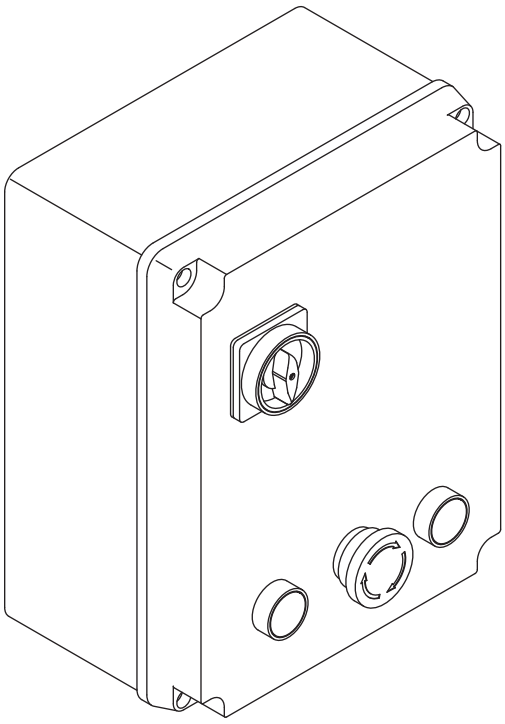
L8542632
Rev. 03/07/02

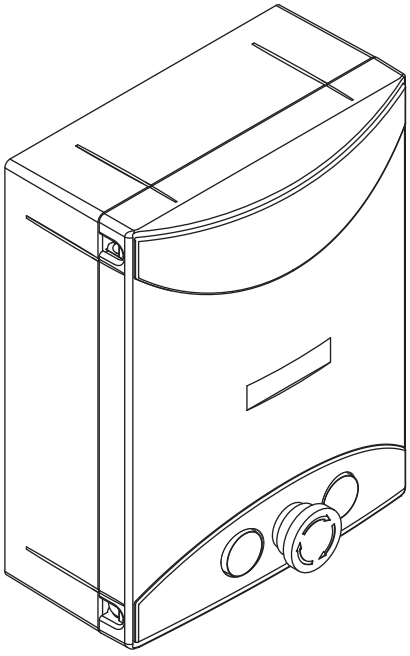
BENINCA®

CENTRALE DI COMANDO
CONTROL UNIT
STEUEREINHEIT
CENTRALE DE COMMANDE
CENTRAL DE MANDO
CENTRALKA STEROWANIA

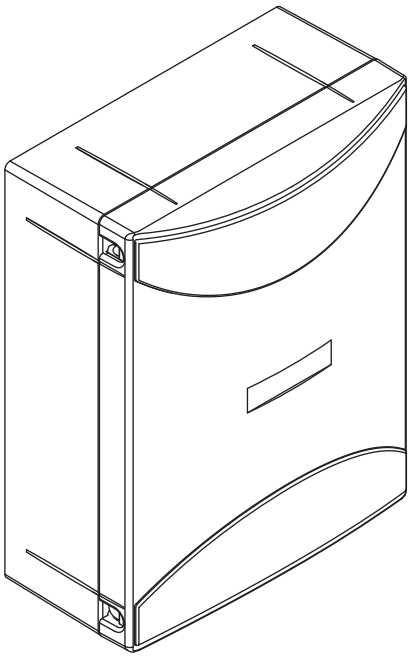
THINK



THINK-I



THINK-P



THINK

Libro istruzioni
Operating instructions
Betriebsanleitung
Livret d'instructions
Manual de instrucciones
Książeczka z instrukcjami

UNIONE NAZIONALE COSTRUTTORI
AUTOMATISMI PER CANCELLI, PORTE,
SERRANDE ED AFFINI

Dichiarazione CE di conformità
EC declaration of confirmity
EG-Konformitatserklarung
Déclaration CE de conformité
Declaracion CE de conformidad
Deklaracja UE o zgodności

Con la presente dichiariamo che il nostro prodotto
We hereby declare that our product
Hiermit erklaren wir, dass unser Produkt
Nous déclarons par la présente que notre produit
Por la presente declaramos que nuestro producto
Niniejszym oświadczamy że nasz produkt

