AUTO DOOR POLARIS P5

USER MANUAL

PENTA FORCE

1 Matters to Note

1) Check whether the products conform to each item specified in the order specification.
2) Check components described in the component specification.
3) Don't remodel arbitrarily the device or connect the device with other equipment without expertise.
4) If there is any disorder in the device, don't repair personally but contact the supplier.
5) Avoid distorting or damaging the product by giving shock or excessive force, when handling the product.

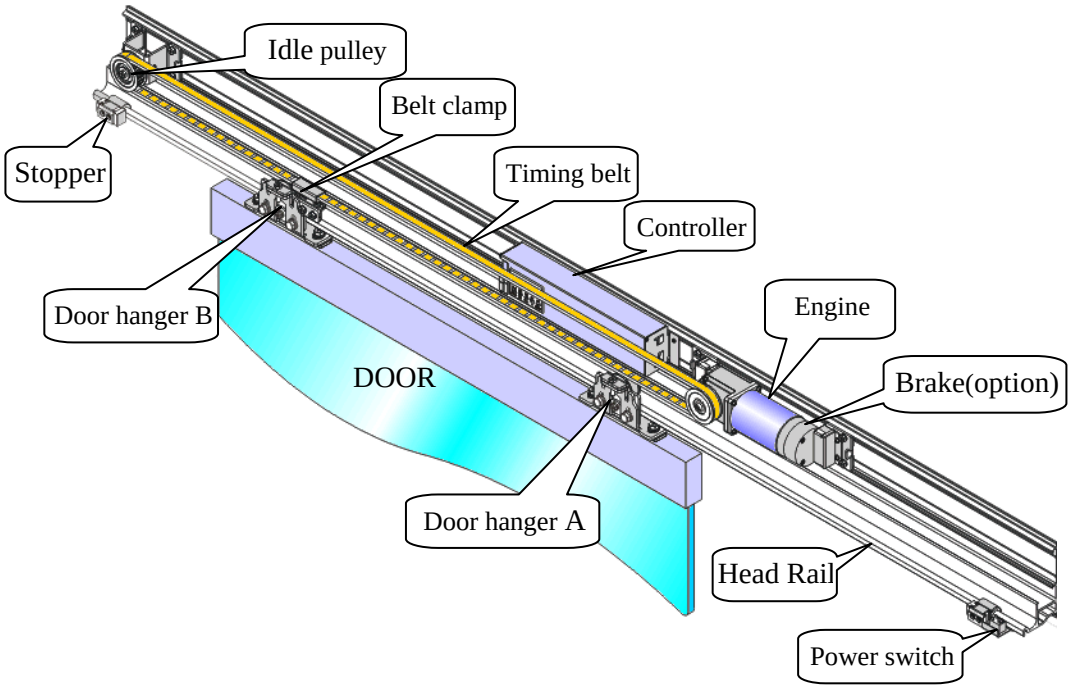
2 Specifications

	Single door	Double door
Model	P5S	P5D
Door weight	110Kg	90Kg x 2
Application width of door	650 – 1,200mm	650 – 1,200mm x 2
Opening/closing speed	Maximum 600mm/Sec (adjustable)	
Opening waiting time	0 – 60 Sec	
Power supply to use	AC 220V, 50 – 60Hz	
Power consumption	3.5W at the time of waiting *1, 80W at the time of driving the door *2	
Engine	75W DC MOTOR	
Control method	Microprocessor control	
Communication (option)	RS-232C, RS-485	
Driving method	TIMING-BELT DRIVE	
Temperature in use	-20°c ~ +40°c	

