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# **Ditec DAS107** Automation for sliding doors (Original instructions)

IP2239EN Technical Manual

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## Contents

	Subject	Page
1.	General safety precautions	5
2.	List of tools	6
3.	Contents of the kit	7
4.	Standard installation	9
5.	Technical specifications	10
6.	Assembling the automation	10
7.	Installing the automation	18
8.	Electrical connections	21
9.	Adjustments	24
10.	Start-up	25
11.	Example of a connection with radar and photocells	29
12.	Troubleshooting / Alarms	30
13.	Routine maintenance plan	32

## Key

This symbol indicates instructions or notes regarding safety, to which special attention must be paid.

This symbol indicates useful information for the correct functioning of the product.

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## 1. General safety precautions



#### Failure to respect the information given in this manual may cause personal injury or damage to the device. Keep these instructions for future reference

This assembly and installation manual is intended exclusively for the use of qualified personnel. Installation, electrical connections and adjustments must be performed by qualified personnel, in accordance with Good Working Methods and in compliance with the current regulations. Read the instructions carefully before installing the product.

Incorrect installation could be dangerous.

The packaging materials (plastic, polystyrene, etc.) should not be discarded in the environment or left within reach of children, as they are a potential source of danger.

Before installing the product, make sure it is in perfect condition.

Do not install the product in explosive areas and atmospheres: the presence of inflammable gas or fumes represents a serious safety hazard.

Before installing the motorisation device, make all the necessary structural modifications to create safety clearance and to guard or isolate all the crushing, shearing, trapping and general hazardous areas.

Make sure the existing structure is up to standard in terms of strength and stability. The motorisation device manufacturer is not responsible for failure to observe Good Working Methods when building the frames to be motorised, or for any deformations during use.

The safety devices (photocells, safety edges, emergency stops, etc.) must be installed taking into account the applicable laws and directives, Good Working Methods, installation premises, system operating logic and the forces developed by the motorised door or gate.

The safety devices must protect against crushing, cutting, trapping and general danger areas of the motorised door or gate.

Display the signs required by law to identify hazardous areas.

Each installation must bear a visible indication of the data identifying the motorised door or gate.

When necessary, connect the motorised door or gate to an effective earthing system that complies with the current safety standards.

During installation, maintenance and repair operations, cut off the power supply before opening the cover to access the electrical parts.

The automation protection casing must be removed by qualified personnel only.

The electronic parts must be handled using earthed antistatic conductive arms. The manufacturer of the motorisation device declines all responsibility if component parts not compatible with safe and correct operation are fitted.

Only use original spare parts when repairing or replacing products.

The installer must supply all information concerning the automatic, manual and emergency operation of the motorised door or gate, and must provide the user with the operating instructions.

# 2. List of tools

Tape measure	
Pencil	
10mm open-end spanner	2
3mm Allen key	-4(6-
10mm embedded hexagon Allen key	
TORX T20 spanner	
Drill	are
Scissors	-fo
Saw	R

3. Contents of the kit



	Ref.	Description	Qty
BOX - A	1	Beam profile L = 4400mm	2
BOX - B	14	Cover profile L = 4400mm	2
BOX - C	2	End stop	2
	3	Power supply unit	1
	4	Gearmotor	1
	5	Control panel	1
	7	Carriage	4
	8	Belt	1
	9	Belt connection bracket	2
	10	Belt restrainer hook	2
	12	Belt transmission	1
	13	Carriage anti-derailing device	4
	15	Cover end plate	2
	16	Function selector switch COM500MKS	1
	17	Pair of photocells	2
	18	Cover supports	2
	19	Cover restraints	5
		Connection cables	3
		Cable fastener	10
		Cable fastener ties	15
		M6x16 screws	4
		Ditec Entrematic logo	1
		Technical manual	1
		User manual	1
	OPTIO	NAL ACCESSORIES	
	6	Batteries DAS901BAT1	1
	11	Anti-panic block DAS801LOKA	1
		Standard block DAS801LOK complete with release cord	1

The given operating and performance features can only be guaranteed with the use of DITEC Entrematic accessories and safety devices.