THINK

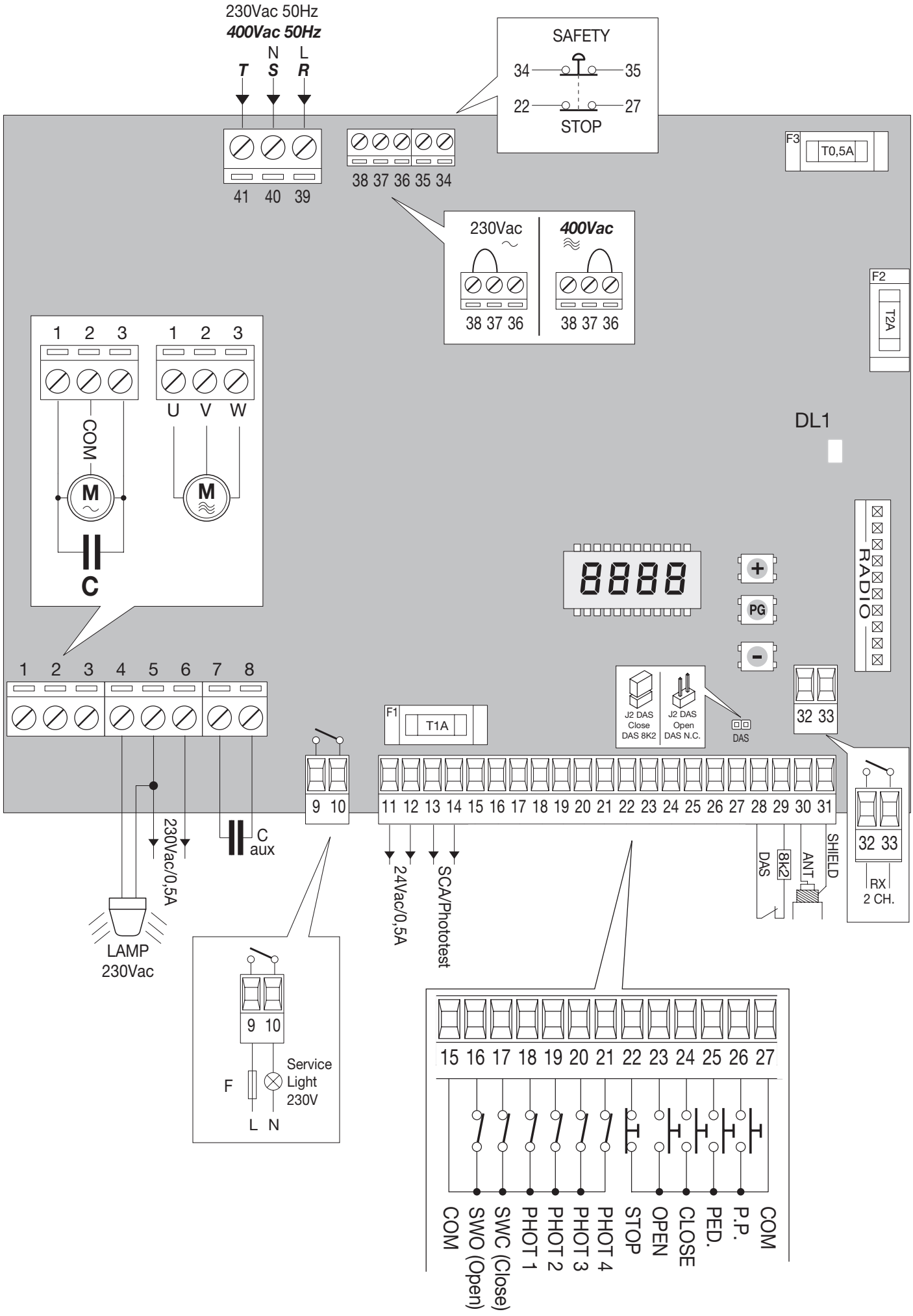
è conforme alle seguenti disposizioni pertinenti:
complies with the following relevant provisions:
folgenden einschlagigen Bestimmungen entspricht:
correspond aux dispositions pertinentes suivantes:
satisface las disposiciones pertinentes siguientes:
zgodny jest z poniżej wyszczególnionymi rozporządzeniami:

Direttiva sulla compatibilità elettromagnetica (89/336/CCE, 93/68/CEE)
EMC guidelines (89/336/EEC, 93/68/EEC)
EMV-Richtlinie (89/336/EWG, 93/68/EWG)
Directive EMV (89/336/CCE, 93/68/CEE) (Compatibilité électromagnétique)
Reglamento de compatibilidad electromagnética (89/336/MCE, 93/68/MCE)
Wytyczna odnośnie zdolności współdziałania elektromagnetycznego (89/336/EWG, 93/68/EWG)

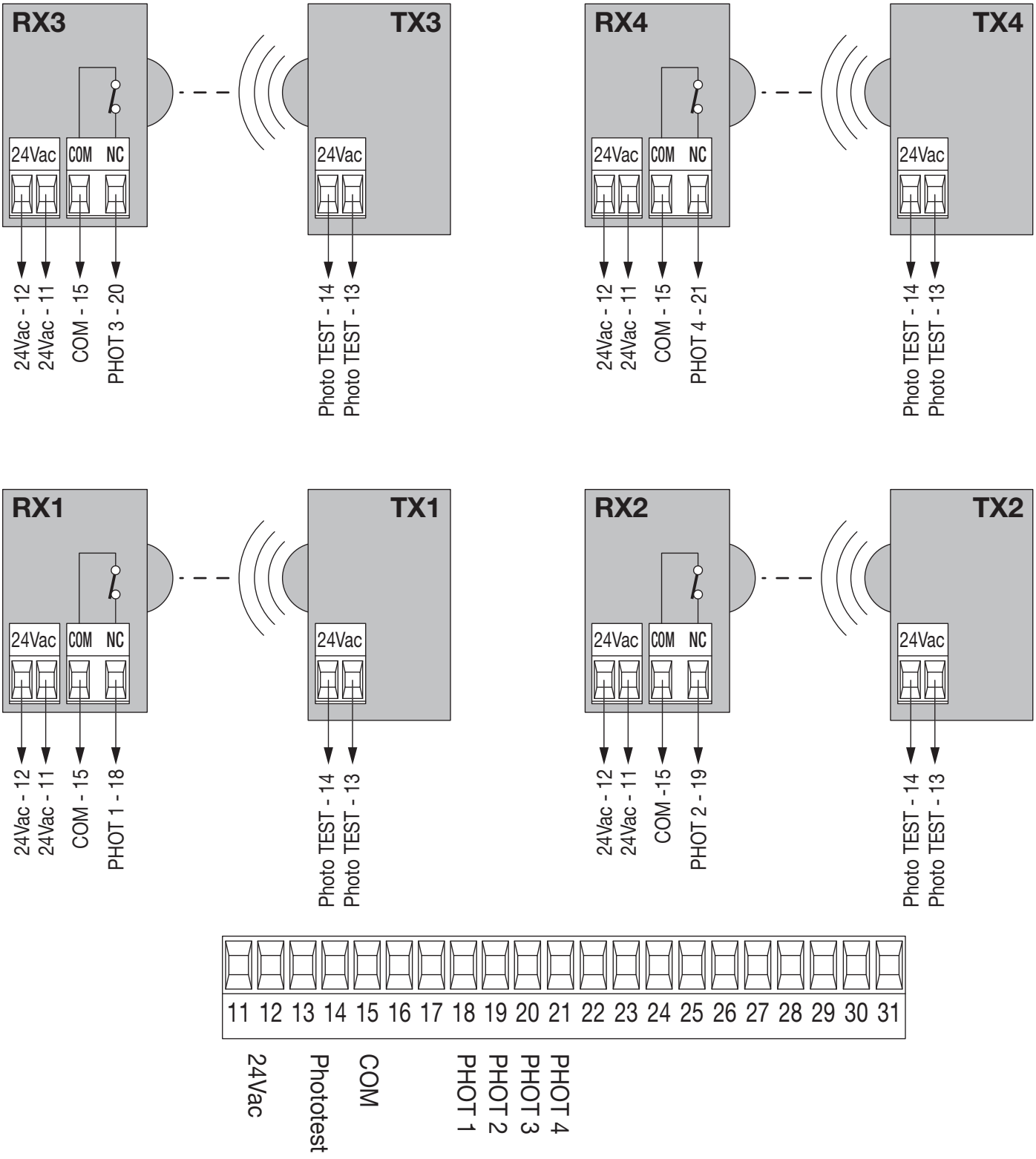
Direttiva sulla bassa tensione (73/23/CEE, 93/68/CEE)
Low voltage guidelines (73/23/EEC, 93/68/EEC)
Tiefe Spannung Richtlinie (73/23/EWG, 93/68/EWG)
Directive bas voltage (73/23/CEE, 93/68/CEE)
Reglamento de bajo Voltaje (73/23/MCE, 93/68/MCE)
Wytyczna odnośnie niskiego napięcia (73/23/EWG, 93/68/EWG)