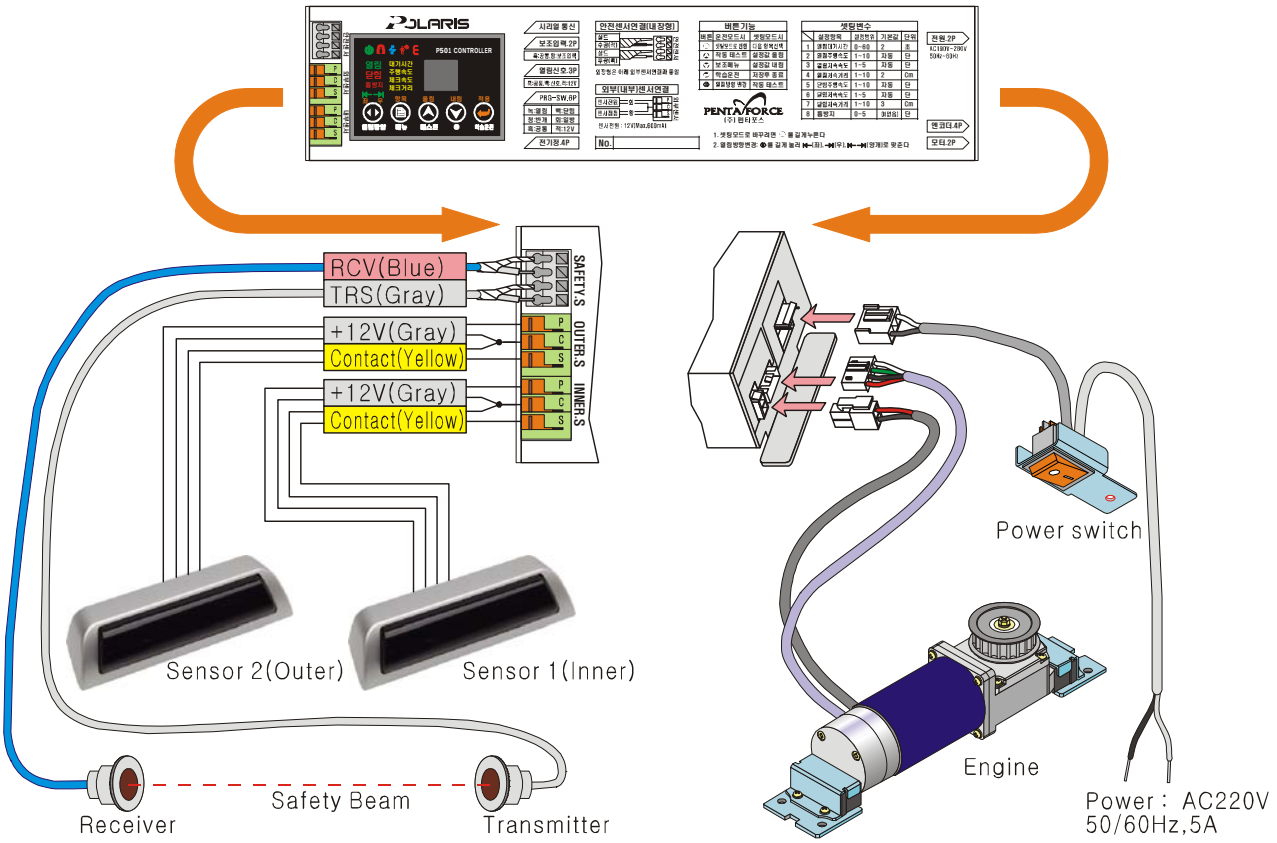
Note 1. The power consumption at the time of waiting means the power consumption when peripheral devices like a sensor, a deadbolt, etc. are not connected.

Note 2. The power consumption at the time of driving the door is affected by the environment of the automatic door such as the weight, the opening/closing speed, etc. of the door.

3 Name of Each Part



4 Line Diagram



✧ **In case of the external safety sensor, the safety sensor terminal is identical to the motion sensor terminal and the connection method of the safety sensor is identical to that of the motion sensor.**

5 Study Driving

Push the button till the buzzer rings (0.5 seconds). Then, the door starts the study driving, the basic setting values are restored to those at the time of factory shipments and the operation environment of the door is automatically read to set up the optimum operation status automatically.

6 Set-Up of Opening Direction

At the time of factory shipments, the opening direction is left (L,). If it is a door opening in the right direction or in both directions, change it by the following method.

Order	Operation	indicator	Display	Note
1	Push (Change of direction).(0.5 seconds)		r	Changed to right-direction opening.
2	Push again.		d	Changed to both-direction opening.
3	Push again.		L	Changed to left-direction opening.
4	The change is reflected 5 seconds after the opening direction is selected by the methods of orders 1 – 3 above.			

