction state with "DHDA ON", "DHDA OFF" command is returned instead of the actual current value holding state.

Command

1	2	3	4	5	6
D	H	D	A	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-35. DHDA ON command

DHDA ON is a command that instructs to hold the current value of Ach.

Command

1	2	3	4	5	6	7	8	9
D	H	D	A		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-36. DHDA OFF command

DHDA OFF is a command to cancel the instruction to hold the current value of Ach.

Command

1	2	3	4	5	6	7	8	9	10
D	H	D	A		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-37. DHDB command

DHDB is a command to check the indication state of holding the current value of Bch.
 Instruction state with "DHDB ON", "DHDB OFF" command is returned instead of the actual current value holding state.

Command

1	2	3	4	5	6
D	H	D	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-38. DHDB ON command

DHDB ON is a command that instructs to hold the current value of Bch.

Command

1	2	3	4	5	6	7	8	9
D	H	D	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-39. DHDB OFF command

DHDB OFF is a command to cancel the instruction to hold the current value of Bch

Command

1	2	3	4	5	6	7	8	9	10
D	H	D	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-40. DHDAB command

DHDAB is a command to check the indication state of holding the current value at the same time for Ach and Bch.

Instruction state with "DHDAB ON" and "DHDAB OFF" command is returned instead of the actual current value holding state.

Command

1	2	3	4	5	6	7
D	H	D	A	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-41. DHDAB ON command

DHDAB ON is a command that instructs to hold the current value of Ach and Bch at the same time.

Command

1	2	3	4	5	6	7	8	9	10
D	H	D	A	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-42. DHDAB OFF command

DHDAB OFF is a command that cancels the instruction to hold the current value at the same time for Ach and Bch.

Command

1	2	3	4	5	6	7	8	9	10	11
D	H	D	A	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-43. MAXA command

MAXA is a command to check the indication state of Ach maximum value preservation.
 Instruction state with "MAXA ON", "MAXA OFF" command is returned instead of the actual maximum value holding state.

Command

1	2	3	4	5	6
M	A	X	A	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-44. MAXA ON command

MAXA ON is a command that instructs to hold the maximum value of Ach.

Command

1	2	3	4	5	6	7	8	9
M	A	X	A		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-45. MAXA OFF command

MAXA OFF is a command to cancel the instruction to hold the maximum value of Ach.

Command

1	2	3	4	5	6	7	8	9	10
M	A	X	A		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-46. MAXB command

MAXB is a command to check the indication state of holding maximum value of Bch.
 Instruction state with "MAXB ON", "MAXB OFF" command is returned instead of the actual maximum value holding state.

Command

1	2	3	4	5	6
M	A	X	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-47. MAXB ON command

MAXB ON is a command that instructs to hold the maximum value of Bch

Command

1	2	3	4	5	6	7	8	9
M	A	X	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-48. MAXB OFF command

MAXB OFF is a command to cancel the instruction to hold Bch maximum value.

Command

1	2	3	4	5	6	7	8	9	10
M	A	X	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-49. MAXAB command

MAXAB is a command to check the indication state of holding the maximum value of Ach and Bch at the same time.

Instruction state with "MAXAB ON", "MAXAB OFF" command is returned instead of the actual maximum value holding state.

Command

1	2	3	4	5	6	7
M	A	X	A	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-50. MAXAB ON command

MAXAB ON is a command that instructs maximum value hold of Ach and Bch at the same time.

Command

1	2	3	4	5	6	7	8	9	10
M	A	X	A	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-51. MAXAB OFF command

MAXAB OFF is a command to cancel the instruction to hold the maximum value of Ach and Bch at the same time.

Command

1	2	3	4	5	6	7	8	9	10	11
M	A	X	A	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-52. MINA command

MINA is a command to check the indication state of holding minimum value of Ach.
 Instruction state with "MINA ON", "MINA OFF" command is returned instead of the actual minimum value holding state.

Command

1	2	3	4	5	6
M	I	N	A	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-53. MINA ON command

MINA ON is a command that instructs to hold the minimum value of Ach.

Command

1	2	3	4	5	6	7	8	9
M	I	N	A		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-54. MINA OFF command

MINA OFF is a command to cancel the instruction to hold minimum value of Ach.

Command

1	2	3	4	5	6	7	8	9	10
M	I	N	A		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-55. MINB command

MINB is a command to check the indication state of holding minimum value of Bch.
 Instruction state with "MAXB ON", "MAXB OFF" command is returned instead of the actual minimum value holding state.

