TABLE OF CONTENTS

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).

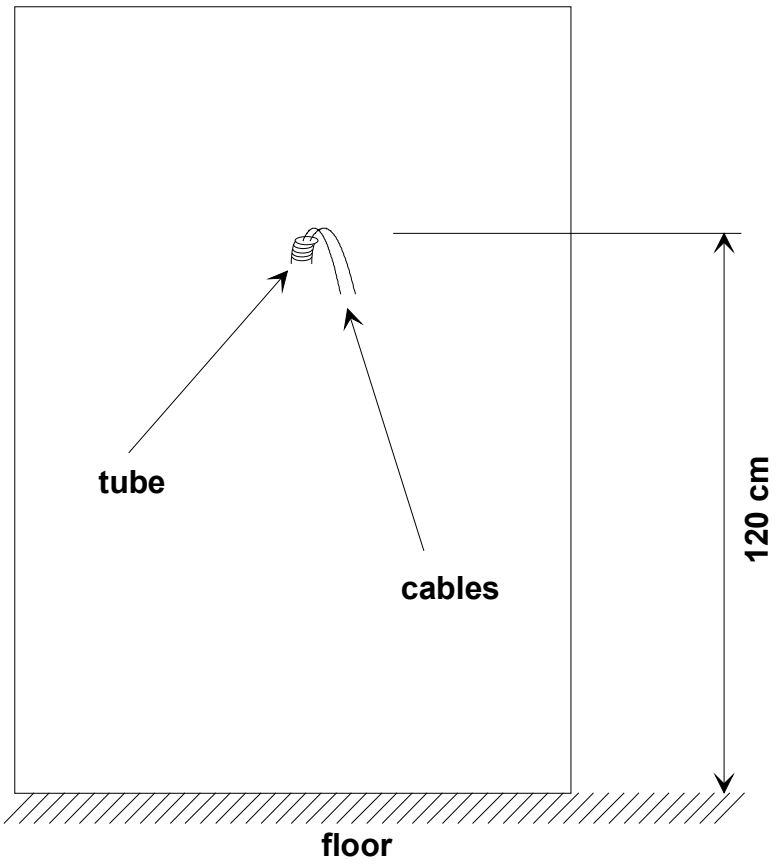

Figure 1. Space Requirements for Mounting

Electrical Connections

The RTU is powered at low voltage ($12V_{DC}$ 120mA) by a battery-operated power supply module (RTU-Qxx). In order to determine the correct size for power cables, refer to the table below. Max voltage cable drop = 1,0VDC

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	877	439	175	88	44	18
14	2	8,8	568	284	114	57	28	11
16	1,3	14	357	179	71	36	18	7
18	0,9	21	238	119	48	24	12	5
20	0,6	34	147	74	29	15	7	3
22	0,35	52	96	48	19	10	5	2
24	0,2	85	59	29	12	6	3	1

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 the two ends 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]	Connection in **free topology** –maximum total wire length. [m]
Belden 85102	16	2700	500	500
Belden 8471	16	2700	400	500
Level IV (twisted-pair, typically solid and unshielded)	22	1400	400	500
JY (St) 2x2x0.8 (4-wire helical twist, solid shielded)	20	900	320	500
TIA Cat5	/	900	250	450

Table 2. Recommended LONWORKS® Cables

[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 into 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.

