temakey

TK C03
Compact Terminal

Installation Manual

temaline
Creative solutions

temaline TK C03

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Version: 1.0 US

FCC NOTICE

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, these is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Canadian Compliance Statement

This Class B Digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numerique de la classe B respecte les exigences du Reglement sur le material broilleur du Canada.

PRELIMINARY OPERATIONS

Mounting Instructions

The cables are attached to an encased box. **Make sure that you place the box at a height of 120cm from the floor** (see Figure 1).
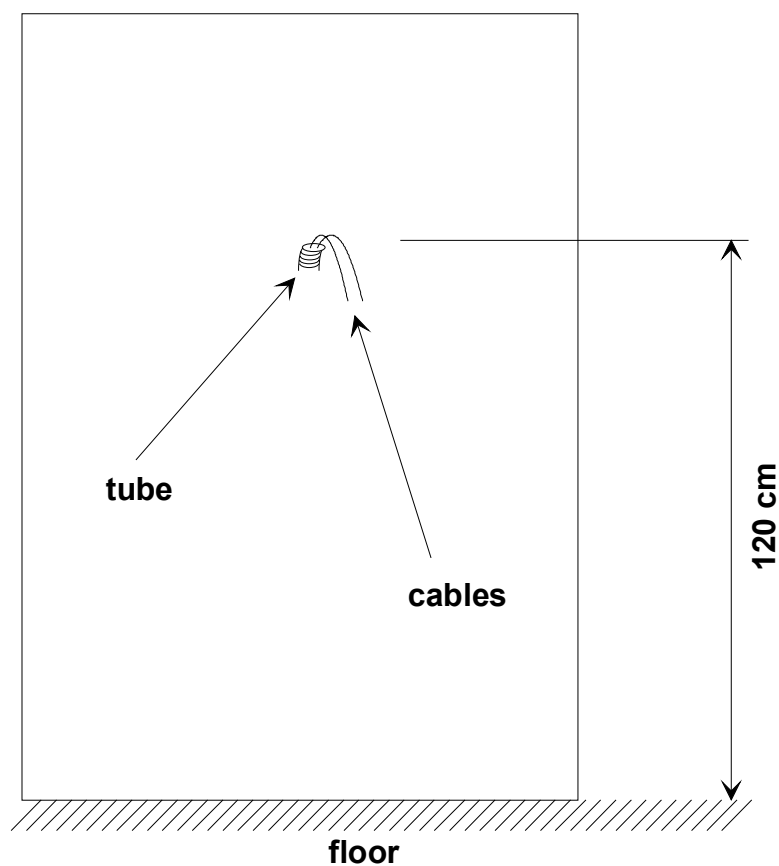

Figure 1: Space requirements for mounting

Electrical Connections

The RTU is powered at low voltage ($12V_{DC}$ 120mA) by a battery-operated power supply module (RTU-Qxx). When determining the correct size for power cables, refer to the table below.

Type of cable			Length (m) in relation to effective load					
AWG	mm2	ohm/Km	100 [mA]	200 [mA]	500 [mA]	1 [A]	2 [A]	5 [A]
12	3,3	5,7	1754	877	351	175	88	35
14	2	8,8	1136	568	227	114	57	23
16	1,3	14	714	357	143	71	36	14
18	0,9	21	476	238	95	48	24	10
20	0,6	34	294	147	59	29	15	6
22	0,35	52	192	96	38	19	10	4
24	0,2	85	118	59	24	12	6	2

LONWORKS Data Cables

- The LONWORKS [1] data cable must be twisted pair

- In a free topology configuration, the sum total of the sections must not exceed 500m

- In a bus configuration, the sum total of the sections must not exceed 2700m

- In a free topology configuration, activate the 50ohm terminator by placing the appropriate jumper on the FTT10A plug-in of the CTU-PLG06 board inside the TemaServer

- In a bus configuration, place two terminators (with resistance values of 100ohm 1% ½W) at each end of the bus

- Check that the length of the LONWORKS data cable corresponds to the norms indicated in Table 1.

Type of cable			Length [m] in relation to cable capacity				
AWG	mm2	Ohm/Km	50nF/Km	100nF/Km	200nF/Km	500nF/Km	1uF/Km
12	3,3	5,7	2676	1892	1338	846	598
14	2	8,8	2153	1523	1077	681	482
16	1,3	14	1707	1207	854	540	382
18	0,9	21	1394	986	697	441	312
20	0,6	34	1096	775	548	346	245
22	0,35	52	886	626	443	280	198
24	0,2	85	693	490	346	219	155

Table 1: Length/capacity of LONWORKS data cables (m)

- The FTT10A Echelon v1.2 User Guide recommends the cables indicated in Table 2.