✧ **In the process of setting up the change of direction, the direction indication (arrow mark) and the display flicker and the current value is displayed.**

✧ **If the opening direction is changed, the study driving proceeds automatically.**

7 Setting

P501 is divided into a standard menu of 8 items for controlling the basic opening/closing operation of the automatic door, an auxiliary menu of 14 items for auxiliary functions and a special menu of 11 items for checking various status and making special set-up.

The picture below is a controller front panel and each function thereof is as follows:

	Power	: power on
	EL Lock	: EL Locker is locked
	Communication	:communication is proceeding.
	Sensor	: sensor detects.
	Error	: Error occurs.
		: Opening direction

Function of buttons

Button	Operation mode	Setting mode
	Change opening direction (press and hold).	-
	Start setting mode of the basic menu (press and hold).	Change setting items (to the next item).
	Operation test (open and close once)	Increase the setting value.
	Auxiliary menu setting mode (press and hold)	Decrease the setting value.
	Study driving (press and hold)	Save and convert to the operation mode.

8 Basic Menu

Setting Method of the Basic Menu

1) When you press and hold (for about 0.5 second), it is converted to the setting mode after buzzer sound, the current items show up and set-up value that is currently set up for that item is displayed in the display.
2) When you press again, it moves to the next item.
3) After you find out the desired item, set up a desired value by pushing and .
4) Set up all items to change by the process in Items 2) – 3) above.
5) When you press , the changed values are saved and it is converted to the operation mode.

Setting example (Change the opening waiting time from “2 seconds” to “3 seconds” and change the opening low-speed distance from “2 cm” to “1 cm.”

Order	Button manipulation	Item display		Display	Explanations
1	Press and hold .	Open	Waiting time	2	Convert to the setting mode (currently 2 sec).
2	Press .	Open	Waiting time	3	Chang to 3 seconds.
3	Press three times.	Open	Low-speed distance	2	Move to the opening low-speed distance (currently 2 cm).
4	Press .	Open	Low-speed distance	1	Change the opening low-speed distance to 1 cm.
5	Press .			SA	Finish after saving.

Set-up range of each item of the basic menu

Number	Item	range	Basic value	Unit	Explanations
1	Open delay time	0-60	2	Sec	Time from the door opens until the door closes
2	Opening speed	1-10	A	Step	Opening drive (high-speed) speed
3	Opening check speed	1-5	A	Step	Opening low-speed section (check) speed
4	Opening check distance	1-10	2	Cm	Opening low-speed section distance
5	Closing speed	1-10	3	Step	Closing drive (high-speed section) speed
6	Closing check speed	1-5	A	Step	Closing low-speed section (check) speed
7	Closing check distance	1-10	3	Cm	Closing low-speed section (check) distance
8	Gap prevention	0-5	0	Step	Gap prevention power (0: no gap prevention)

✧ **All items of the basic menu are restored to basic values at the time of study driving and "A" is automatically set up.**

9 Auxiliary Menu

This menu adjusts the operation of the door more precisely and set up the operation mode or the input/output options.

Setting Method of the Auxiliary Menu

1) When you press and hold ▼ (for about 0.5 second), it is converted to the auxiliary setting mode after buzzer sound and current items show up in the display.
2) When you press ▤ , it moves to the next item.
3) When you find out the desired item and push ▲ or ▼, the current value is displayed in the display and you can change the value.
4) Set up all items to change by the processes in Items 2) – 3) above.
5) When you press ↵ , the changed values are saved and it is converted to the operation mode.

Setting example (Change the opening cushion power from "3" to "4.")

Order	Button manipulation	Display	Explanations
1	Press and hold ▼ .	Lc	Convert to auxiliary menu mode. The current item Lc
2	Press ▤ three times.	ou	Move the item to the opening cushion power.
3	Press ▲ or ▼ .	3	Display the current set-up value of "ou" (current 3).
4	Press ▲ again.	4	Change the set-up value from "3" to "4."
5	Press ↵ .	SA	Finish after saving.