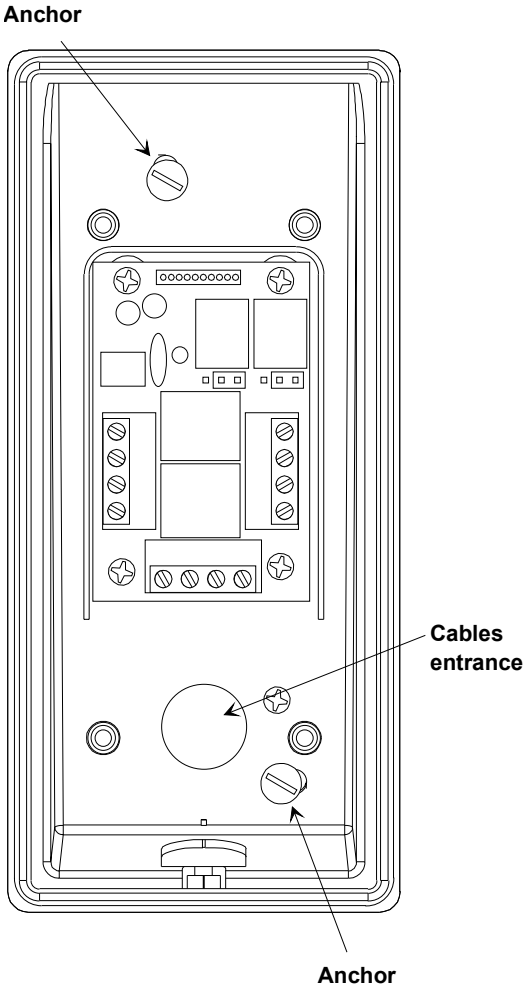

Figure 2. Attaching the Support Plate

Channeling the Cables from the Bottom of the Box

As an alternative, you can channel the cables so that they issue 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.

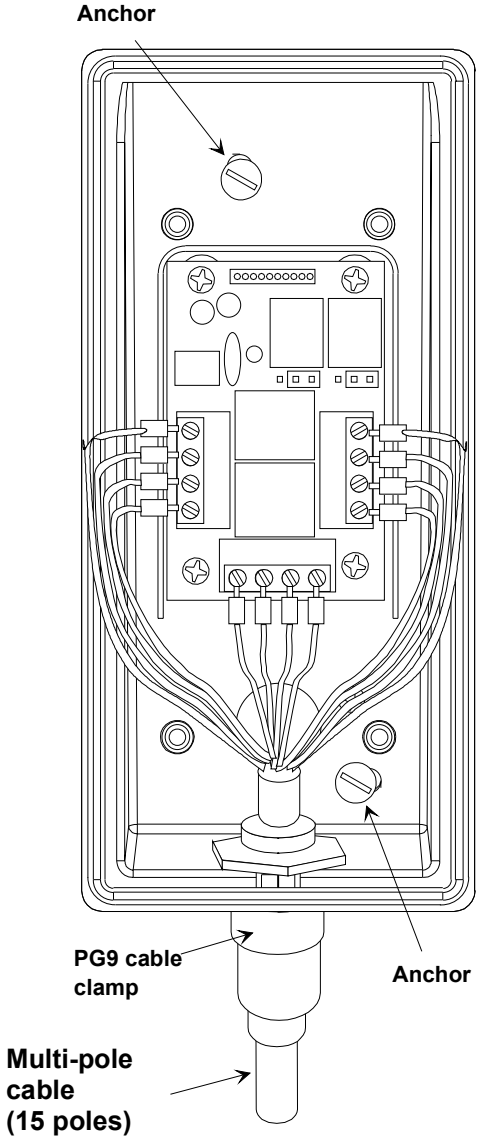

Figure 3. Channeling the Cables from the Bottom of the Box

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.

