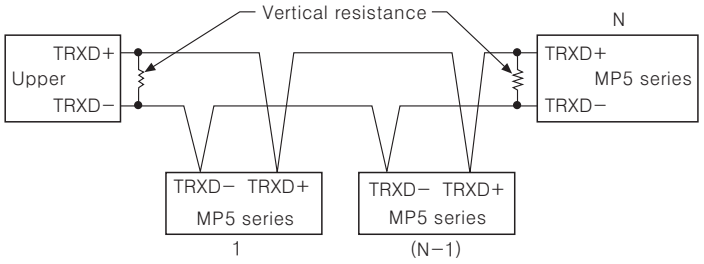
Autonics

MP5 Series
Communication control

▣ Precaution for communicating with MP5W

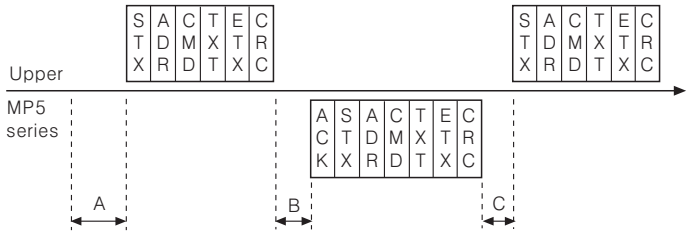
1. It is not possible to modify parameter(Baud rate, Address etc) related to communication of MP5 series on line with upper systems such as PC, PLC etc. (Error will be occurred)
2. Firstly make communication parameter of MP5 series and upper system at one.
3. It is not allow to set overlapping communication number at the same communication line. (Error will be occurred)
4. Please use Twist pair wire for RS485 communication.
5. The total length of communication is 800m and over 32 equipment can be connected.
6. When connect communication cable between MP5 series and upper systems, the vertical resistance(100 to 200Ω) must be installed at between both communication lines.
7. Please check Parameter related to communication
   ①Start bit : 1(Fix)
   ②Stop bit : 1(Fix)
   ③Parity bit : Non(Fix)
   ④Data bit : 8(Fix)
   ⑤Baud rate : 2400, 4800, 9600(Setable)
   ⑥Address : 00 to 99(Setable)

▣ System ordering



▣ Communication control ordering

- The communication control ordering of MP5 series is protocol(Not compatible with other system). After 4sec. being supplied the power in to upper system, then able to start communicating.
- Initial communication will be started by upper system.
  When Command signal come out from upper system then MP5 series will response. If there is no response after 3times of the command signal from upper system, error will be occurred.



※A → Over min. 4sec, B → Within max. 300msec, C → Over min. 20msec

▣ Communication Command and Block

- Format of Command and Response

STX	10^1	10^0	R/W	X/D		ETX	CRC
Start Code	Address Code		Header Code		Text	END Code	CRC Code

Calculation range of CRC Check Sum

- Start code : It shows the first of BLOCK
  STX → [02H], in case of Response, ACK/NAK will be added.
- Address code : This code is upper system can discern MP5 series and able to set within range of 00 to 99. (BCD ASCII)
- Header code : It shows Command as 2 alphabets as below.
  RX(Read request) → R[52H], X[58H]
  RD(Read response) → R[52H], D[44H]
  WX(Write request) → W[57H], X[58H]
  WD(Write response) → W[57H], D[44H]
- Text : It indicates the detail contents of Command/Response. (See Command)
- END code : It indicates the end of BLOCK. ETX → [03H]
- CRC : CRC is Cyclic Redundancy Check and called polynominal code. CRC is for more reliable transmit/receive to check the error between transmitter and receiver. There are CRC−8, CRC−16 and CRC−32, CRC−8 has been adopted in MP5 series according to CCITT−8 Polynomial regulation. (See CRC). Result value is HEX 1 Byte.

<CRC−8 Table>

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0x00	0x5E	0xBC	0xE2	0x61	0x3F	0xDD	0x83	0xC2	0x9C	0x7E	0x20	0xA3	0xFD	0x1F	0x41
1	0x9D	0xC3	0x21	0x7F	0xFC	0xA2	0x40	0x1E	0x5F	0x01	0xE3	0xBD	0x3E	0x60	0x82	0xDC
2	0x23	0x7D	0x9F	0xC1	0x42	0x1C	0xFE	0xA0	0xE1	0xBF	0x5D	0x03	0x80	0xDE	0x3C	0x62
3	0xBE	0xE0	0x02	0x5C	0xDF	0x81	0x63	0x3D	0x7C	0x22	0xC0	0x9E	0x1D	0x44	0xA1	0xFF
4	0x46	0x18	0xFA	0xA4	0x27	0x79	0x9B	0xC5	0x84	0xDA	0x38	0x66	0xE5	0xBB	0x59	0x07
5	0xDB	0x85	0x67	0x39	0xBA	0xE4	0x06	0x58	0x19	0x47	0xA5	0xFB	0x78	0x26	0xC4	0x9A
6	0x65	0x3B	0xD9	0x87	0x04	0x5A	0xB8	0xE6	0xA7	0xF9	0x1B	0x45	0xC6	0x98	0x7A	0x24
7	0xF8	0xA6	0x44	0x1A	0x99	0xC7	0x25	0x7B	0x3A	0x64	0x86	0xD8	0x5B	0x05	0xE7	0xB9
8	0x8C	0xD2	0x30	0x6E	0xED	0xB3	0x51	0x0F	0x4E	0x10	0xF2	0xAC	0x2F	0x71	0x93	0xCD
9	0x11	0x4F	0xAD	0xF3	0x70	0x2E	0xCC	0x92	0xD3	0xBD	0x6F	0x31	0xB2	0xEC	0x0E	0x50
A	0xAF	0xF1	0x13	0x4D	0xCE	0x90	0x72	0x2C	0x6D	0x33	0xD1	0xBF	0x0C	0x52	0xB0	0xEE
B	0x32	0x6C	0x8E	0xD0	0x53	0x0D	0xEF	0xB1	0xF0	0xAE	0x4C	0x12	0x91	0xCF	0x2D	0x73
C	0xCA	0x94	0x76	0x28	0xAB	0xF5	0x17	0x49	0x08	0x56	0xB4	0xEA	0x69	0x37	0xD5	0x8B
D	0x57	0x09	0xEB	0xB5	0x36	0x68	0x8A	0xD4	0x95	0xCB	0x29	0x77	0xF4	0xAA	0x48	0x16
E	0xE9	0xB7	0x55	0x0B	0x88	0xDB	0x34	0x6A	0x2B	0x75	0x97	0xC9	0x4A	0x14	0xF6	0xA8
F	0x74	0x2A	0xC8	0x96	0x15	0x4B	0xA9	0xF7	0xB6	0xE8	0x0A	0x54	0xD7	0x89	0x6B	0x35