Unless otherwise specified, all measurements are expressed in mm.

## 4. Standard installation



Ref.	Code	Description
1	Ditec DAS107	Automation for sliding doors
2	COM500MKS	Function selector switch
3		Photocells
4		Opening sensors
	Connect the po	wer supply to an approved omnipolar switch with an opening distance of the contacts of

A at least 3mm (not supplied). The connection to the mains must be made via an independent channel, separated from the connections to command and safety devices.

## 5. Technical specifications

	Ditec DAS107
Power	110V~ ÷ 220V~ ±10% ; 50/60 Hz
Rated power	max. 100W
Max. load 1 door wing	120kg
Max. load 2 door wings	80kg / door wing
Temperature	-20°C / +50°C
Degree of protection	IP20
Power supply for accessories	24V - 1A
Max speed	0,5 m/s (1 wings) ; 1,0 m/s (2 wings)
Intermittance	S3=100%
Minimum number of maneuvers in AVERAGE conditions of use	1.000.000 cycles* (2 wings x80 kg/1 wing x100 kg)

\* test carried out by Entrematic Italy laboratory

## 6. Assembling the automation

## 6.1 Cutting and preparing the beam

Cut the beam profile to the size shown.

To make it easier to fix the beam to the wall, it is useful to drill holes of Ø 8mm every 400mm. NB: remove any cutting residue from the aluminium, cleaning the carriage slide guides in particular.



## 6.2 Cutting and preparing the cover

Cut the cover profile to the size shown.



# IP2239EN - 2016-05-11

#### Automation with two door wings



LT		PL		LM		В		С		D		E		F		S
*2400	2PL	940	_	520		80		420		580		960		350		50
*2600	_+2S	1040	.T/2-	570		130		470		630		1010		400		50
*2800	+20+	1140	S-21	620		180		520		680		1060		450		50
*3000	400	1240	0	670		230		570	Ę	730		1110		500	(LT/	50
2800		1340		720	PL/	80	0	420	/2-PI	580	C+	960	C+5	350	2)-(P	50
3000	Ν	1440		770	2+S	130	340	470	/2-3	630	160	1010	540	400	L/2]+	50
3300	PL+	1590	_T/2-	845		205		545	10	705		1085		475	+380	50
3600	2S+2	1740	·S-10	920		280		620		780		1160		550		50
4000	0	1940	0	1020		380		720		880		1260		650		50
4400		2140		1120		480		820		980		1360		750		50

The values shown here are calculated by considering an overlap of S=50

\*Lenght increased compared to the obatined opening passage due to power supply dimension.







## Automation for a single door wing with right-hand opening



LT		PL		LM	I	А	В		С		D		E		F	S
2000		915		1015		30	370		710		870		1250		40	50
2200		1015		1115		30	470		810		970		1350		40	50
2600	Ν	1215	F	1315		30	670		1010	5	1170		1550		40	50
3000	PL+	1415	.T-39	1515	PL-	30	870	0-0	1210	Ľ K	1370	C +	1750	0+	40	50
3300	3S+2	1565	-20),	1665	+2S	30	1020	340	1360	-325	1520	160	1900	540	40	50
3600	0	1715	/2	1818		30	1170		1510	ς.	1670		2050		40	50
4000		1915		2015		30	1370		1710		1870		2250		40	50
4400		2115		2215		30	1570		1910		2070		2450		40	50

The values shown here are calculated by considering an overlap of S=50







SET MENU | 2 = [] []

## Automation for a single door wing with left-hand opening

•

LT		PL		LM	1	А	В		С		D		E		F	S
2000		915		1015		40	1780		1440		1280		900		120	50
2200		1015		1115		40	1880		1540		1380		1000		120	50
2600	N	1215	F	1315		40	2080		1740	H	1580		1200		120	50
3000	PL+	1415	_T-39	1515	PL	40	2280	0+	1940	_ 	1780	C	1400	C-1	120	50
3300	3S+2	1565	5-20),	1665	+2S	40	2430	340	2090	5+42	1930	160	1550	540	120	50
3600	0	1715	/2	1815		40	2580		2240	S+0	2080		1700		120	50
4000		1915		2015		40	2780		2440		2280		1900		120	50
4400		2115		2215		40	2980		2640		2480		2100		120	50

The values shown here are calculated by considering an overlap of S=50





IP2239EN - 2016-05-11

## 6.3 Assembling the carriages

Assemble the anti-derailing wheel [13] on the carriages, in the position shown in the figure.