Auxiliary menu and set-up range of each item

No.	Item	Display	Range	Basic value	Explanations
1*[1]	EL Lock option	LC	0-2	1	0 none, 1 every time, 2 locked at the time of leaving the room
2*[1]	Motion delay	dt	0-0.5 sec	0.2	Operation delay time after canceling the deadbolt
3*[1]	Reverse sensitivity	rE	0-9	5	0: lowest sensitivity 9: highest sensitivity
4*[1]	Opening cushion power	ou	1-5	3	1: weakest 5: strongest
5*[1]	Closing cushion power	cu	1-5	3	1: weakest 5: strongest
6	Partial opening ratio	Pt	50-90%	70	Opening ratio against the entire opening width
7*[1]	Acceleration power	Ac	1-5	3	Mobility: 1. weakest 5. strongest
8[1]	Deceleration power	bP	1-5	A	Brake: 1. weakest 5. strongest
9	Operation mode	So	1-3	1	1. Automatic, 2 semi-automatic, 3. One-touch,
10	Panic option	Po	0-2	0	0 No use, 1. opening, 2. Closing
11	Auxiliary input option	Au	1-3	1	1 Swing out, 2 sensor, 3 stop at the time of semi-automatic mode,
12	Status output option	Su	0-2	1	0. No use, 1. At the time of opening, 2. After opening
13*[1]	Warming up mode	PA	1-3	Single: 1 Double: 2	1. Opening, 2. Closing, 3. stop
14	Initialization	In	0-1	0	0. None. 1. restore to the values at the time of factory shipments

✧ **Note 1: At the time of study driving, it is restored to the basic value and "A" is automatically set up.**

10 Special Menu

This menu sets up ID for communication and special functions and makes it possible to check the state of the load value, opening/closing speed, etc.

Setting Method of the Special Menu

1) When you press and hold and simultaneously (for about 0.5 second), it is converted to the special setting mode after buzzer sound and current items show up in the display.
2) When you press , it moves to the next item.
3) When you find out the desired item and push or , the current value is displayed in the display and you can change the value (Some items can be read only and cannot be modified.).
4) Set up all items to change by the processes in Items 2) – 3) above.
5) When you press , the changed values are saved and it is converted to the operation mode.

✧ **Because the setting method is identical to that of the "setting method of the auxiliary menu" and is different only in terms of menu starting method, please, refer to the setting example of the auxiliary menu.**

Special menu and set-up range of each item

No.	Item	Display	Range	Basic value	Explanations
1	Version	☷	1.0-9.9		Program version (read only)
2*[1]	Opening load value	d o	3-11	A	read only
3*[1]	Closing load value	d c	3-11	A	read only
4*[1]	Safety speed	S r	0-10	A	0: No use
5*[1]	Warming up speed	P S	1-10	A	Preparatory operation speed when turning on the power
6	Start operation	F c	0-1	0	0. Normal 1. Safety speed after high-speed opening of 400mm
7	End gap	c 9	3-20mm	5	Cushion distance in which the door is not inversed.
8	Sensor function	S F	0-1	1	0. No use safety sensor 1.Normal
9	Display option	F d	1-5	1	1.normal, 2. Door speed, 3. Load, 4. ENC Err
10	4581D	I d	1-99	1	Maximum 256
11	TCP/IP Address	t c	1-99	1	Maximum 256, maximum 65,536 when being interlocked with 4851ID.

✧ **Note 1: At the time of study driving, it is restored to the basic value and "A" is automatically set up.**

11 Maintenance and Management

Prevent unexpected risk or damage and make the product work silently for a long time by using the product safely and correctly.

1) When a separate manual lock is mounted, unlock the lock before turning on the power switch and turn off the switch before locking the lock.
2) When the door operates, don't push or grip the door .
3) To prevent foreign materials from interrupting the operation of the door, keep the automatic door clean always.
4) When passing a large amount of articles (package for moving, etc.), turn off the power switch, open the door and then operate the door again after passing all articles.
5) Prevent water from coming inside the door at the time of cleaning or rain.
6) Prevent paint or oil from being stuck on the automatic door device.
7) Make ground connection. If there is no ground connection, there is a risk of electric shock at the time of breakdown or short circuit. If it is impossible to make ground connection, please, install the short circuit prevention device. Don't make ground connection to the gas pipe, the water pipe, the lightening rod, etc.
8) When the device is given big shock or is damaged, turn off the power and contact the supplier.
9) When there is smoke or strange noise, turn off the power switch and contact the supplier.