Producer and model	AWG	Connection to bus - maximum total length [m]	Connection in free topology – maximum node-node length max. [m]
Belden 85102	16	2700	500
Belden 8471	16	2700	400
Level IV (twisted pair, typically solid and unshielded)	22	1400	400
JY (St) 2x2x0.8 (4-wire helical twist, solid shielded)	20	900	320

Table 2: Recommended LONWORKS cables

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[1] LONWORKS® is a trademark of Echelon Corporation

Attaching the Terminal Support Plate

To attach the terminal support plate, follow these steps:

1. Drill two holes in the wall to accommodate the plastic anchors that hold up the support plate (you must use M4 screws).

2. Make sure that the box attached to the wall is aligned with the niche on the lower part of the support plate
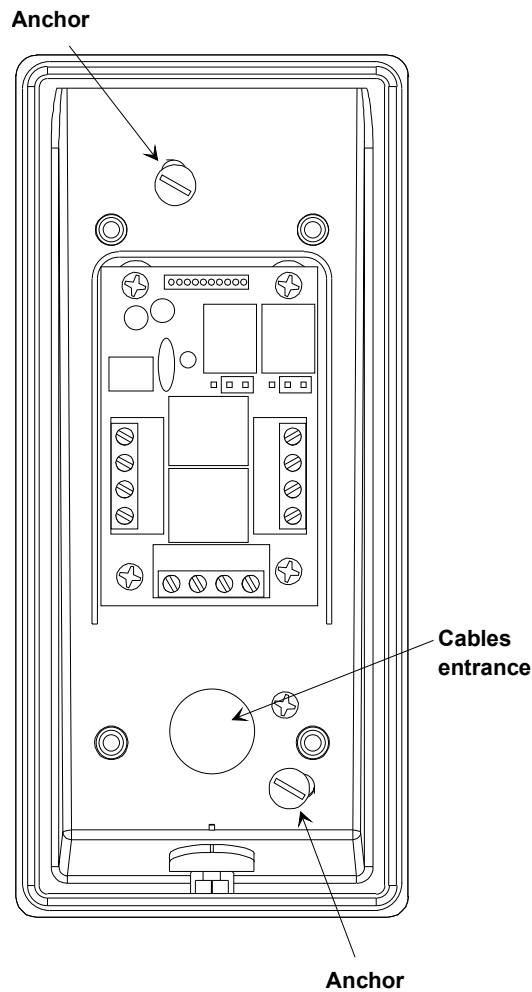
3. Use a ∅ 4mm slotted screwdriver.

Figure 2: Attaching the support plate

Channelling the Cables from the Bottom of the Box

As an alternative, you can channel the cables so that they exit from the bottom of the box (see Figure 3). This alternative procedure consists of the following steps:

1. Drill a hole in the breakaway tab and apply a cable clamp with a clutch for the cable tube.

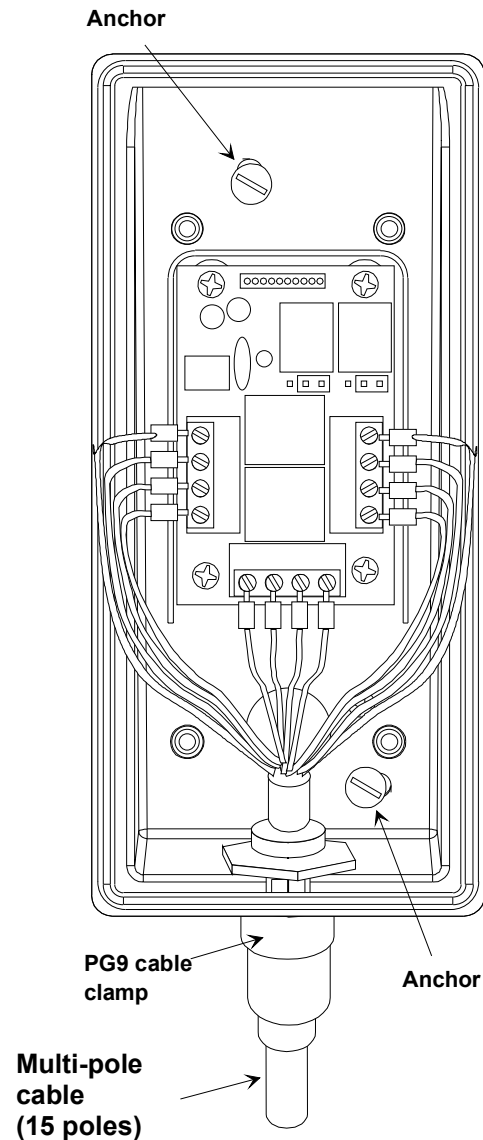2. Remove the cable clamps from the rear side and apply the stopper.