Benincà Luigi, Responsabile legale.
Sandrigo, 05/02/2007.

BENINCÀ®
Automatismi Benincà SpA
Via Capitello, 45
36066 Sandrigo (VI)
ITALIA


230Vac 50Hz
400Vac 50Hz
N L
T S R
41 40 39
38 37 36 35 34
SAFETY
34 35
22 27
STOP
F3
T0,5A
230Vac
400Vac
38 37 36
38 37 36
F2
T2A
DL1
1 2 3
1 2 3
COM
U V W
M
M
C
1 2 3 4 5 6 7 8
8888
PG
RADIO
J2 DAS Close DAS 8K2
J2 DAS Open DAS N.C.
DAS
32 33
F1
T1A
9 10
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
32 33
RX 2 CH.
230Vac/0,5A
C aux
LAMP 230Vac
24Vac/0,5A
SCA/Phototest
DAS
8k2
ANT
SHIELD
9 10
F
Service Light 230V
L N
15 16 17 18 19 20 21 22 23 24 25 26 27
COM
SWO (Open)
SWC (Close)
PHOT 1
PHOT 2
PHOT 3
PHOT 4
STOP
OPEN
CLOSE
PED.
P.P.
COM

Collegamento dispositivi di sicurezza verificati
Connection of tested safety devices
Anschluss geprüfter Sicherheitsvorrichtungen
Branchement dispositifs de sécurité vérifiés
Conexión de los dispositivos de seguridad verificados
Połączenia sprawdzanych urządzeń bezpieczeństwa



THINK Control Unit

The THIKS control unit can be used to control 1 single-phase, 230Vac motor or 1 three-phase, 400Vac motor with power not exceeding 800W for single-phase motors and 2200W for three-phase motors.

GENERAL WARNINGS

a) The wire connections and the operating logic should be in compliance with regulations in force.
b) The cables featuring different voltage should be kept detached, or adequately insulated by an additional insulation of at least 1mm.
c) The cables should be further fastened in proximity to the terminals.
d) Check all connections before powering the unit.
e) Normally Closed inputs which are not in use should be short-circuited.
f) The Power supply mains should be connected to an omnipolar switch with contact opening distance of 3mm, or higher distance. Check that upstream the electric system is provided with an adequate differential switch and an overcurrent switch.