#### 6.4 Assembling the transmission

Position the transmission as shown at page 11, 12, 13 in position [F].



## 6.5 Assembling the belt

Insert the belt in the motor pulley (to make this operation easier, turn the pulley). Wrap the belt around the transmission.

Join the belt ends in line with the belt connection brackets [9], and lock it in place with the belt restrainer hook [10]. Cut off any excess.

Example for an automation with two door wings



## 6.6 Installing the door wing block (optional)

The door wing blocking device can be fitted to keep the door closed.

The automation automatically recognises the blocking device and acts properly.

- Fasten the door wing blocking device inside the box by means of the screws supplied.
- Place the door wing in the closure position.
- Check that, with the door closed, the block is resting correctly on the block hook-up bracket, preventing the door from sliding.
- Make the electrical connections as explained in chapter 8.1.

For more information, refer to the blocking device manual.





#### 6.7 Installing the end stops

Insert the end stops [2] in the beam profile and fix them in place. Refer to the images on pages 11-12-13 for the correct positioning.



## 6.8 Assembling the cover supports

Insert the cover supports [19] in the cover profile and fix them in place (A) near the end plate, as shown in the figure.

Use the screws supplied to fix the heads to the casing profile, as shown.

Insert the cover restraints (20) along the cover profile.

To fix the cover to the beam, push up the support 18, insert it in the beam and fix it by screws (B).



Insert the cover support (18) at the ends of the guide of the cover. Screw the end plate (15) to the cover.



# 7. Installing the automation

## 7.1 Beam fastening

- Establishing the fixing height from the highest point of the finished floor.
- Measure the height, including the door wing connection. The installation height is equal to HM+40mm.
- Fix the beam profile in the points indicated, using wall plugs and bolts. NB: the heads of the screws/bolts must not be more than 6.5mm.
- Distribute the fixing points every 400mm, and at different heights if necessary.
- Make sure the top surface of the beam is perpendicular with the floor and not deformed lengthwise with the shape of the wall. If the wall is not straight and smooth, iron plates must be fixed to it and then the guide in turn fixed to the plates.

NOTE: the maximum space for the wings between cover and beam is 65mm.

WARNING: The fastening of the beam to the wall must be suitable in order to sustain the weight of the door wings.



IP2239EN - 2016-05-11

## 7.2 Installing and adjusting the door wings

Fix the carriages to the door wings as shown in the figure.



The vertical position of the door wing can be adjusted, as shown in the figure.

Loosen the screws [A] and adjust the height with the screws [B].

Move the door wing manually to make sure the movement is free and without friction, and that all the wheels (including the anti-derailing wheel) are resting on the guide.



## 7.3 Adjusting the belt

Adjust the belt tension by means of the screw [A]. WARNING: incorrect adjustment impairs the correct functioning of the automation.



## 8. Electrical connections

Connect the automation to an efficient earthing system that complies with current safety standards.

During installation, maintenance and repair operations, cut off the power supply before opening the cover to access the electrical parts.

The automation protection casing must be removed by qualified personnel only.

An omnipolar disconnection switch with a contact opening distance of at least 3 mm must be fitted on the mains supply.

Check there is an adequate residual current circuit breaker and overcurrent cut-out upstream of the electrical system.

Make sure the yellow/green conductor is at least 3 mm longer than the brown and blue conductors.

Install an electric switch next to the automatic system.

• Connect an electric cable – type H05RN-F 3G1,5 or H05RR-F 3G1,5 – to the terminals L (brown), N (blue), ((yellow/green) on the power supply connector.

Make sure there are no sharp edges that may damage the power supply cable.