Figure 3: Channelling the cables from the bottom of the box

INSTALLATION

Connecting the Cables

Insert and fasten the power, data and I/O cables in the connector (see Figure 4 and Figure 5). If there is also a small grounding cable, use a cable clamp to connect it to the screw supporting the card.
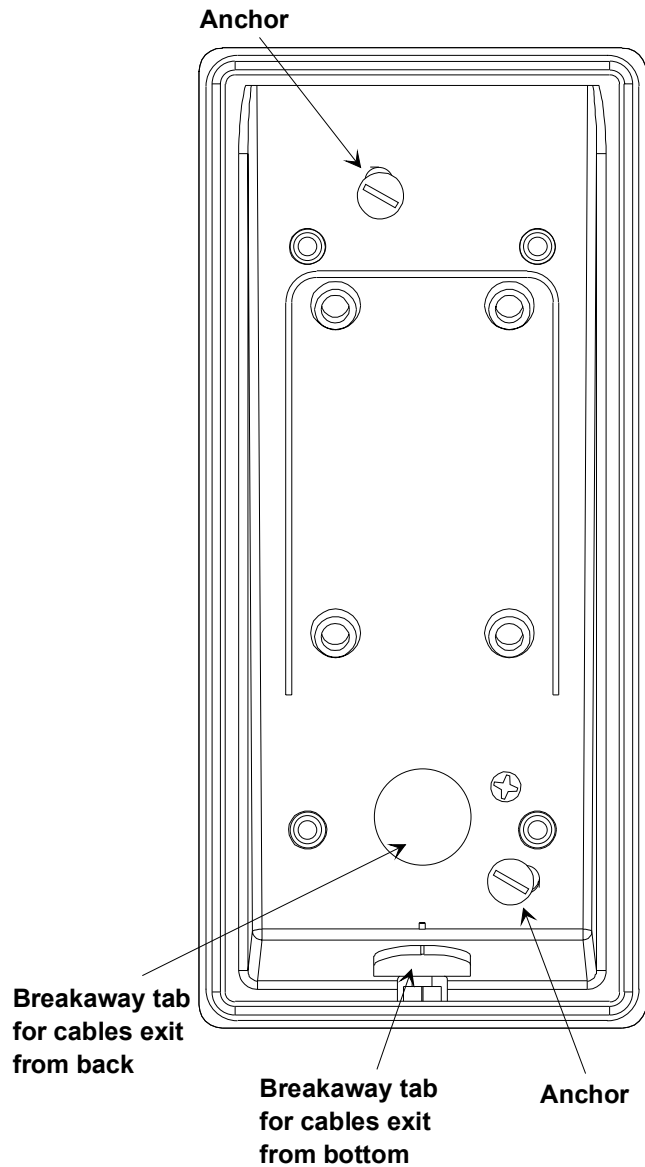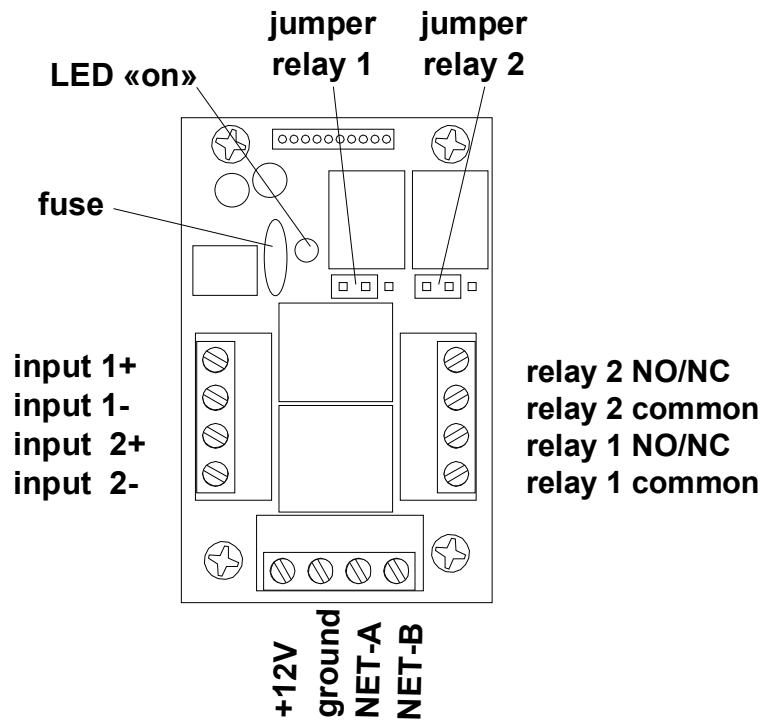
Anchor

