

# 08880870RS

**CONTROL UNIT FOR MOTORS 230 VAC  
RADIO CONTROL 433 MHZ & SERIAL RS485**



## INSTALLATION AND USE MANUAL



**ITALIANO**

*Versione 1 07.10.2020*

## 1.0 SECURITY INDICATIONS

**ATTENTION: CAREFULLY READ THE FOLLOWING SAFETY INSTRUCTIONS BEFORE BEGINNING THE INSTALLATION OF ONE OF THESE APPLIANCES; THEY ARE USEFUL TO PREVENT DAMAGE, ELECTRIC CURRENT CONTACTS, INJURIES AND OTHER INCONVENIENCES. SAVE THIS MANUAL FOR FURTHER CONSULTATION.**

- These control units are intended exclusively for operating gearmotors for awnings and shutters. The use for applications other than those indicated is not authorized by the manufacturer who cannot be held responsible for damage due to improper use.
- After removing the packaging, make sure the product is intact. Any plastic bags, polystyrene, small metal parts of various types, must not be left within the reach of children due to danger.
- Before connecting the appliance, check that the power supply you use has the same characteristics indicated in the technical data table shown in this instruction .
- Product installation must be performed **according to the manufacturer's instructions**. Failure to comply with these recommendations may compromise the **safety** and **warranty** of the product
- The installation must be done by **competent and qualified technical staff**. The execution of the power supply electrical system must be done following the current regulations.
- To avoid the danger of injuries or death caused by electric current, before doing any wiring or adjustment operation, disconnect the power supply line. To ensure effective separation from the network, it is recommended to install, upstream of the control line, a single-pole main power switch with contact opening of at least 3.5 mm.
- Suitable connection materials must be used to ensure insulation according to current electrical safety regulations .
- Do not wash the device with solvents or water jets. Do not immerse in water.
- **Attention:** in case of **breakdown or malfunction**, switch off the device turn off the appliance from the main switch and have a **qualified technician** intervene .
- Each fix must be done only by qualified technician of a service center authorized by the manufacturer.
- Before doing any clean or maintenance operation ensure to have disconnected the appliance from the network. For greater safety it is advisable to remove the electrical connections.
- Ask always and exclusively the use of original spare parts. Failure to comply this rule can compromise the security and can cancel the benefits of the warranty of the device.
- In case of problems or doubts during assembly or operation, contact your dealer or the manufacturer directly.

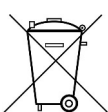
## 1.1 WASTE DISPOSAL

**This product is an integral part of the automation, and therefore must be disposed of together with it .**

As for the installing operations, even at the end of the life of this product, the disposal operations must be done by qualified technicians. This product is made by some types of materials: some could be recycled, others must be so-bered. Inform about the recycling or disposal systems in the regulations in force in your territory for this product category.



**Attention!** – Some parts of the product can contain polluting or dangerous substances that, if dispersed in the environment, could provoke dangerous effects in the environment itself and in human health.



As indicated by the symbol to the side, it is forbidden to dispose of this product with household waste. Then carry out the “separate collection” for disposal, by the methods in the regulations in force in your territory, or return the product to the seller when purchasing a new equivalent product .

