DRSP-Serial Operation Manual

(for Option Modules)

Version 1.1

2012. 01.

Dongbu Robot

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Chapter 1. Pan-tilt Module DRSP-RS232 Reference

Refer to below for information on Pan-Tilt Board module library. Pan-Tilt module is an optional item supported by the TETRA-DS series mobile robot platform

1.1 bool DRSP_rs232_pantilt_create(const char *port, int time_out)

1.1.1 Description

Opens Pan-Tilt module COM Port and assigns Serial(RS-232) time out.

If Time out is not assigned, default value is 200msec.

1.1.2 Parameters

Name	Data type	Description
port	Const char *	COM Port number
time_out	Int	Set serial time out (Unit: msec)

1.1.3 Return Parameters

Name	Data type	Description
Return Value	bool	ok: Success false: Failure

1.2 void DRSP_rs232_pantilt_destroy ()

1.2.1 Description

Disconnects Pan-Tilt COM Port connection.

1.2.2 Parameters

Name	Data type	Description
None		

1.2.3 Return Parameters

Name	Data type	Description
None		

1.3 bool DRSP_rs232_pantilt_set_servo_on (int id)

1.3.1 Description

Controls Pan-Tilt module Servo On function.

1.3.2 Parameters

Name	Data type	Description
id	int	0: Pan 1: Tilt

1.3.3 Return Parameters

Name	Data type	Description
Return Value	bool	ok: Success false: Failure

1.4 bool DRSP_rs232_pantilt_set_servo_off (int id)

1.4.1 Description

Controls Pan-Tilt module Servo Off function.

1.4.2 Parameters

Name	Data type	Description
id	int	0: Pan 1: Tilt

1.4.3 Return Parameters

Name	Data type	Description
Return Value	bool	ok: Success false: Failure

1.5 bool DRSP_rs232_pantilt_set_error_reset (int id)

1.5.1 Description

Resets Pan-Tilt module error.

1.5.2 Parameters

Name	Data type	Description
id	int	0: Pan 1: Tilt

1.5.3 Return Parameters

Name	Data type	Description
Return Value	bool	ok: Success false: Failure

1.6 bool DRSP_rs232_pantilt_get_error_state(int id, unsigned char &err, unsigned char &err_detail)

1.6.1 Description

Reads error status value of Pan-Tilt module.

1.6.2 Parameters

Name	Data type	Description
id	int	0: Pan 1: Tilt

1.6.3 Return Parameters

Name	Data type	Description
err	unsigned char	7 types of error state
err_detail	unsigned char	7 types of error state detail Refer to diagram 1-1.
Return Value	bool	ok: Success false: Failure

Err

REG (Status Error)								
Bits	7	6	5	4	3	2	1	0

Bits	Value	Comment
0	0X01	Exceed Input Voltage limit
1	0X02	Exceed allowed POT limit
2	0X04	Exceed Temperature limit
3	0X08	Invalid Packet
4	0X10	Overload detected
5	0X20	Driver fault detected
6	0X40	EEP REG distorted
7	0X80	reserved

※ LED Policy, Servo Policy : 위와 동일한 구조로 구성
※ LED Policy : Check된 bit의 오류가 발생할 경우 오류 LED(RED)가 주기적으로 점멸함
※ Servo Policy : Check된 bit의 오류가 발생할 경우 Torque를 풀고 Freerun상태로 변경

Err_detail

REG (Status Error)								
Bits	7	6	5	4	3	2	1	0

Bits	Value	Comment
0	0X01	Moving flag
1	0X02	Inposition flag
2	0X04	Checksum Error
3	0X08	Unknown Command
4	0X10	Exceed REG range
5	0X20	Garbage detected
6	0X40	MOTOR_ON flag
7	0X80	reserved

※ Invalid Packet일 경우 Status Detial Register에 상세한 정보기록이 됨
※ Moving/Inposition/MOTOR_ON flag는 Read only 속성을 갖음
※ MOTOR_ON : Torque ON

Diagram 1-1 Error State List

1.7 bool DRSP_rs232_pantilt_get_position(int id, unsigned int &step)

1.7.1 Description

Reads current position value of the Pan-Tilt module.

1.7.2 Parameters

Name	Data type	Description
id	int	0: Pan 1: Tilt

1.7.3 Return Parameters

Name	Data type	Description
step	int	Read current position value (0 ~ 1023) Refer to diagram 1-2.
Return Value	bool	ok: Success false: Failure

Diagram 1-2. Conversion of Position to Angle

1.8 bool DRSP_rs232_pantilt_set_position(int id, unsigned int step, unsigned int playtime)

1.8.1 Description

Assigns Pan-Tilt module goal position value and goal time value.

1.8.2 Parameters

Name	Data type	Description
id	int	0: Pan 1: Tilt
step	int	Assign goal position(0~1023) Refer to diagram 1-2. **※ To prevent mechanical interference, Tilt values in robot standard should be set at max 790 step forward and 230 step backward.**
playtime	unsigned int	Play time(0~254) Play time conversion: playtime x 11.2msec

1.8.3 Return Parameters

Name	Data type	Description
Return Value	bool	ok: Success false: Failure