Breakaway tab for cables exit from back

Breakaway tab for cables exit from bottom

Anchor

Figure 4: Connecting the cables (1)

Figure 5: Connecting the cables (2)

You can define each relay as Normally Open (NO) or Normally Closed (NC) by setting the jumpers as illustrated in Figure 6.
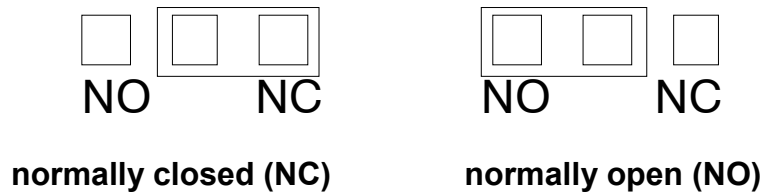

normally closed (NC)   **normally open (NO)**

Figure 6: Auxiliary connections

The typical connection for dry contacts in shown in Figure 7.
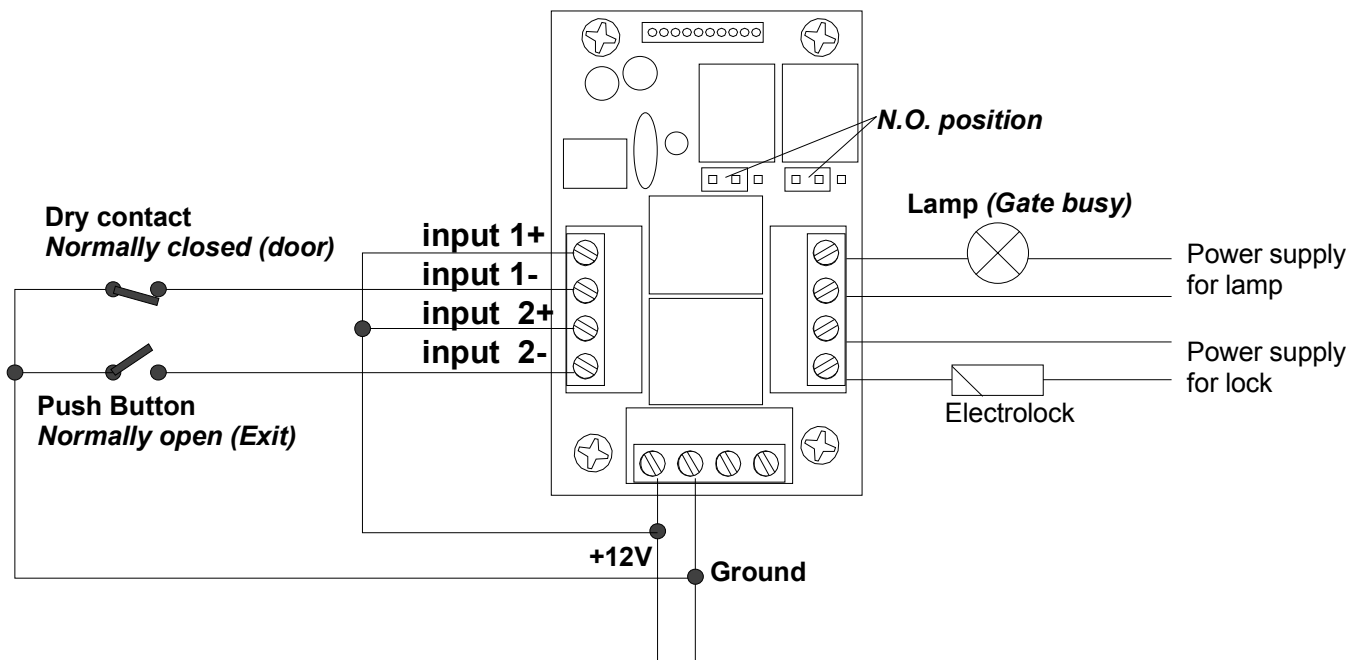