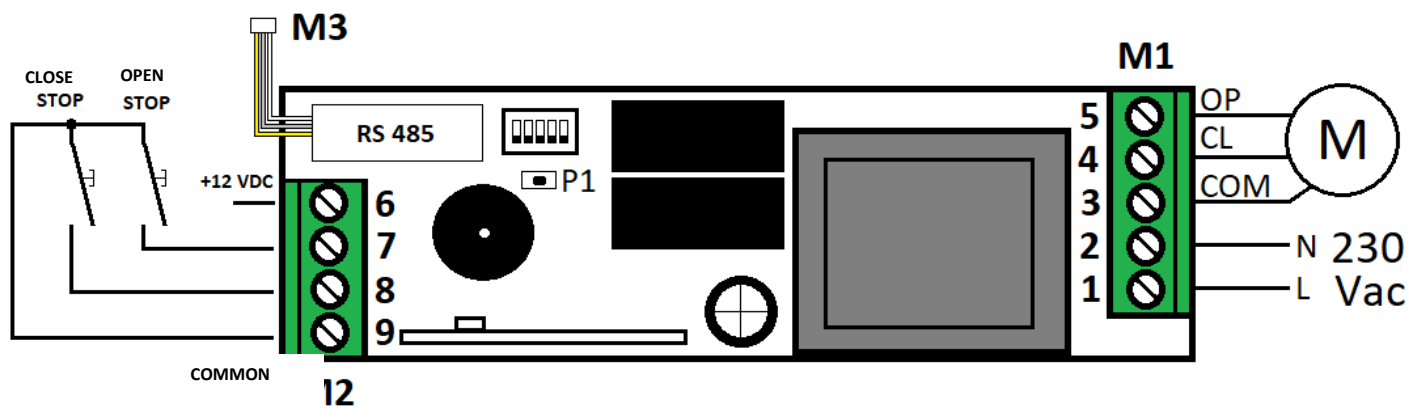


**Attention!** – the local rules can provide for heavy penalties in case of abusive disposal of this product.

## 2.0 TECHNICAL DATA

PARAMETERS	870RS
SUPPLY VOLTAGE	230 VAC/50Hz
MAXIMUM OUTPUT POWER	500 W
WORKING TEMPERATURE	-30 / +70°C
PROTECTION FUSE	PTC
WORKING TIME	60 SEC.
MAX TX STORABLE	15
RADIO RX FREQUENCY	433,92 Mhz
SERIAL DATA TRANSMISSION	RS485
MOD BUS MAX ADRESSES NUMBER	32
PROTECTION DEGREED	IP 55
DIMENSIONS	115 x 35 x 23 mm

## 2.1 PRODUCT COMPOSITION AND 870RS CONNECTION SCHEME



### M1

1	230 VAC (P)
2	230 VAC (N)
3	COMMON MOTOR
4	MOTOR OPEN PHASE
5	MOTOR CLOSE PHASE

### M2

6	+12 VDC
7	OPEN / STOPCOMAND
8	CLOSE / STOPCOMAND
9	0V COMMON BUTTONS

### M3

YELLOW	COMMON SIGNAL
GREY	SIGNAL B - RS485
WHITE	SIGNAL A - RS485

## 2.2 FUNCTIONING GENERAL RULES

The control unit 870RS is a control unit for a 230 VAC motor. The motor could be commanded in different ways:

- By radio: by an Almot W serie remote control (771W - 775W - 776W).
- By cable: Connecting 2 buttons in the inputs arranged in the control unit (clean contact / impulse command).
- By a 5 positions dip-switch is it possible to select different parameters for the serial functioning.

The control unit works in a 60 seconds working time.

### **ATTENTION!!**

- Carry out all the wiring with the **control unit disconnected**.
- During the wiring operations **respect strictly the connecting scheme**, a worse connection can cause **damage to the system**. Follow the most suitable scheme for the system type. (**paragraph 2.1**)
- **Not use**, for the command, **stable position switches**.
- If during the installation, the continuous opening and closing of the awning, roller shutter or bottom hinged motor blocks, this is not due to a failure of the board, but to the intervention of the thermal protector contained within the motor. Wait for the engine to cool down and try again .

## 3.0 MOD-BUS COMMUNICATION

The MOD-bus connection takes place through an RS485 serial in RTU 8N2 or 8N1 mode.

It accepts both the individual address (1:247) and broadcast (address = 0).

In broadcast it accepts write commands but does not send any response on the bus .

The baud rate managed are: 9600, 19200, 38400, 57600, 115200.

**Table 1 MOD-bus supported functions**

COMMAND DESCRIPTION	FUNCTION CODE
Read holding registers	0x03
Write single register	0x06
Write multiple registers	0x10
Read/Write multiple registers	0x17

## 3.1 REGISTER TABLE

The registers that there aren't in the **Table 2** and **Table 3** are not managed and cause the exception 0X02, illegal data address.

The dashes "---" in the column ADDRESS they identify all the registers with address included between that of the previous row and that of the next row .

In the column REFERENCE is indicated the reference code of the parameter shown in the setting window of the program **JnetTest**.