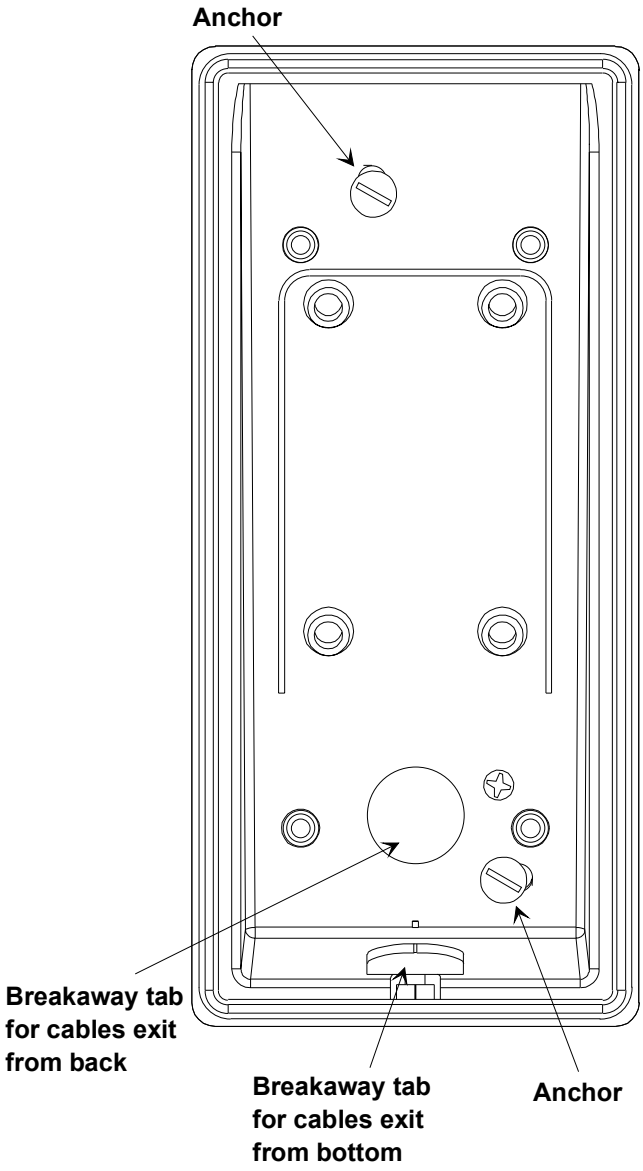

Figure 4. Connecting the Cables (1)

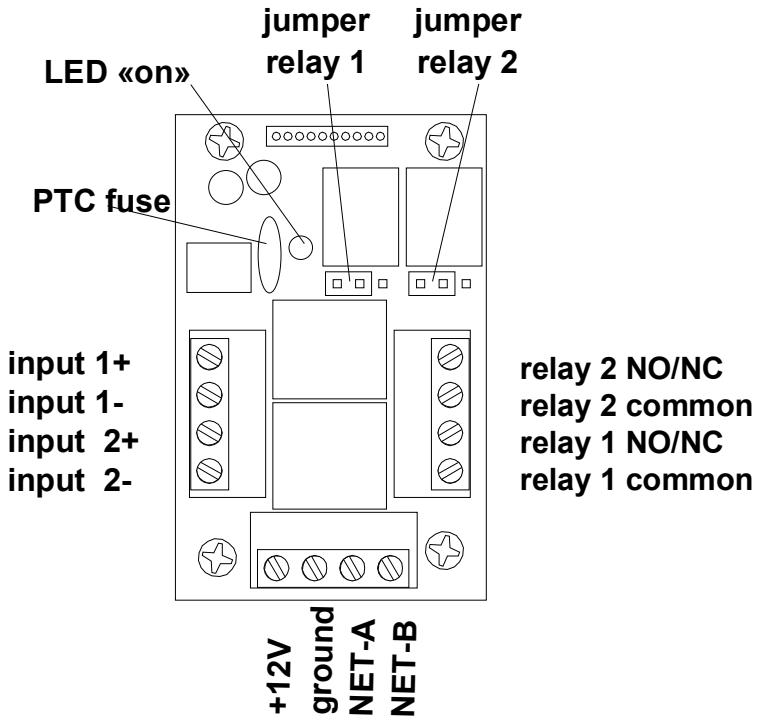

Figure 5. Connecting the Cables (2)

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 is shown in Figure 7.