INPUT/OUTPUT FUNCTIONS

THINK Control Unit		
Terminal No.	**Function**	**Description**
1-2-3	Motor	Connection, 230Vac motor - single-phase: 1-Movement+capacitor/2-Common/3-Movement+capacitor Connection, 400Vac motor - three-phase: 1-U/2-V/3-W Check that the voltage selection jumper on terminals 36-37-38 is correctly positioned.
4-5	Flashing light	Connection of flashing light, 230Vac 40W max. Connect a negative electric brake to this output.
5-6	AUX	WARNING: Output, 230Vac 0,5A max.
7-8	Auxiliary capacitor	Free N.O. (Normally Open) contact (10A max) for pickup auxiliary capacitor. See wire diagram. At each start-up the contact is closed for 1.5 sec.
9-10	Courtesy light	Free N.O. contact (2A 150W) to control the Courtesy light which is timed according to the TLS parameter.
11-12	24Vac	Output, accessory power supply 24Vac/0,5A max
13-14	SCA/PhotoTest	Output, 24Vac/0,5A max. This can be preset as open gate indicator light or as checked devices power supply (PhotoTest) through the TSTP logic. In the event of presetting as PhotoTest, please refer to the diagram “Connection of checked safety devices”
15	COM	Common for limit switches and photocells
16	SWO	Input, OPEN limit switch (N.C. contact)
17	SWC	Input, CLOSE limit switch (N.C. contact)
18	PHOT 1	Input, Photocell 1 (N.C. contact). It can be disabled in the opening phase, see PHO1 logic.
19	PHOT 2	Input, Photocell 2 (N.C. contact). It can be disabled in the opening phase, see PHO2 logic.
20	PHOT 3	Input, Photocell 3 (N.C. contact). It can be disabled in the opening phase, see PHO3 logic.
21	PHOT 4	Input, Photocell 4 (N.C. contact). It can be disabled in the opening phase, see PHO4 logic.
22	STOP	Input, STOP push-button (N.C. contact)
23	OPEN	Input, OPEN push-button (N.O. contact).
24	CLOSE	Input, CLOSE push-button (N.O. contact)
25	PED	Input, pedestrian push-button (N.O. contact)
26	Step-by-step	Input, step-by-step (N.O. contact)
27	COM	Common for all other control inputs.
28-29	DAS	Input, safety edge contact. Resistive edge: closed “ DAS” jumper. Mechanical edge: open “DAS” jumper. When the safety edge is activated, the gate movement stops. The gate movement is reversed for approximately 3 sec if the INVA logic is ON. If no safety edge is used: “DAS” Jumper open, jumper between terminals 28-29.
30-31	Aerial	Connection of the antenna to the receiver extractable board (30-signal/31-screen).
32-33	2nd radio channel	Output, 2nd radio channel of the two-channel extractable receiver.

34-35	SAFETY	Emergency stop connection. WARNING: Mains power supply. Remove the jumper and connect a N.C., changeover switch, suited for the mains voltage. See wire diagram.
36-37-38	Selection of Mains power supply	Selection of power supply voltage, short-circuit: 36 and 37 for three-phase power supply (400Vac) 37 and 38 for single-phase power supply (230Vac)
39-40	Single-phase power supply	Input, single-phase mains power supply 230Vac/50Hz (39-L / 40-N)
39-40-41	Three-phase power supply	Input, or three-phase mains power supply, 400Vac/50Hz (39-R / 40-S / 41-T).

Programming

The various functions of the control unit can be programmed by using the LCD display provided on the side of the unit and by setting the desired values on the Programming Menu, as described hereunder.
The Parameters Menu allows for the presetting of a digit value to a function, like an adjustment trimmer.
The Logic Menu allows for the activation and deactivation of a function, like the setting of a Dip-Switch.
The special functions follow the Parameters Menu and the Logic Menu and can vary according to the type of control unit or software review.

To access programming :

1 – Press the <PG> push-button, the first Parameters Menu “PAR” appears on the display.
2 – Select the desired menu by using the <+> or <-> keys (PAR>>LOG>>NMAN>>RES>>PAR>>....).
3 – Press the <PG> push-button, the display shows the first function available in the Menu.
4 – By using the <+> or <-> keys select the function to be modified.
5 – Press the <PG> push-button, the currently preset value for the selected function is displayed.
6 – By using the <+> or <-> keys, select the value which is to be assigned to the function.
7 – Press the <PG> push-button and the “PRG” message is displayed. This means that programming has been completed.

Note:

When upon a Function Menu, press keys <+> e <-> simultaneously to pass to higher menu without making any change.
If <+> and <-> keys are pressed simultaneously when the display is off, the software version of the board is shown.
Keep either keys <+> or <-> pressed to speed up the increase/decrease of values.
After 60 sec wait, the control unit exits the Programming mode and the display switches off.

