RHST-P (LAN 2-axis head) Protocol specifications

RHST-P (LAN interface 2-axis head) Control protocol specifications

1.applicable

The control protocol specifications for theRHST-P (LAN interface 2-axis head) are shown below. This is a protocol for controlling the pan / tilt mechanism by TCP / IP communication.

transmission method	TCP / IP
Client / Server The	cloud stand functions as The controller connects t TCP client.
IP address	statically assigned (preset)
Port number	61055
Message	length 12 bytes Fixed len
Communication control	command → Response r
Error detection	BCC

2. 2. Basic communication specifications

Item	2017/10/30
Electrical standard	10/100 Mbit Et

3. Communication message format

(1) Basic format

Data length is fixed at 12 bytes.

0	1	2	3	4	5	6	7	8	9	10	11
W R	d e v r e s e R	d e v r e s e R	H d m C	L d m C	H H a t a D	L H a t a D	H L a t a D	L L a t a D	H c c B	L c c B	R C

bytes No	Symbol	Content
0	RW	Indicates whether to read or write. 'R' (0x52) = Read, 'W' (0x57) = Write
1	Reserved	'0' (0x30) Fixed
2	Reserved	'0' (0x30) Fixed
3	CmdH	Command Code (MSB)
4	CmdL	Command Code (LSB)
5	DataHH	data (upper MSB)
6	DataHL	data (lower MSB)
7	DataLH	data (upper LSB)
8	DataLL	data (lower LSB)
9	BccH	BCC code (MSB)
10	BccLupp er	BCC code (LSB)LSB)
11	CR	end mark (Line feed code 0x0D)

All characters except the end mark are so-called displayable character codes.

Data sends / receives 16-bit values.
Represents 16-bit data as a 4-digit character string.
Example) 0x1234 → '1' (0x31), '2' (0x32), '3' (0x33), '4' (0x34)XORing

BCC code operation is the result ofbytes 0 to 8 in 1-byte units. Is represented by a two-digit string and stored in bytes 9 and 10. (Expression method similar to data)

(2) Read command / response

command (master → slave)

0	1	2	3	4	5	6	7	8	9	10	11
) 2 5 x 0 (. R .	) 0 3 x 0 (. 0 .	) 0 3 x 0 (. 0 .	H d m C	L d m C	) A 2 x 0 (. . .	) A 2 x 0 (. . .	) A 2 x 0 (. . .	) A 2 x 0 (. . .	H c c B	L c c B	R C

Response (slave → master)

0	1	2	3	4	5	6	7	8	9	10	11
) 2 5 x 0 (. R .	) 0 3 x 0 (. 0 .	) 0 3 x 0 (. 0 .	H d m C	L d m C	H H a t a D	L H a t a D	H L a t a D	L L a t a D	H c c B	L c c B	R C

16-bit data is read as a 4-digit string.

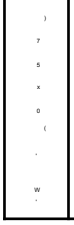
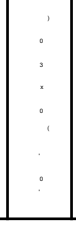
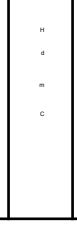
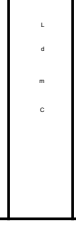
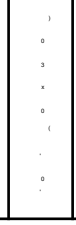
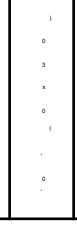
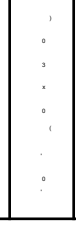
(3) Write command / response

command (master → slave)

0	1	2	3	4	5	6	7	8	9	10	11
) 7 5 x 0 (. W .	) 0 3 x 0 (. 0 .	) 0 3 x 0 (. 0 .	H d m C	L d m C	H H a t a D	L H a t a D	H L a t a D	L L a t a D	H c c B	L c c B	R C

Writes 16-bit data as a 4-digit string.

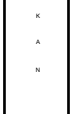
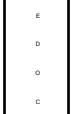
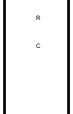
Response (slave → master)

0	1	2	3	4	5	6	7	8	9	10	11
											

4. Error responseerror in the

If there is anissued command message, the slave returns the following error response.
The message length of the error response is 3 bytes.

Error response (slave → master)

0	1	2
		

bytes No	Symbol	Content
0	NAK	Code (0x15) indicatingNegative AcKnowledge.
1	CODE	Indicates the content of theerror. '1' (0x31) = BCC error '2' (0x32) = Command error Other = Not used.
2	CR	end mark (line feed code 0x0D)

5. Command list

command Code	operation	setting data or data	Readdetails	R or W
PR	PAN Rotate rightRotate	****	right	W
PL	PAN RotateRotate	****	leftleft	W
PE	PAN Stop	****	Stop only PAN	W
TU	TILT Rotate up	****	Top Rotate to	W
TD	TILT Rotate downRotate	****	down	W
TE	TILT Stop	****	TILT only Stop	W
ST	All stop	****	All stop	W
PD	PAN current position (angle value)	XXXX	PAN current position Is shown in 0.01 degree increments. The center value is 18000. Example) Right 10 degrees is 18000 + 1000 = 19000. If this is converted to hexadecimal, 19000 = 4A38h. '4',' A', '3', '8'	R
TD	TILT current position (angle value)	XXXX	Indicates the current position of TILT in 0.01 degree units. The center (horizontal) value is 9000. Example) Downward 10 degrees is 9000-1000 = 8000 If this is converted to hexadecimal, 8000 = 1F40. '1',' F', '4', '0'	R
PV	PAN Target position setting (angle value)	XXXX	Set the target value of PAN for the "GO" command. The angle value you set is the same as described in the PD command.	R / W
TV	TILT Target Position Setting (Angle Value) Sets the	XXXX	TILT target value for the"GO" command. The angle value you set is the same as described for the TD command.	R / W
GO	Move totarget positionMovestarget position with the	****	to the presetPV command and TV command.	W
FD	status acquisition	X000	X characters are converted to HEX (0 to F) and seasoned bit by bit. Moving with bit0 = 1. bit1 to bit3 are unused.	R

SP	speed setting	000X	X = '0' (lowest speed) to '3' (highest speed).	R / W

(continued)

(continued)

Command Code	operation	setting data or data	Readdetails	R or W
JP	Joystick control PAN Level value	XXXX	0000 ~ 01FFh. The logical value of the JOYSTICK position.	W
JT	Joystick control TILT Level value	XXXX	0 (left end) ~ 1FFh (right end) 0 (bottom end) ~ 1FFh (top end)	W

Joystick control From

stopped state to maximum speed operation so that smooth operation control with the joystick is possible The speed can be changed continuously.
However, it may not operate at extremely low speeds because the torque of the motor decreases. In that case, tilt the joystick to the level where it works.
Also, when stopping, set FFh or 100h and make sure to stop.

Stop
FFh, 100h
the motorso it may not operate.

Left(down)direction Maximum speed
0h
Right(up)direction
Maximum speed
1FFh In thedrops,

extremely low speed state, the torque of

revision Memo

version	Contents	Date
ver1	First edition	2017/10/30