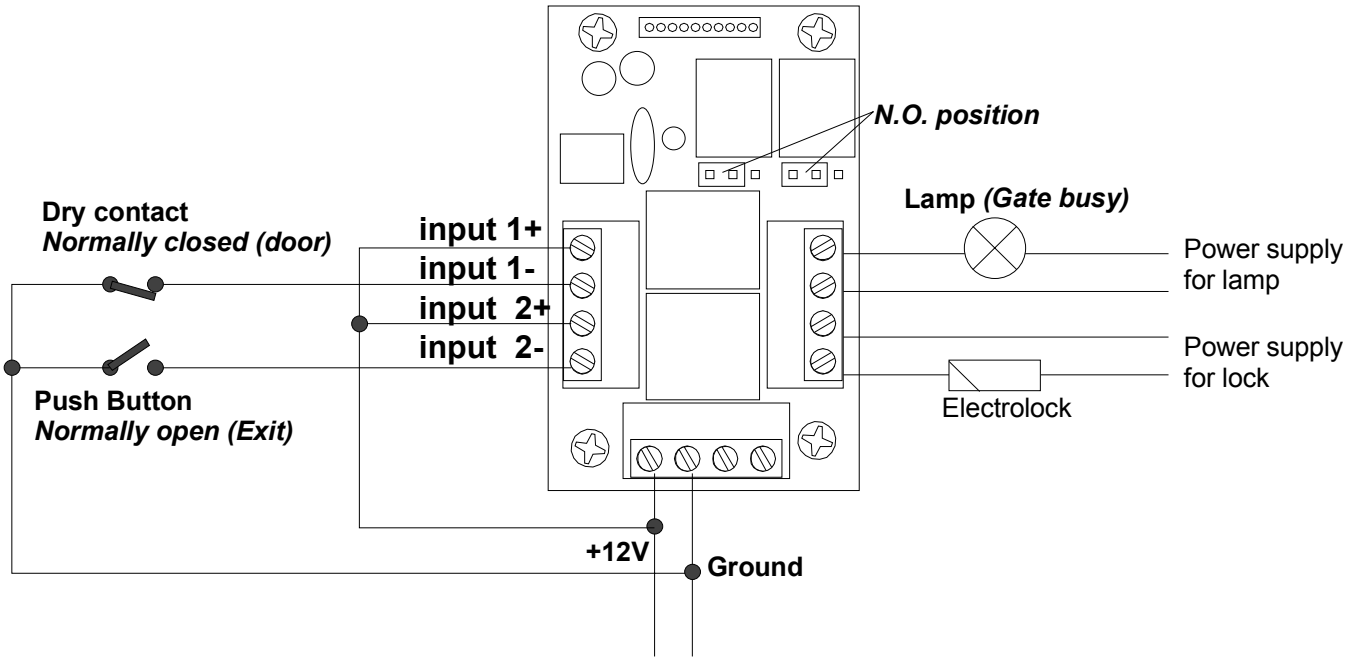

Figure 7. Clean Contacts Connection Example

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

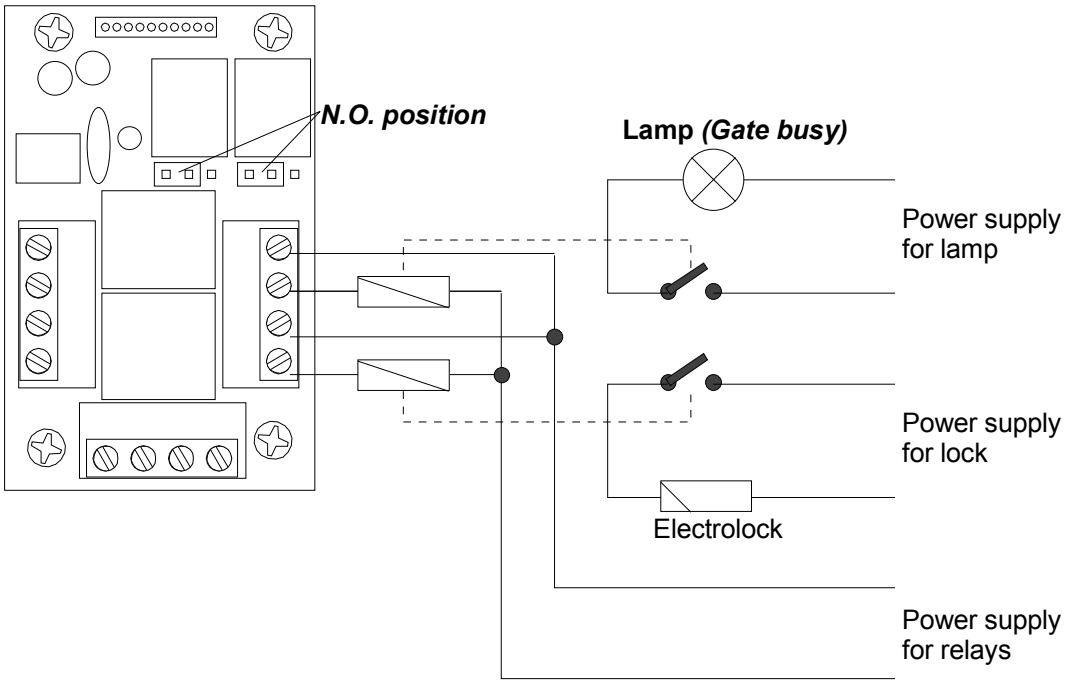

Figure 8. External Relays Example

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 into the corresponding niche on the guide (see Figure 9).

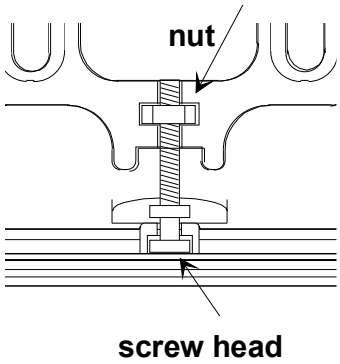

Figure 9. Mounting the Terminal Closure Guide (1)

Make sure that the fitting is correctly positioned, and then insert the flat cable from the front casing into the connector (see Figure 10).