12 Status code and Error code

Status code

Code	Content	Note
Fc	Function selection switch is on “closed” state.	
Fo	Function selection switch is on “open” state.	
or	Re-set the opening section.	Automatic setting
cr	Re-set the closing section.	Automatic setting
Sc	Leaving the room mode	
SI	Swing out state	
bA	Lack of battery (when being connected to an battery)	
Num -ber	Sensor detection	Displayed with

Error code

Code	Content
E 1	An article is stuck during operation.
E2	Failed to cancel the deadbolt.
E3	Disorder in engine operation
E4	Disorder in control power circuit
E5	Disorder in motor driving circuit
E6	Restriction of the door

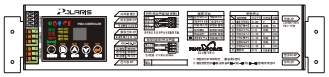
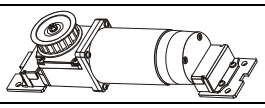
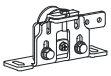
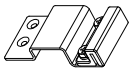
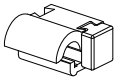
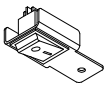
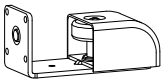
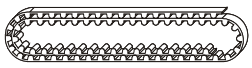
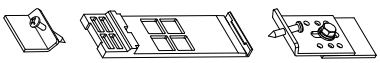
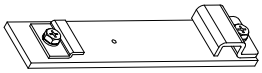
At the time of error, E shows up in the upper part of the control and only the number is displayed in the display.

When shows up, the number of the display means the detected sensor number.
1: inner sensor, 2: external sensor, 3: safety sensor, 4: auxiliary input (When Au is 2)
(When two or more sensors are detected, sensor numbers are displayed alternatingly.)

13 Problem Solution

Symptom	Check	Solution
No operation	There is no power	Check whether the power switch is turned on. Check whether the power is supplied normally (circuit breaker, etc.)
Can’t open the door	Even if the sensor detects, does not show up.	Check sensor connection. Check whether the detection lamp operates when sensor detects.
	“Fc” is displayed in the display	The function selection switch is closed.
	“6” is displayed in the display along with E.	The door can’t move. Check whether the lock is locked or a material is stuck.
Can’t close the door.	“ 1” or “2” is displayed in the display along with .	The motion sensor keeps working or is broken down or there is short circuit in the wiring.
	“3” is displayed in the display along with .	Safety sensor detects. Check the receptor and the light projector of the safety sensor.
	“4” is displayed in the display along with .	The auxiliary sensor keeps working or is broken down or there is short circuit in the wiring.
	“Fo” is displayed in the display.	The function selection switch is opened.
Door keeps being closed and opened.	“ 1” is displayed in the display along with E.	An article is stuck during operation. Remove the stuck article.
	Number is displayed in the display along with .	Sensor detects the door or is shaken due to vibration when the door is closed. Adjust the sensor angle and fix it again to not be shaken.
Door moves a little and stops.	“3” is displayed in the display along with E.	Check 2 cables connected from the controller to the engine.

14 Specification of Components

No.	Name of item	Item No.	Exterior	Number		Note	Check
				single	Double		
1	Rail	P512		1	1(2)	L=2,200mm Others	
2	Control	P501(S)		1	1	Safety sensor (option)	
3	Engine	P502(L)		1	1	Deadbolt (option)	
4	Driven pulley	P503		1	1		
5	Door hanger A	P504		1	2		
6	Door hanger B	P505		1	2		
7	Belt clamp S	P510		1	1	Basic	
8	Belt clamp D	P511		1	1	For branch double	
9	Stopper	P508		2	2		
10	Power switch	P509		1	1		
11	Lower guide roller	P514		1	2		
12	Timing belt	P513		1	1	S8M-Type	
13	Installation bracket (non-welding)	P506		3	5(6)	selection	
14	Installation bracket (welding)	P507		3	5(6)		
15	Safety sensor head	P515		1	1	Can be chosen selectively.	
16	Others		Buffer pad, materials for arranging lines	1	1		
17	Instructions		Instructions	1	1		