▣ Communication Command

- The Charictaristic(Number) at " " is ASCII.

Sort	ACK	STX	Addr		Command		Bank		Code		+/−	10^5	10^4	10^3	10^2	10^1	10^0	DP	ETX	CRC
Read request	X	02H			"R"	"X"						"0"	"0"	"0"	"0"	"0"	"0"	"0"	03H	CRC
Read response	06H	02H			"R"	"D"													03H	CRC
Write resquest	X	02H			"W"	"X"													03H	CRC
Write response	06H	02H			"W"	"D"													03H	CRC

P	0	Process Value	X	0	Prescaling Value X.Ain
C	0	Comparative Value HH	X	1	Prescaling Value X.Bin
C	1	Comparative Value H	Y	0	Prescaling Value Y.Ain
C	2	Comparative Value L	Y	1	Prescaling Value Y.Bin
C	3	Comparative Value LL	R	0	Reset control of maximum/minimum values
K	0	Peak Value max.			
K	1	Peak Value min.			

●Read[RX] of measurement/setting value : Address 01, Command RX

1. Command(Upper)
   ①Command
   ②Application : Address(01), Header code(RX), Current value(P0) of Bank(0), CRC Check sum(B5H)

STX	0	1	R	X	0	P	0	+	0	0	0	0	0	0	ETX	CRC
Start	Address		Command		Bank	Command		Symbol	10^5	10^4	10^3	10^2	10^1	10^0	Decimal point	End	Check sum
02H	30H	31H	52H	58H	30H	50H	30H	2BH	30H	30H	30H	30H	30H	30H	30H	03H	B5H

2. Response(MP5 series)
   ①Normal receive : Adding ACK[06H] to current value of Data transmission Bank(0) is +1.234.

ACK	STX	0	1	R	D	0	P	0	+	0	0	1	2	3	4	3	ETX	CRC
ACK	Start	Address		Command		Bank	Command		Symbol	10^5	10^4	10^3	10^2	10^1	10^0	Decimal point	End	Check sum
06H	02H	30H	31H	52H	44H	30H	50H	30H	2BH	30H	30H	31H	32H	33H	34H	33H	03H	23H

   ②Normal : Adding ACK[06H] to current value of Data transmission Bank(0) is −56.7.

ACK	STX	0	1	R	D	0	P	0	−	0	0	0	5	6	7	1	ETX	CRC
ACK	Start	Address		Command		Bank	Command		Symbol	10^5	10^4	10^3	10^2	10^1	10^0	Decimal point	End	Check sum
06H	02H	30H	31H	52H	44H	30H	50H	30H	2DH	30H	30H	31H	35H	36H	37H	33H	03H	42H

●Write[WX] of measurement/Setting value : Address 01, Command WX

1. Command(Upper)
   ①Command
   ②Application : Address(01), Head Code(WX), The setting value into SV−HH(C0) of BANK(0) is +1.234.

STX	0	1	W	X	0	C	0	+	0	0	1	2	3	4	3	ETX	CRC
Start	Address		Command		Bank	Command		Symbol	10^5	10^4	10^3	10^2	10^1	10^0	Decimal point	End	Check sum
02H	30H	31H	57H	58H	30H	43H	30H	2BH	30H	30H	31H	32H	33H	34H	33H	03H	5DH

2. Response(MP5 series) : When complete the operation after normal receive.

ACK	STX	0	1	W	D	0	C	0	−	0	0	1	2	3	4	3	ETX	CRC
ACK	Start	Address		Command		Bank	Command		Symbol	10^5	10^4	10^3	10^2	10^1	10^0	Decimal point	End	Check sum
06H	02H	30H	31H	57H	44H	30H	43H	30H	2BH	30H	30H	31H	32H	33H	34H	33H	03H	3CH

3. CRC error : Transmit NAK[15H] only. (Need to transmit again)
4. Other : No response of ACK/NAK
   ①After receiving STX, the address are not the same
   ②When receive buffer overflow is occurred.
   ③When the baud rate or other communication setting value are not the same.
5. When there are no ACK/NAK response
   ①Check the status of lines
   ②Check the communication condition(Setting value)
   ③When assume the problem is due to noise, try to operate communi−cation 3 times more until recovery
   ④When occurred communication failure frequently, please adjust the communicating speed.

※It may cause malfunction if above instructions are not followed.

▣ Main products

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHOMETER/ LINE SPEED METER/ PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER

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