Parameters, Logic and Special Functions

In the tables hereunder the single functions available in the control unit are shown.

	MENU	FUNCTION	Settable values MIN-MAX-(Default)	MEMO
PARAMETERS	tcA	Automatic closure time. Active with logic “TCA”= ON only. At the end of the preset time, the control unit sends a closure control signal.	1-240-(40s)	
	tM	Motor operating time. The operation time is adjusted during the opening and closing phases of the motor.	5-180-(40s)	
	tPEd	The stroke time of the gate leaf is adjusted during the partial opening phase (pedestrian mode).	5-180-(10s)	
	SnSo	* The amperometric sensor sensitivity is adjusted in the opening phase. This is operating only with logic AMP:ON. 1:maximum sensitivity - 99:minimum sensitivity. The sensor triggering in the opening phase stops the movement immediately.	1-99-(20%)	
	SnSc	* The amperometric sensor sensitivity is adjusted in the closing phase. This is operating only with logic AMP:ON. 1: maximum sensitivity - 99:minimum sensitivity. When the sensors triggers in the closing phase, the gate stops immediately and a reversion movement (opening) starts for approximately 3 sec.	1-99-(20%)	
	tLS	The activation time of the courtesy light is adjusted. The contact closes with the beginning of the opening operation. The time counting starts only with gate completely closed.	1-240-(1s)	
	SAFM	This is operating only with logic SMOT:ON. The motor protection switch triggering is adjusted. The value is expressed in Amperes. 1: triggering of protection switch at 1 Ampere of consumption 14: protection disabled.	1-14-(6A)	

*** WARNING:**
An incorrect setting of these parameters may cause danger. Please comply with regulations in force!

	MENU	FUNCTION	Settable values ON-OFF-(Default)	MEMO
LOGIC	tcA	The automatic closure is enabled or disabled. Off: disabled automatic closure. On: enabled automatic closure.	(ON)	
	iBL	The multi-flat function is enabled or disabled. Off: disabled multi-flat function. On: enabled multi-flat function. The P.P. (Step-by-step) impulse or the impulse of the transmitter has no effect in the opening phase.	(OFF)	
	ScL	The rapid closure is enabled or disabled. On: enabled rapid closure. With open gate or gate in the opening phase, the activation of the photocell causes the automatic closure of the gate 3 sec after its activation. This function is enabled only with TCA:ON Off: rapid closure disabled.	(OFF)	
	PP	The operating mode The operating mode of the “P.P.” (Step-by Step) button and of the transmitter is selected. Off: Operation: OPEN > STOP > CLOSE > STOP > On: Operation : OPEN > CLOSE > OPEN >	(OFF)	
	PrE	Forewarning flashing light enabled or disabled. Off: disabled forewarning flashing light. On: enabled forewarning flashing light. The flashing light is activated 3 sec before the motor starts.	(OFF)	
	cLoc	The OPEN input mode is selected. Off: OPEN input, with OPEN function. On: OPEN input, with CLOCK function. To be used for connection to timer for timed opening/closing. (CLOSED contact: open gate. OPEN contact: normal operation).	(OFF)	
	htr	The Service Man function is enabled or disabled. Off: Automatic operation. On: Service Man operation. The OPEN/CLOSE push-buttons should be kept pressed for the entire operating time.	(OFF)	
	SAUt	The Service Man in closing phase function is enabled or disabled. Off: Automatic operation. On: Service Man in closing phaseoperation. The CLOSE push-button should be kept pressed for the entire operating time.	(OFF)	
	bLc	The lock function is enabled or disabled. Off: Lock function disabled. On: Lock function enabled. After the triggering of the closure limit switches, the control unit delays the stop by approx. 0.5sec in order to allow a better resting of the gate leaf onto the stoppers. DAS input is activated in the closing phase only. *Note: In case of sliding gates, leave to OFF.*	(OFF)	
	Pho 1	Photocell 1 input in the opening phase is enabled or disabled. On: Photocell 1 is activated in the closing phase only. Off: Photocell 1 is activated in both opening and closing phases.	(OFF)	
	Pho2	Photocell 2 input in the opening phase is enabled or disabled. On: Photocell 2 is activated in the closing phase only. Off: Photocell 2 is activated in both opening and closing phases.	(OFF)	
	Pho3	Photocell 3 input in the opening phase is enabled or disabled. On: Photocell 3 is activated in the closing phase only. Off: Photocell 3 is activated in both opening and closing phases.	(OFF)	
	Pho4	Photocell 4 input in the opening phase is enabled or disabled. On: Photocell 4 is activated in the closing phase only. Off: Photocell 4 is activated in both opening and closing phases.	(OFF)	
	tStP	The operating mode of output SCA/TESTPHOT is selected. On: Photocell power supply in Test mode as per diagram at page 4. Before each operation all PHOT inputs are checked. If the result is negative, the operation will not take place. Off: Output preset as open gate warning LED.	(OFF)	
	FAUt	The check function of single failure is enabled or disabled. Off: Single failure check is disabled. On: Single failure check enabled in compliance with the Machinery Directive 98/37/CE.	(OFF)	
	AnP	The anti-crash amperometric sensor is disabled or enabled. Its sensitivity is adjusted by parameters SNSO and SNSC. On: Amperometric sensor activated. Off: Amperometric sensor deactivated.	(OFF)	