If the power cable is damaged, have it replaced by the manufacturer or qualified personnel.

- Connect the power cable [1] to the terminal board [2].
- Connect the connection cable [3] to the power supply unit [4].



Make the connections indicated.





## 8.1 Control panel commands



#### 8.1.1 Commands

Contact			Description
15	N.O.	OUTER SIDE OPENING	Connect the external sensor. The closure of the contact activates the door opening operation.
1 • 7 • +		POWER SUPPLY TO ACCESSORIES	Power supply to the external sensor.
89	N.C.	REVERSAL SAFETY CONTACT 1	Connect safety photocell and inner safety sensor contact.
8 <u>t</u> 11	N.C.	REVERSAL SAFETY CONTACT 2	Connect safety photocell and outer safety sensor contact.
8 12	N.O.	KEY OPENING	The closure of the contact via a key command activates an open- ing operation and a closure after time selected by menu 04.Can be used for opening in night/CLOSED mode. In presence of pow- er supply, a command 8-12 opens the door partially (see menu 11) and closes after time selected by menu 04. In the absence of a power supply, a command 8-12 causes the reactivation of the battery for the time needed to carry out a total opening opera- tion.The door remain in open position and the battery discon- nected from control unit.

8 • 14 •+		POWER SUPPLY TO ACCESSORIES	Power supply to the photocells.
15 16	N.O.	OPENING - INNER SIDE	Connect the internal sensor. The closure of the contact activates the door opening operation.
15 • 17 • +		POWER SUPPLY TO ACCESSORIES	Power supply to internal sensors.
18 • • • 19		BLOCKING DEVICE CONNECTION	Output for connecting an electro-mechanical block (optional). The blocking device is automatically selected during the learning phase (see parameter $\frac{0}{2}$ 5)

## 9. Adjustments

- 1 UP: To step up in parameter or value menu;
- 2 SELECT: Enters into parameters or value menu and program a value into menu;
- 3 DOWN: To step down in parameter or value menu;
- 4 LEARN/EXIT:

a) LEARN has 2 functions:

- Pushing it for more than 2 seconds the display show "L" for enable a learning phase.

- Pushing it for more than 10 seconds the displat show "L" for return to default factory set parameters .

b) EXIT jumps out from value menu without saving or parameter menu



The two-digit display show  $\Box$   $\sqcap$  when the operator is powered.

#### 9.1 Adjusting the parameters

- 1. Press key 2-SELECT to visualize the first parameter.
- 2. Press key 1-UP or key 2-DOWN to select the required parameter.
- 3. Press key 2-SELECT again to view the value of the selected parameter. The value will flash twice.
- 4. Press key 1-UP or key 2-DOWN again to set a permitted parameter value.
- 5. Press key 2-SELECT to confirm the selected value.
- 6. Press key 4-LEARN/EXIT to quit without making any further modifications.
- 7. Press key 4-LEARN/EXIT again to quit the parameter selection. The display will show □ □. The display goes back to normal operation □ □ after 3 min of inactivity.

#### 9.2 Restoring the factory settings

To restore the factory settings, press key 4-LEARN for 10 s. The display will flash with  $\lfloor$  . The successful restoration of the predefined parameters is confirmed by  $\Box$   $\Box$ .

## 10. Start-up

Start-up must be carried out in the following order when the operator is installed To allow a correct learning of door weight, the "learning phase" must performed with door leaf installed.

- Connect the accessories and jumper the N.C contact 8-9 and 8-11 if not used;
- Connect the mains power supply to the control unit;
- Select the opening direction by menu 12;
- Connect the battery kit DAS901BAT1 if present;
- Push the learn button for 2 seconds and release it when there is a flashing "L" in the display.

During the learning phase, the following accessories/parameters are automatically detected:

- Batteries
- Blocking device and type of blocking device
- Measurement of the passage opening
- Calculation of the door wing weight

When the learn is finished the display can show parameter 67. It is necessary to confirm the number of installed wings:

1) press 2-SELECT

2) press 2-SELECT again. The value 67 will flashes

3) press 1-UP or 2-DOWN to select the required value

4) press 2-SELECT to confirm the selected value

5) press 4-LEARN for more than 2 s to return the display "on" mode. After 2 s the automation closes and is ready for normal operation.