The type of data is identified in the TYPE column according to the following legend:

**Hex** numeric value in hexadecimal base.

**Bin** numeric value in binary, string of 0 and 1 to a group of 4 digits. The most significant bit is the leftmost bit, the one less significant is the last on the right

**FxN** integer value with N decimal places

example:      Motor fast                      Fx0    1203 = 1203 impulse each 0,1 s  
                  Power supply voltage      Fx2    2853 = 28,53 V  
                  Model                                Hex    12334 = 0x302E = model 302E

**Read-only 2 register table**

ADDRESS		ABBREVIATION	NAME	VALUE	TYPE
DEC	HEX				
0	0x0000		reserved		Hex
1	0x0001				
2	0x0002	SN-2	Firmware and Hardware version		Hex
3	0x0003	SN-3	Firmware and Hardware Release		Hex
4	0x0004	SN-6	Id Device		Hex
5	0x0005	SN-7	Id Revision		Hex
6	0x0006	SN-4	Checksum of the BootLoader		Hex
7	0x0007				
8	0x0008	SN-5	Check-sum of the Program		Hex
9	0x0009				
10	0x000A	Stp1	MSByte device state	1 Power-On 3 Alarm 5 Normal 7 Remote control programming	Fx0
		Stp2	LSByte Motor step		
11	0x000B	Rf-N	MSByte Remote controls in memory		Fx0
			LSByte reserved		
12	0x000C		reserved		
13	0x000D		reserved		
14	0x000E		reserved		
15	0x000F		reserved		
16	0x0010	Flg1	MSByte Relè state	0001 0000 relè active Close 0010 0000 relè active Open	Bin
		Flg2	LSByte Inputs status to 1 the inputs active or the switch on ON, from left to right :	Button, Input 2, Input 1, Dip switch 5 Dip switch 4, Dip switch 3, Dip switch 2, Dip switch 1	Bin
17	0x0011		MSByte reserved		
		Flg3	LSByte Flag Alarms	0000 0010 wind alarm, it is immediately reset	
18	0x0012		reserved		
19	0x0013	Flg6	MSByte Functioning ways To 1 only a bit at a time from left to right:	takes away movement UP/DW Command execution in dead man mode Light mode with timed channel 2 Sunshade Mode roller shutter Mode Lights mode Awning mode (wind) Vasistas mode	
		Mis5	LSByte Wind fast	km/h	Fx0
20	0x0014		reserved		
---	---		reserved		
39	0x0027		reserved		

**Read-only 2 register table**

ADDRESS		ABBREVIATION	NAME	VALUE			UNIT	TYPE
DEC	HEX			MIN	NOM	MAX		
1536	0x0600		Reserved					
---	---		Reserved					
1655	0x0677		Reserved					
1656	0x0678	P—5	Working time	10	120	240	s	Fx0
1657	0x0679	P—6	Test time	10	120	240	s	Fx0
1658	0x067A	P—4	MSByte timing used 0 Normal, P—5 1 Test, P—6	0	0	1		Fx0
		P—3	LSByte Dead man 0 Disabled 1 Qualified	0	0	1		Fx0
1659	0x67B	P—2	MSByte Function RC870N 0 Nothing 1 Awning	0	1	6		Fx0
		P—1	LSByte Managment MOD-bus 0 Disabled 1 Qualified	0	0	1		Fx0
1660	0x67C		MSByte reserved					Fx0
		P—7	LSByte Time monitoring	0,1	0,1	25,0	s	Fx1
1661	0x067D		Reserved					
1662	0x067E	P-11	MSByte address MOD-bus	1	1	247		Fx0
		P-10	LSByte baud rate Index 0 9600 1 19200 2 38400 3 57600 4 115200	0	2	4		Fx0
1663	0x067F	R/W	Reserved					

 **ATTENTION!**

*Do not write in the reserved registers. Writing incorrect values can compromise the correct functioning of the card.*

### 3.2 DEVICE COMMANDS

Is it possible to send the commands described in the **Table 4** to the control unit writing in the register with the address:

**Table 4 commands by MOD-bus**

VALUE	DESCRIPTION
0x03FC	Opening command
0x04FB	Stop command
0x05FA	Closing command
0x3CC3	Reset of the device. The device restart from the beginning, setting to zero eventual alarms, as if it switches on, doing the initial test.