	MENU	FUNCTION	Settable values ON-OFF-(Default)	MEMO
LOGIC	2PhA	Lack of phase check in case of three-phase power supply is enabled or disabled. On: Check activated. Off: Check deactivated.	(OFF)	
	InvA	The movement reversion in the event of triggering of the amperometric sensor or the DAS input is activated or deactivared. On: Reversion activated. The activation of the edge or the sensor causes a movement reversion (opening) for approx. 3 sec. Off: Movement reversion not activated. The activation of the edge or the sensor causes the immediate stopping of the gate movement.	(OFF)	
	SMot	The motor protection switch is enabled or disabled. Its sensitivity is adjusted by SAFM parameter. On: amperometric sensor activated. Off: amperometric sensor deactivated.	(OFF)	
	doSP	The rapid movement reversion is enabled or disabled after the activation of the photocell in the closing phase. ON: Rapid reversion activated. The movement reversion time, in the event of activation of the photocell, is reduced to approx. 1 sec. To be used only on light-weight and fast doors. OFF: Rapid reversion deactivated. The movement reversion time, in the event of activation of the photocell, is approx. 3 sec.	(OFF)	

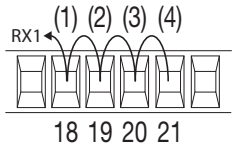
MENU	FUNCTION
rES	RESET of the control unit. WARNING!: This resets the control unit to the default values. When the <PG> push-button is pressed once, the RES wording begins to flash, if the push-button <PG> is pressed once more, the control unit is reset.
nMAn	The number of the cycles (open+close) completed by the system is displayed. When the push-button <PG> is pressed once, the first 4 digits are displayed, if the push-button is pressed once more, the last 4 digits are displayed. E.g. <PG> 0012 >>> <PG> 3456: 123.456 cycles were performed.

IMPORTANT: Photocell inputs not in use

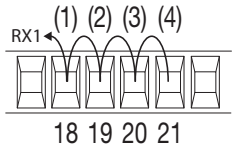
All photocell inputs are short-circuited by default (PHOT1/2/3/4) with the COM terminal. With this presetting, the control unit can be operated also without photocells.