Figure 7: Clean contacts connection example

When the output loads exceed the maximum ratings for the internal relays, external relays must be used as shown in Figure 8.
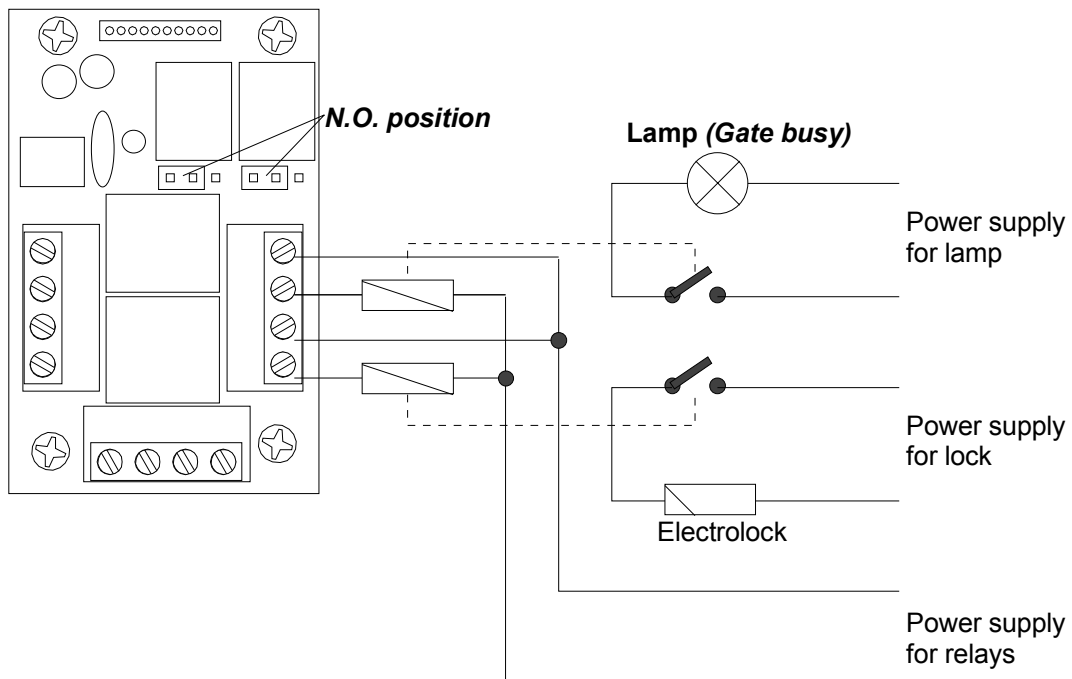

Figure 8: External relays example

Assembling the Terminal Closure Guide

To assemble the terminal closure guide, follow these steps:

1. Use the 4 special screws to assemble and fasten the terminal closure guide.

2. Insert the nut and the special screw in the corresponding niche on the guide (see Figure 9).
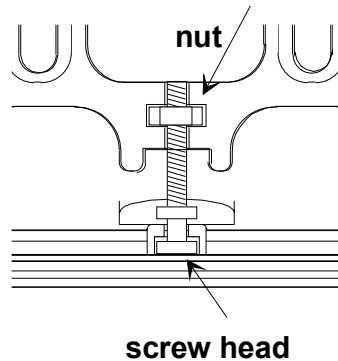

Figure 9: Mounting the terminal closure guide (1)