### 3.2 DEVICE COMMANDS

If there are communication problems and you are not sure of the baud rate value and/or of the setted address, it is possible to restore the nominal values following the procedure described here:

- 1) Remove power to the board .
- 2) Push the button on the board.
- 3) Power the board by pushing the button.
- 4) The board will do 4 short sounds of the buzzer and 4 lightening with the led showing that it has restored the normal values: baud rate = 38400 and address = 1 if it is not setted from the dip-switch.

If management via MOD-bus is enabled , parameter P - 1, so the address in the board is setted from the 5 dip-switch following whst is defined in the **Table 5**, while the parameters, the different ways of functioning and the baud-rate are setted by MOD-bus writing in the appropriate registers.

In the **Table 5**, to underline better the state of the dip-switch, the OFF state is explicitly indicated only in the last line while in the rest of the table only the ON state is indicated, leaving the boxes of the dip-switches in OFF empty .

**Table 5: Dip-switch SW1, address MOD-bus**

Dip-switch SW1					ADDRESS
5	4	3	2	1	MOD-bus
				ON	1
			ON		2
			ON	ON	3
		ON			4
		ON		ON	5
		ON	ON		6
		ON	ON	ON	7
	ON				8
	ON			ON	9

Dip-switch SW1					ADDRESS
5	4	3	2	1	MOD-bus
	ON		ON		10
	ON		ON	ON	11
	ON	ON			12
	ON	ON		ON	13
	ON	ON	ON		14
	ON	ON	ON	ON	15
ON					16
ON				ON	17
ON			ON		18

Dip-switch SW1					ADDRESS
5	4	3	2	1	MOD-bus
ON			ON	ON	19
ON		ON			20
ON		ON		ON	21
ON		ON	ON		22
ON		ON	ON	ON	23
ON	ON				24
ON	ON			ON	25

Dip-switch SW1					ADDRESS
5	4	3	2	1	MOD-bus
ON	ON		ON		26
ON	ON		ON	ON	27
ON	ON	ON			28
ON	ON	ON		ON	29
ON	ON	ON	ON		30
ON	ON	ON	ON	ON	31
OFF	OFF	OFF	OFF	OFF	32

## 4.0 FUNCTIONING VIA RADIO

### 4.1 PROGRAMMING FIRST REMOTE CONTROL MASTER REMOTE (IF THERE IS NO TXIN MEMORY )



1) Powering of the control unit



2) The motor will do 2 short II motore eseguirà 2 opposite maneuvers to indicate that **there aren't TX** in the control unit memory.

NEW



3) **In a few seconds** push the button STOP of the remote control to be memorized. (PUSH CLIMB FOR 776W).

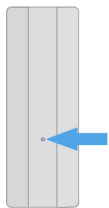


4) The motor will do 2 short maneuvers to indicate the storage of the TX. **Release the hidden button of the TX.**



5) **Programming done.**

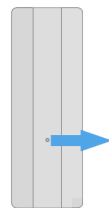
### 4.2 PROGRAMMING OF OTHER TX FROM THE MASTER TRANSMITTER



1) With the control unit powered, push and keep pushing the hidden button of the **TX master already memorized.**



2) The motor will do 2 short opposite maneuvers to indicate **the entry into storage.**



3) Release the hidden button of the TX.

NEW



3) **In a few seconds** push the button **STOP** of the TX to memorize. (PUSH CLIMB FOR 776W)

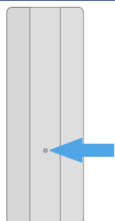


4) The motor will do 2 short opposite maneuvers to indicate that the **TX has been stored.**



5) **Programming done.**

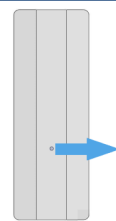
### 4.2 DELETING A TX FROM THE TRANSMITTER



1) Push and keep pushed the PROGRAMMING button of an already stored TX.



2) few seconds after the motor will do 2 short opposite maneuvers.