After connecting and setting the photocells required by the type of system, the inputs which are not in use should be short-circuited to the inputs in use by copying the settings in the PHOx parameter, as shown hereunder:

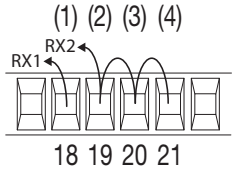
1 pair of photocells on input PHOT1, active in the closing phase only:

Logic PHO 1	Logic PHO 2	Logic PHO 3	Logic PHO 4	JUMPERS
ON	**ON**	**ON**	**ON**	

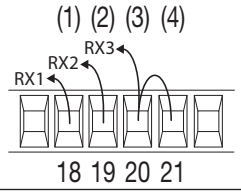
1 pair of photocells on input PHOT1, active in both opening and closing:

Logic PHO 1	Logic PHO 2	Logic PHO 3	Logic PHO 4	JUMPERS
OFF	**OFF**	**OFF**	**OFF**	

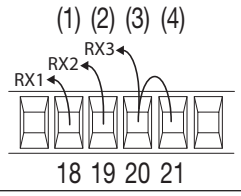
1 pair of photocells: active in both opening and closing (PHOT1)
+ 1 pair of photocells: active in the closing phase only (PHOT2):

Logic PHO 1	Logic PHO 2	Logic PHO 3	Logic PHO 4	JUMPERS
OFF	**ON**	**ON**	**ON**	

2 pairs of photocells, active in both opening and closing (PHOT1 e PHOT2)
+ 1 pair of photocells, active in the closing phase only (PHOT3):

Logic PHO 1	Logic PHO 2	Logic PHO 3	Logic PHO 4	JUMPERS
OFF	**OFF**	**ON**	**ON**	

2 pairs of photocells, active only in the closing phase (PHOT1 e PHOT2)
+ 1 pair of photocells, active in both opening and closing phases (PHOT3):

Logic PHO 1	Logic PHO 2	Logic PHO 3	Logic PHO 4	JUMPERS
ON	**ON**	**OFF**	**OFF**	

Example of programming

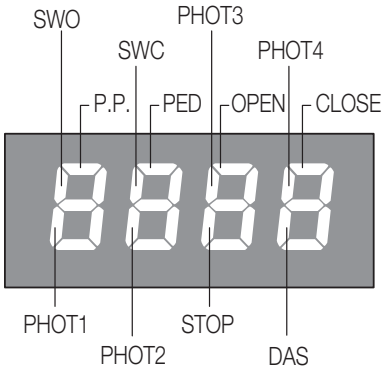
Let us suppose it is necessary to:
- set an automatic closing time (TCA) of 100s
- activate pre-blinking

Perform the operations described below step by step:

Step	Press	Display	Notes
1	PG	PAr	First menu
2	PG	tcA	First function of the first menu
3	PG	040	Value currently set for the function selected
4	+ -	100	Set the desired value with the <+> and <-> keys
5	PG	PrG	The value is programmed
		tcA	When programming has been made, the display goes to the function just set
6	+ -	PAr	Press <+> and <-> simultaneously to go to the higher menu
7	-	LoG	Second menu
8	PG	tcA	First function of the second menu
9	-	PrE	Press <-> several times to select PRE logic
10	PG	oFF	Value currently set for the function selected
11	+ -	on	Set the desired value with the <+> and <-> keys
12	PG	PrG	The value is programmed
		PrE	When programming has been made, the display goes to the function just set
13	+ -	PAr	Press <+> and <-> simultaneously to go to the higher menu and quit programming or wait 30s.

Diagnostics

In the event of operating faults, by pressing the + or - keys the status of all inputs can be displayed (limit switches, control and safety). Each input is matched to one segment of the display; in the event of activation, it switches on according to the following diagram.



The Normally Closed (N.C.) inputs are represented by vertical segments. The Normally Open (N.O.) inputs are represented by horizontal segments.

Error messages

The control unit checks the correct operation of the safety devices.
In the event of faults the following messages can be displayed:

ERR1 Error, check photocells. Check connections and the correct operation of photocells.
ERR2 Activation of the anti-crash amperometric sensor. Check the presence of any obstacles.
ERR3 Check of single failure has negative result. Contact the technical assistance.
ERR4 Triggering of the motor protection switch. Check the value of the parameter SAFM and check the motor consumption.
ERR5 Lack of one of the three phases. Check the correct connection of power supply of the three-phase mains.

Fuses

F1 Protection fuse, accessories
F2 Protection fuse, logic board
F3 Protection fuse, flashing light and electric brake.s