Make sure that the fitting is correctly positioned and then insert the flat cable from the front casing in the connector (see Figure 10).
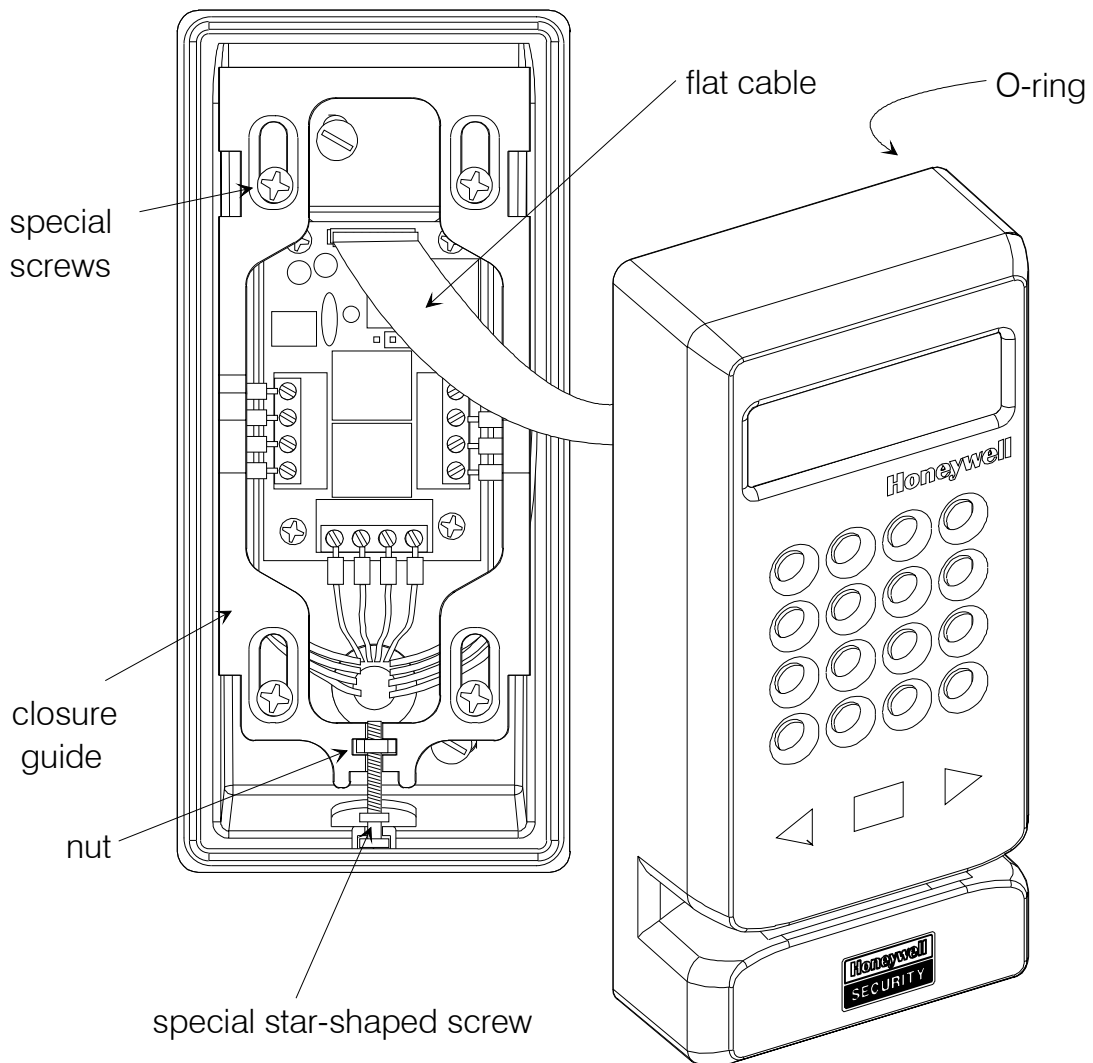
Figure 10: Mounting the terminal closure guide (2)

Closing the Terminal (wall-mounted assembly)

To close a wall-mounted terminal, follow these steps:

1. Unscrew the special closure screw by turning it in an anti-clockwise direction so that the terminal closure remains fully open (in the direction of the wedge).

2. Insert the upper shell as indicated in Figure 11.

3. Fasten the special closure screw by turning it in a clockwise direction and pushing down on the shell so that the fitting is completely secure.
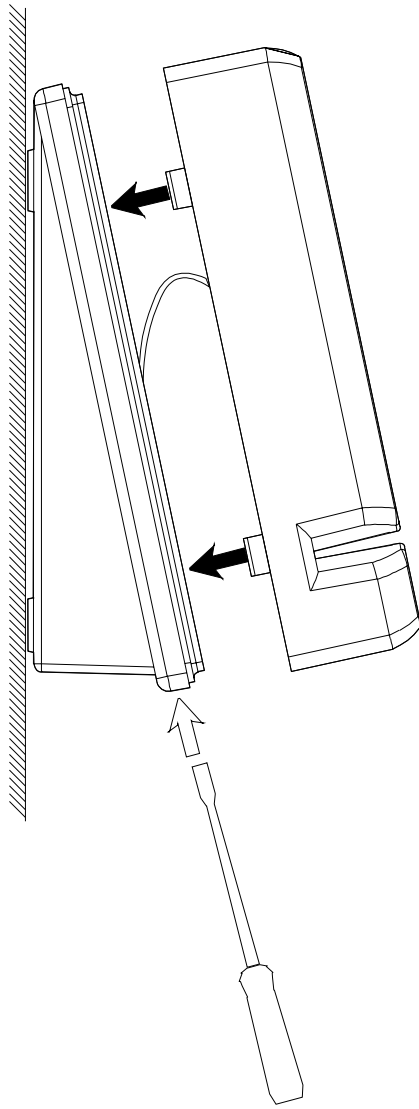
4. Tighten the screw.