3) Remove pressure from the PROGRAMMING key of the TX already memorized.



4) Immediately press the STOP key of the TX from to delete



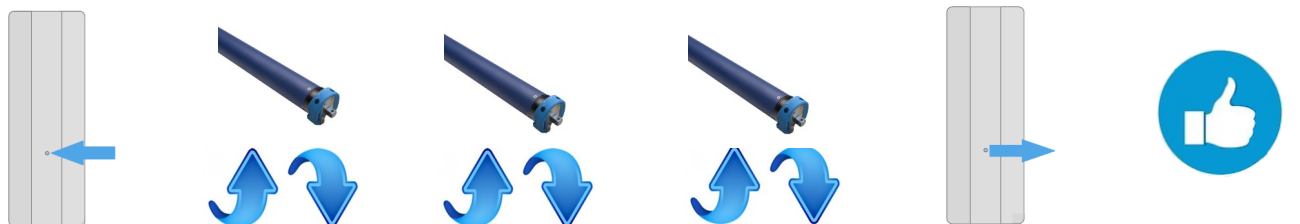
5) the motor will do 2 short opposite maneuvers.



6) **RESET done**




#### 4.4 REVERSE MOTOR MOVEMENT BY TX



- 1) Press and hold down the PROGRAMMING key of the TX already memorized.
- 2) after a few seconds the motor will perform TWO short opposite maneuvers . 1 BEEP
- 3) after a few seconds the motor will perform TWO further short opposite maneuvers . 2 BEEP
- 4) after a few seconds the motor will perform TWO further short opposite maneuvers . 3 BEEP
- 5) Remove pressure from the PROGRAMMING key of the TX already memorized .
- 6) REVERSE OF MOTION carried out.


#### 4.5 MEMORIZING OF A TX FROM A CONTROL UNIT 870RS



**BEEEEEEP**

- 1) With the control unit powered, press and hold the P1 key for 3 seconds and release.
- 2) The control unit will emit a long sound followed by 2 short opposite maneuvers of the motor.
- 4) Press IMMEDIATELY the key STOP of the TX to be memorized.
- 5) The motor will perform TWO short opposite maneuvers.
- 6) **PROGRAMMING done**

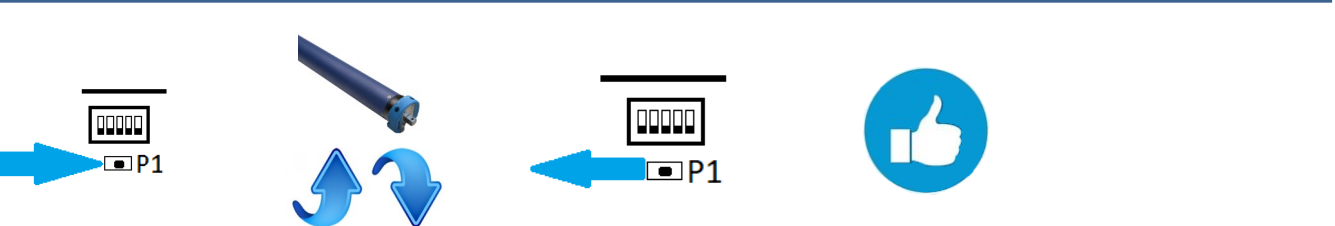
#### 4.6 CANCELLATION OF A TX FROM 870RS CONTROL UNIT



**BEEEEEEP**

- 1) With the control unit powered, press and hold the P1 key for 3 seconds and release.
- 2) The control unit will emit a long sound.
- 4) Press IMMEDIATELY the key STOP of the TX to be cancelled.
- 5) The motor will perform TWO short opposite maneuvers.
- 6) **RESET done**

#### 4.7 RESET OF ALL THE TX FROM THE CONTROL UNIT 870RS



- 1) With the control unit powered, press and hold the P1 key.
- 2) The motor after a few seconds will perform TWO short opposite maneuvers.
- 3) Release the programming key P1.
- 6) **RESET done.**

#### 4.6 CANCELLATION OF A TX FROM 870RS CONTROL UNIT



1) With the control unit powered, press and hold the P1 key for **3 seconds and release.**