Command

1	2	3	4	5	6
M	I	N	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-56. MINB ON command

MINB ON is a command that instructs to hold the minimum value of Bch.

Command

1	2	3	4	5	6	7	8	9
M	I	N	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-57. MINB OFF command

MINB OFF is a command to cancel the instruction to hold Bch's minimum value.

Command

1	2	3	4	5	6	7	8	9	10
M	I	N	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-58. MINAB command

Instruction state with "MAXAB ON", "MAXAB OFF" command is returned instead of the actual maximum value holding state.

Command

1	2	3	4	5	6	7
M	I	N	A	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-59. MINAB ON command

MINAB ON is a command that instructs to hold the minimum value of Ach and Bch at the same time.

Command

1	2	3	4	5	6	7	8	9	10
M	I	N	A	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-60. MINAB OFF command

MINAB OFF is a command to cancel the instruction to hold the minimum value of Ach and Bch at the same time

Command

1	2	3	4	5	6	7	8	9	10	11
M	I	N	A	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-61. DZRA command

DZRA command is a command to check the digital zero indication state of Ach.
 Instruction state with "DZRA ON" and "DZRA OFF" command is returned instead of the actual operation state.

Command

1	2	3	4	5	6
D	Z	R	A	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-62. DZRA ON command

DZRA ON is a command that instructs Ach to execute the digital zero function.

Command

1	2	3	4	5	6	7	8	9
D	Z	R	A		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-63. DZRA OFF command

DZRA OFF is a command to cancel execution of the digital zero function to Ach.

Command

1	2	3	4	5	6	7	8	9	10
D	Z	R	A		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-64. DZRB command

DZRB command is a command to check the digital zero indication state of Bch.
 Instruction state with "DZRB ON" and "DZRB OFF" command is returned instead of the actual operation state.

Command

1	2	3	4	5	6
D	Z	R	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-65. DZRB ON command

DZRB ON is a command that instructs Bch to execute the digital zero function.

Command

1	2	3	4	5	6	7	8	9
D	Z	R	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-66. DZRB OFF command

DZRB OFF is a command to cancel execution of the digital zero function to Bch.

Command

1	2	3	4	5	6	7	8	9	10
D	Z	R	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-67. DZRAB command

DZRAB is a command to check the digital zero indication state of Ach and Bch.
 Instruction state with "DZRAB ON" and "DZRAB OFF" command is returned instead of the actual operation state.

Command

1	2	3	4	5	6	7
D	Z	R	A	B	CR	LF

Response (No instruction)

1	2	3	4	5
O	F	F	CR	LF

Response (With instruction)

1	2	3	4
O	N	CR	LF

4-1-68. DZRAB ON command

DZRAB ON is a command to instruct execution of Ach and Bch digital zero function at the same time.

Command

1	2	3	4	5	6	7	8	9	10
D	Z	R	A	B		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-69. DZRAB OFF command

DZRAB ON is a command to cancel the digital zero function of Ach and Bch at the same time.

Command

1	2	3	4	5	6	7	8	9	10	11
D	Z	R	A	B		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-70. PCHG command

PCHG is a command that responds to the actual pattern number that is running.

Command

1	2	3	4	5	6
P	C	H	G	CR	LF

Response (Under the condition operating with pattern 1)

1	2	3
1	CR	LF

Response (Under the condition operating with pattern 8)

1	2	3
8	CR	LF

4-1-71. PCHG X command

PCHG X is a command that specifies the pattern number to operate. Specifiable pattern numbers are 1 to 8.

The pattern number that operates is fixed until you cancel the instruction.

Command (Specify pattern 1)

1	2	3	4	5	6	7	8
P	C	H	G		1	CR	LF

Command (Specify pattern 8)

1	2	3	4	5	6	7	8
P	C	H	G		8	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-72. PCHG OFF command

PCHG OFF is a command to cancel the instruction of the pattern number to be operated.

Command

1	2	3	4	5	6	7	8	9	10
P	C	H	G		O	F	F	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

4-1-73. MONC ON command

MONC ON is a command to switch screen.

Instructions are cleared automatically after processing execution.

Command

1	2	3	4	5	6	7	8	9
M	O	N	C		O	N	CR	LF

Response

1	2	3	4	5	6	7
Y	E	S			CR	LF

5. OriginalOutput communication specification

Describe the behavior when the protocol setting is "OriginalOutput".
 Refer to "4. OriginalCommand" for the state of protocol setting "OriginalCommand".