Figure 11: Closing the terminal (wall-mounted assembly)

Closing the Terminal (Turnstile-mounted assembly)

To close a anchor-mounted terminal, follow these steps:

1. Unscrew the special closure screw by turning it in an anti-clockwise direction so that the terminal closure remains fully open (in the direction of the wedge).

2. Insert the upper shell as indicated in Figure 12.

3. Fasten the special closure screw by turning it in a clockwise direction and pushing down on the shell so that the fitting is completely secure.
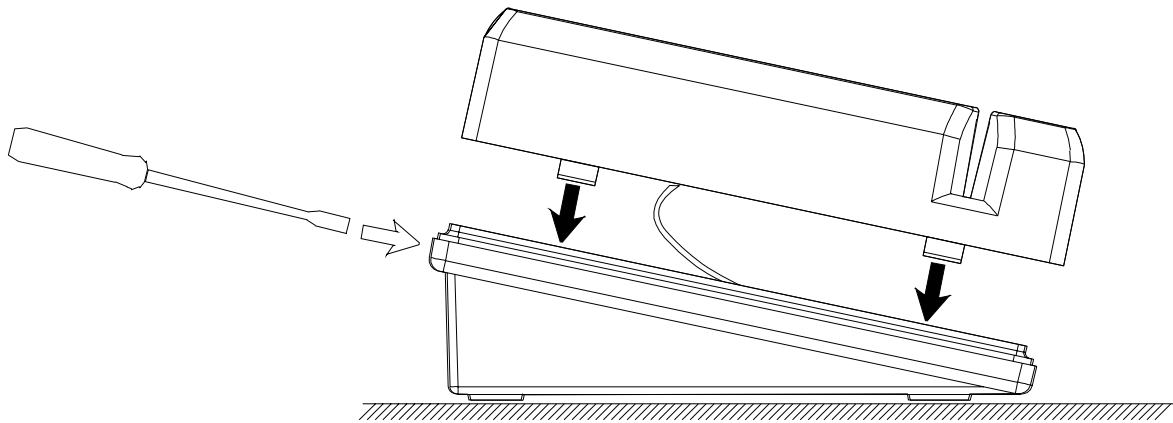
4. Tighten the screw.

Figure 12: Closing the terminal (anchor-mounted assembly)

ACTIVATION

Identification via the Service Pin

To identify the node, you can call the service pin by means of a relay-reed located inside the unit (see Figure 13). This procedure consists of the following steps:

1. Position a small magnet as illustrated in Figure 13 to call the service pin. This signal is linked to the yellow central service LED, which flashes throughout the node configuration procedure.

2. The TemaServer, in response to the service pin, sends a *wink* command that makes yellow LED flash three times. This allows you to verify that the communication to and from the TemaServer is working.