#### NOTE:

If the door cannot perform a correct learning phase due to mechanical reason the display could show menu numbers messages that are not present in the standard menu. Remove the mechanical obstacles and restart again the learning sequence.

If necessary, you can adjust the following main parameters:

00	Opening speed
50	Closing speed
0 3	Automatic closing time
	Partial opening
- 12	Opening direction
15	Type of program performance
67	Selection of number of wings

Make sure the installation complies with the current regulations and the essential requisites laid down by the relevant authorities.

## 10.4 Description of the parameters

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In the "INSTALLATION SETTINGS" column you can note the modified setting values.

Display	Description	Factory setting	Installation setting
00	<b>Opening speed selection (10÷70; 10= 10cm/s; 70= 50cm/s)</b> Sets the maximum opening speed.	Ч 🛛	
5.0	Closing speed selection (10÷70; 10= 10cm/s; 70= 50cm/s) Sets the maximum closing speed.	AUTO	
Ο3	Automatic closing time selection (00÷60 s) Adjusts the time during which the automation remains open following an internal or external opening command.	٦ 0	
04	Selection of automatic closing time after a "KEY" command (00÷60 s) Adjusts the time during which the automation remains open following a key opening command "KEY".	٦	
05	Block type selection (00÷05) 00 = no blocking device 01 = D0 NOT USE 02 = D0 NOT USE 03 = anti-panic blocking device 04 = standard blocking device 05 = D0 NOT USE	AUTO	
06	Closure thrust before opening operation (00÷01) 00 = Disabled 01 = Enabled If this function is enabled (01), the automation applies a clo- sure thrust to guarantee the correct release on the opening of the electric lock, if the selector is set on CLOSED DOOR or ONE WAY.	AUTO	
רם	Configuration of photocells 1 (00÷01) 00 = N0 01 = NC	01	
80	Configuration of photocells 2 (00÷01) 00 = N0 01 = NC	01	
	Partial opening selection (00÷99%)	50	
12	<b>Opening direction selection (00÷01)</b> The opening direction is determined by the position of the belt connecting bracket. 00 = right hand opening for single door wing automation. 01 = left hand opening for single door wing automation and for double door automations.	01	
15	Acceleration and braking performance (01÷05) 01 = minimum performance 05 = maximum performance	03	

IP2239EN - 2016-05-11

Display	Description	Factory setting	Installation setting
41	Selection of the battery (00÷01) 00 = No battery 01 = 12V	AUTO	
ЧЭ	Adjustment of the opening delay with blocking device (00÷99 s x 0.1) Adjusts the opening delay time when a blocking device is in- stalled, if the selector is set on CLOSED DOOR or ONE-WAY.	00	
ЧR	<b>Close kick force</b> The force applied from the operator to the door leaf during the close kick ( 00-19N x10).	05	
67	Selection of number of wings (00÷01) 00 = Automation with one door wing 01 = Automation with two door wings	TO BE SET	

## 11. Example of connection

## 11.1 Example of connection with opening radar and photocell



IP2239EN - 2016-05-11

## 11.2 Example of connection with opening + safety sensors PASAA2





If used also photocell in combination with sensors:

- not connect the blue wire of sensor to terminal15;
- not connect the NPN wire of photocell receiver to terminal 9;
- connect the blue wire of sensors and the NPN wire of receiver togheter.

NOTE: the safety sensors work in normal mode, without possibilities of the testing of the safety contact.

11.3 Example of connection with opening +safety sensors PAS024AS









If used also photocell in combination with sensors:

- not connect the grey wire of sensor to terminal15;
- not connect the NPN wire of photocell receiver to terminal 9;
- connect the grey wire of sensors and the NPN wire of receiver togheter.

NOTE: the safety sensors work in normal mode, without possibilities of the testing of the safety contact.