5-1. WPMZ-5/6

The original output of WPM - 5/6 will be explained below.
 The response format differs according to model.

Common content

- The display value is variable data of up to 10 characters left-justified. The first three characters are overrange absence and polarity.
- Comparison result: Variable data of up to 4 characters.

5-1-1. Output of WPMZ-5 single channel input product

In case of WPMZ-5 single ch input product, "instantaneous display value of Ach" and "comparison result of AL1 ~ AL4" are output.

Response format

Instantaneous display value of Ach, AL 1 result, AL 2 result, AL 3 result, AL 4 result CRLF

Response example

Instantaneous display value of Ach: 9000.0,
 AL1 Result: ON, AL2 Result: OFF, AL3 Result: NONE (no allocation), AL4 Result: OFF

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
			9	0	0	0	.	0	,		O	N	,	O	F	F	,	N	O	N	E	,	O	F	F	CR	LF

5-1-2. Output of WPMZ-5 dual channel input product

For WPMZ-5 dual channel input products, output "instantaneous display value of Ach" and "instantaneous display value of Bch", "calculated value of instantaneous display value" and "comparison result of AL1 to AL4" are output.

Response format

Instantaneous display value of Ach, instantaneous display value of Bch, calculated value of instantaneous display value, AL 1 result, AL 2 result, AL 3 result, AL 4 result CRLF

Response example

Instantaneous display value of Ach: 9000.0,
 Instantaneous display value of Bch: 100,
 Calculated value of instantaneous display value: -3
 AL1 Result: ON, AL2 Result: OFF, AL3 Result: NONE (no allocation), AL4 Result: OFF

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			9	0	0	0	.	0	,				1	0	0	,			-	3	,	O	N	,	O	F

28	29	30	31	32	33	34	35	36	37	38	39
F	,	N	O	N	E	,	O	F	F	CR	LF

5-1-3. Output of WPMZ-6 single channel input product

For WPMZ-6 single channel input products, "Ach instantaneous display value" and "Ach total display value" and "AL1 - AL4 comparison result" are output.

Response format

Ach instantaneous display value, Ach total display value, AL1 result, AL2 result, AL3 result, AL4 result CRLF

Response example

Instantaneous display value of Ach: 9000.0,

Total display value of Ach: negative over

AL1 Result: ON, AL2 Result: OFF, AL3 Result: NONE (no allocation), AL4 Result: OFF

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			9	0	0	0	.	0	,	<	=	-	1	,	O	N	,	O	F	F	,	N	O	N	E	,

28	29	30	31	32
O	F	F	CR	LF

5-1-4. Output of WPMZ-6 dual channel input product

In the case of the WPMZ-6 dual channel input product, "instantaneous display value of Ach" and "total display value of Ach", "instantaneous display value of Bch", "total display value of Bch", "calculated value of instantaneous value" , "Total display value calculation point" and "AL1 to AL4 comparison result" are output.

Response format

The instantaneous display value of Ach, the total display value of Ach, the instantaneous display value of Bch, the total display value of Bch, the calculated value of instantaneous display value, the calculated value of total display value, AL 1 result, AL 2 result, AL 3 result, AL 4 result CRLF

Response example

Instantaneous display value of Ach: 9000.0,

Total display value of Ach: minus over (no decimal point),

Instantaneous display value of Bch: 100,

Total display value of Bch: plus over (decimal point 6th digit),

Calculated value of instantaneous display value: -3,

Calculated value of total display value: 999999

AL1 Result: ON, AL2 Result: OFF, AL3 Result: NONE (no allocation), AL4 Result: OFF

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
			9	0	0	0	.	0	,	<	=	-	1	,				1	0	0	,	<	=		9	.

28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
9	9	9	9	9	,			-	3	,			9	9	9	9	9	9	,	O	N	,	O	F	F	

55	56	57	58	59	60	61	62	63	64	65
,	N	O	N	E	,	O	F	F	CR	LF

6. trouble shooting

6-1. About communication

6-1-1. In a state where communication can not be performed

If you can not communicate, please check the contents below.

- Are all the devices related to communication turned on?
- Is the wiring correct?
- Is the number of connected devices and connecting distance within specification range?
- Whether the settings of communication conditions between master and slave (WPMZ) match.
(baud rate, data length, stop bit, parity)

6-1-2. The acquired data is incorrect

If you can get the data but the value is incorrect, please confirm the following contents.

- Is the protocol settings correct?
- Is the command correct?
- Is unit conversion correct?

The contents of this instruction manual are subject to change without prior notice.

watanabe

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