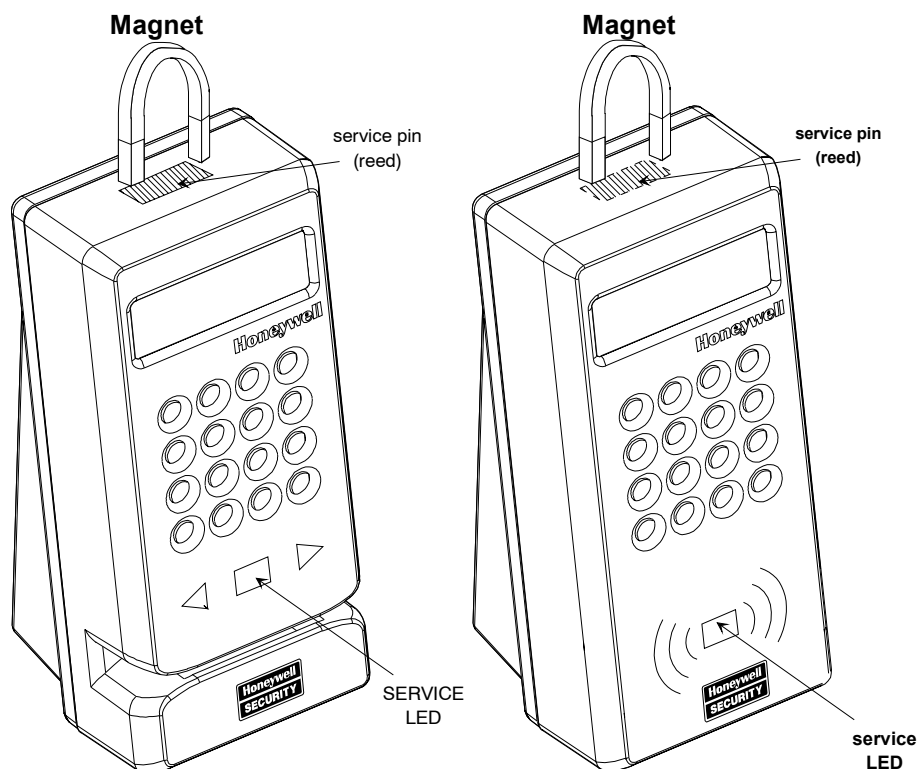3. Check that the service LED remains off after you have completed this operation.

Figure 13: Using a magnet to call the service pin

Identification via Bar Code

The components enclosed in the packaging include a bar code label. The person responsible for installing the terminal must apply this label to the corresponding identification form, and indicate the location of the terminal in the appropriate box (see example in Table 3).

Description of location *Office entrance area, first floor - staircase E*	
Description of TemaServer *Panel 2 entrance area, first floor – staircase E*	
TKC02 (RTU-K02)	PROG.ID= 4896873498696586 (2/5 INTERLEAVED – DECIMAL) 2550002550002 55000

Table 3: Example of completed identification form

TECHNICAL SPECIFICATIONS

TemaKey TK C03 (RTU-K03 code 1500063BA)

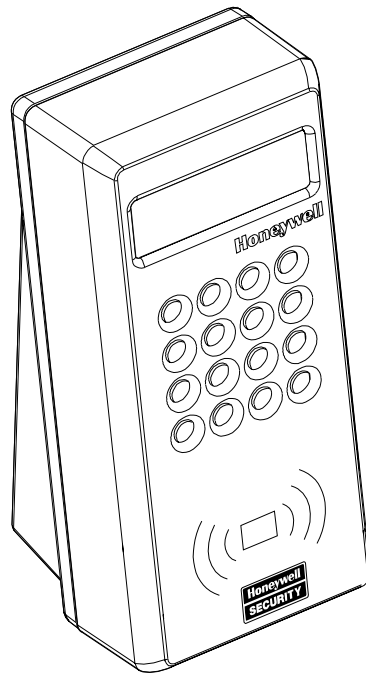| Parameter	Value
DC power supply	$12V_{DC}\pm15\%$ 130mA nominal (1.8W), 150mA max (2.1W)
Weight	0.4 kg
Size	72x160x75 mm
Protection level	IP55
Environmental temperature for correct operation	$0\div50\,°C$

Inputs	Number of inputs: 2
	
	Resistance: 2.2 Kohm
	
	Logic level high:
	
	    $>4.0\ V_{DC}$ (max. positive $+18\ V_{DC}$)
	
	Logic level low:
	
	    $<0.7\ V_{DC}$ (min. negative $-0.5\ V_{DC}$)

Relay outputs	Number of outputs: 2
	
	    $30V_{DC}$ 1A
	
	    $125V_{AC}$ 200 mA

Proxy antenna	125KHz for HID cards Read distance $0\div50$mm
LONWORKS®[2] connection	Unshielded twisted pair cable in free topology (transceiver FTT10A, 78Kbps)
Regulations compliance	CE Directive EMC 89/336/EEC, 92/31/EEC, Directive Low Voltage 72/23/EEC, 93/68/EEC: EN60950, EN55024, EN55022, EN 300 330

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[2] LONWORKS® is a trademark of Echelon Corporation

Spare Parts

Fuses	F1 1A 250V delayed

Optional Parts

TORX screwdriver	TX10 code 1500108AA