# 12. Troubleshooting / alarms

Problem	Solution
The automation doesn't open and	Check and change the functions selector switch settings.
the motor doesn't start up	Make sure there are no objects on the sensor's detection path.
	Check the power supply switch inside the building.
The motor starts up but the auto-	Check any locks, releasing them if necessary.
mation doesn't open	Make sure there are no objects hindering the opening of the automation.
The automation doesn't close	Check and change the functions selector switch settings.
	Make sure there are no objects on the sensor's detection path.
The automation opens and closes by itself.	Make sure there are no moving elements on the sensor's detection area.

#### 12.1 Alarms

- The control panel display shows error signals.
- During normal operation, the display shows  $\Box \Box$ . ٠
- If the display is switched off, check the mains power supply and the power cable, then RESET from the function selector switch. Alternatively, disconnect the power supply and then reconnect it. If the problem persists, replace the control panel or power supply unit.
- When there is an alarm, the display alternates the error type (e.g. F + Motor error) with a • 2-figure number indicating the specific error (e.g. [] 3 - Encoder error).
- If there are several errors, they will be visualised in alphabetic order and in sequence.
- On each control panel there is a green LED.
- If this LED is switched off or flashing, this means the control panel is malfunctioning. •

E2 - Emergency battery error		
Error	Cause	Solution
21	Emergency battery error. The batteries are almost completely worn down.	Recharge or replace the batteries.
	Emergency battery error. The battery voltage is incorrect.	Replace the control panel.
25	Battery error. The batteries are disconnected or short-circuit- ed, or the internal thermal fuse is faulty. The power supply current of the batteries does not comply with the specifications.	Make sure the connection is correct.
		Recharge or replace the batteries.
		Replace the control panel.

E3 - Control panel error		
Error	Cause	Solution
22	24V output overcurrent error.	Make a RESET. If the problem persists, check the sensors and accessories connected to the 24V output.
		Make a RESET. If the problem persists, replace the control panel. The green LED flashes or is switched off.
٦ 5	Blocking device error	Check the correct blocking device is being used. If the problem persists, replace the blocking device.

#### E4 - Motor/encoder error

Error	Cause	Solution
0 3	Encoder error. The encoder, encoder cable or motor cable is damaged.	Check the encoder and motor connections.
04	Motor current error. The motor cable or encoder cable is damaged.	Make sure the connection is correct.
09	Encoder cable error. The encoder cable is damaged.	Check the encoder cable.

#### E6 - Communication error

Error	Cause	Solution
12	Motor control communication error. Motor control processor disconnected from the circuit.	Make a RESET. If the problem persists, replace the control panel.
53	Communication error on the function selector switch. Function selector switch disconnected from the circuit.	Make a RESET. If the problem persists, replace the function selector switch.

#### E7 - Motor temperature error

Error	Cause	Solution
16	The automation work cycle is too high for the speed and open automation time settings.	If the motor is hot, bring the automation to OPEN DOOR mode and wait for at least 1 minute. Reduce the speed and increase the open automation time.

#### **IMPORTANT**

After removing the fault or replacing the automation components, check the following:

- the movement of the door (adjust the necessary parameters so that the door works correctly);
- 2. the parameters relating to accessories have been correctly set;
- 3. the installation complies with local laws and the minimum requisites of the relevant authorities.

## 13. Routine maintenance plan

Perform the following operations and checks every 6 months, according to the intensity of use of the automation.

Without any power supply from the mains or from batteries:

- Clean and lubricate the mobile parts (the carriage slide guides and the floor guides).
- Check the belt tension.
- Clean sensors and photocells.
- Check the stability of the automatic system and make sure that all screws are correctly tightened.
- Check the correct alignment of the door wings, the position of the end stops, and the correct triggering of the blocking device (if installed).

After restoring the power supply from the mains or batteries:

- Check the blocking device is working correctly (if installed).
- Check the stability of the automation, and make sure it moves smoothly.
- Check that all control functions are operating correctly.
- Make sure the command and safety sensors are working correctly.

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NB: for spare parts, see the spares price list.

Only use original spare parts when repairing or replacing products.

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