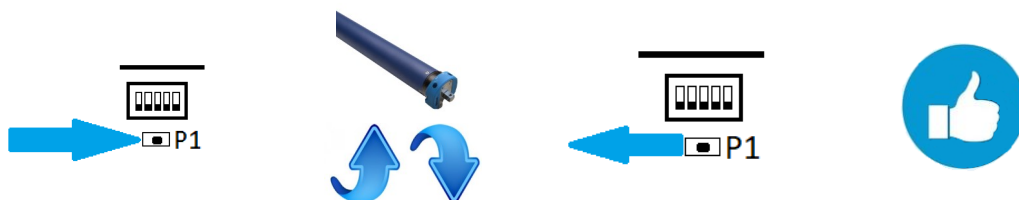
2) The control unit will emit a long sound.

4) Push **IMMEDIATELY** the key STOP of the TX to be deleted.

5) The motor will do 2 short opposite maneuvers.

6) **RESET done**

#### 4.7 RESET OF ALL THE TX FROM THE CONTROL UNIT 870RS



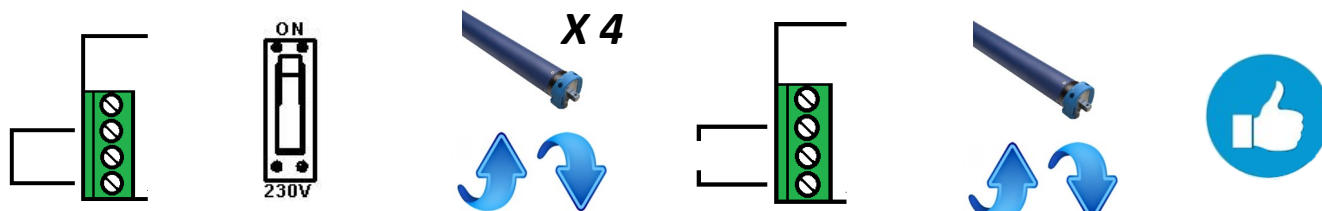
1) With the control unit powered, push and hold the button P1.

2) The motor after a few seconds will produce 2 short opposite maneuvers.

3) Release the P1 programming key.

6) **RESET done**

#### 4.8 TOTAL RESET FROM THE CONTROL UNIT 870RS



1) CLOSE the contact between the **COM** entrance and the **PP** entrance of the control unit 8710RS.

2) power the control unit.

3) After a few seconds the motor will do **4 short consecutive opposite maneuvers.**

4) OPEN the contact between the entrance **COM** and the entrance **PP** of the control unit 870RS.

5) The motor will do another short opposite maneuver.

6) After a few seconds the motor will do other 2 short opposite maneuvers.

#### 4.9 IINSERT OF A NEW TX MASTER FROM REMOTE



**ATTENTION! IN THE EVENT OF LOSS OR FAILURE OF THE TX MASTER: Power the control unit and by a few seconds push the hidden button of the new TX holding it until the short manœuvres of the motor. Confirm with the STOP (CLIMB key for the TX 776W) It confirms with short manœuvres of the motor. New TX memo-rized.**

#### 6.0 DECLARATION OF CONFORMITY WITH EU DIRECTIVES

##### DECLARATION OF CONFORMITY

(directive 89/392 CEE, annex II, part B)

S. G. Elettronica srl declares that the control units: **08880870RS**

They comply with the regulations laid down by the directives 89/336/EEC, 92/31/EEC, 93/68/EEC about the electro-magnetic compatibility. The following harmonized standards have been applied:

EN 60335-1, EN 60204-1, EN 55014, EN 6100-3-2, EN 6100-3-3, EN 6100-4-2, EN 6100-4-4, ENV 50140, EN 50081-1, EN 50082-1, EN61000-6-2, EN61000-6-4

At the same time, it declares that it is forbidden to put the aforementioned products into service before the machine to which they will be incorporated or of which they are part, is not identified and that it is not declared compliant with the conditions required by directive 89/392 EEC and national legislation of application, that is until the material referred to in this declaration forms a whole with the final machine

Scorzè, **10/10/2020**

Signature of the legal representative

**Sandro Zottino**