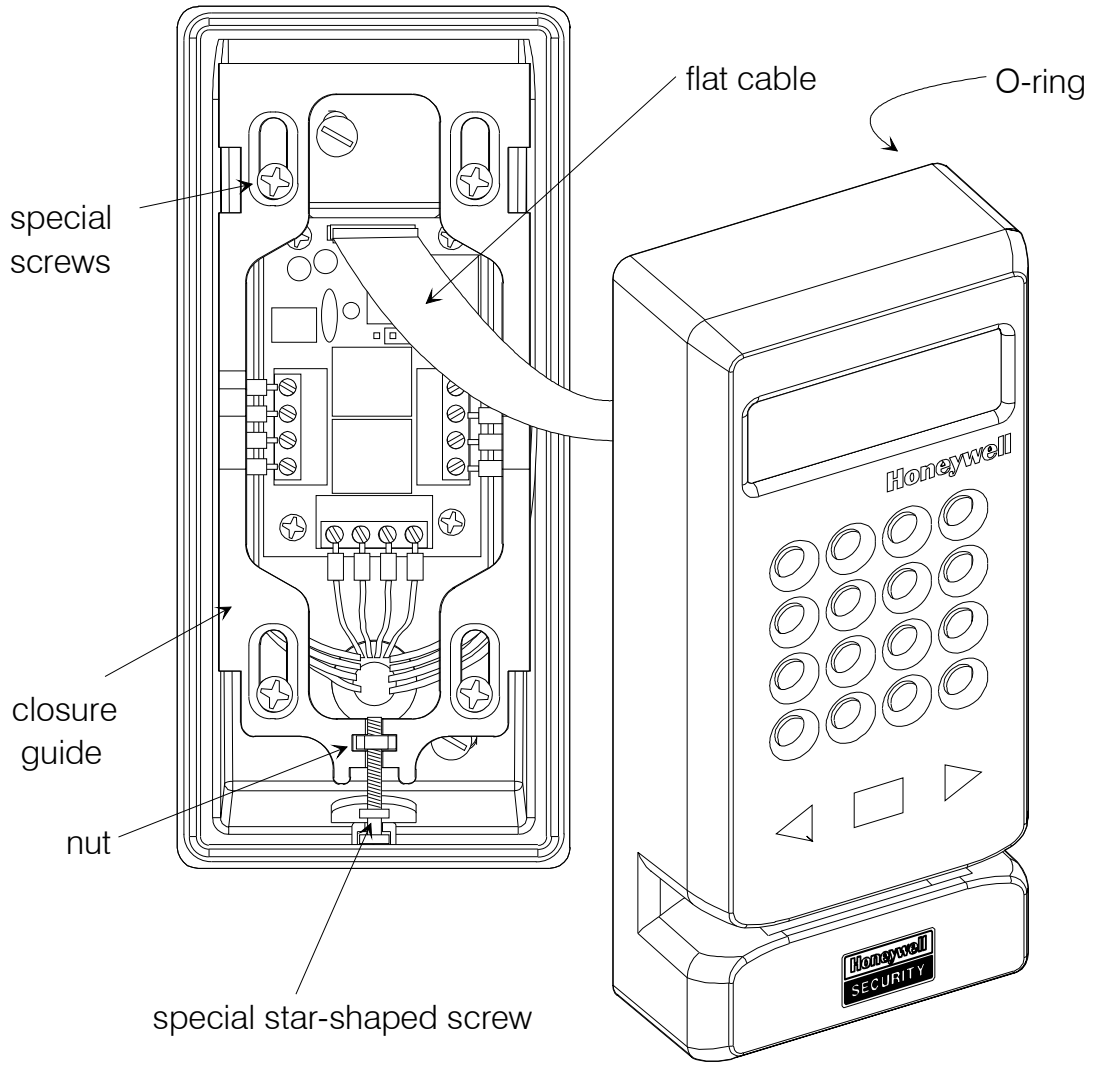

Figure 10. Mounting the Terminal Closure Guide (2)

Closing the Terminal (Wall-Mounted Assembly)

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

1. Unscrew the special closure screw by turning it counterclockwise 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 clockwise and pushing down on the shell, so that the fitting is completely secure.
4. Tighten the screw.

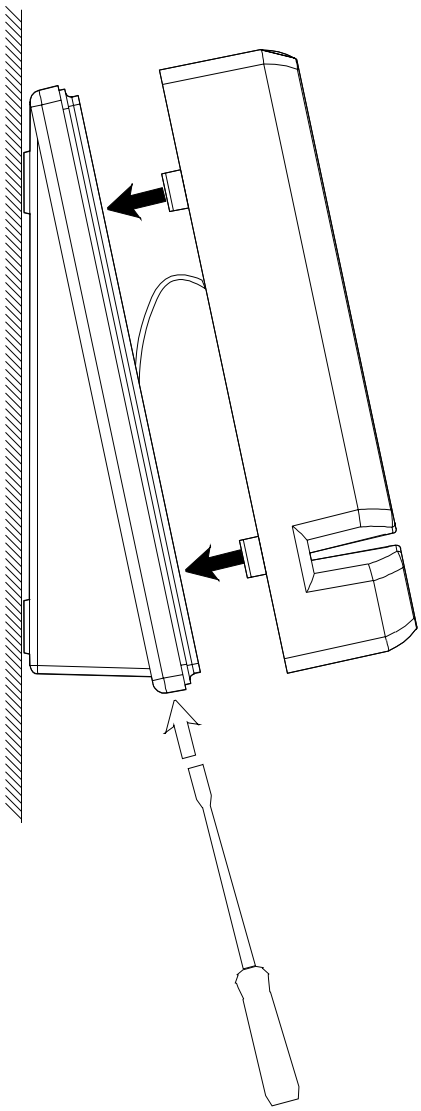

Figure 11. Closing the Terminal (Wall-Mounted Assembly)

Closing the Terminal (Turnstile-Mounted Assembly)

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

1. Unscrew the special closure screw by turning it counterclockwise 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 clockwise and pushing down on the shell, so that the fitting is completely secure.
4. Tighten the screw.

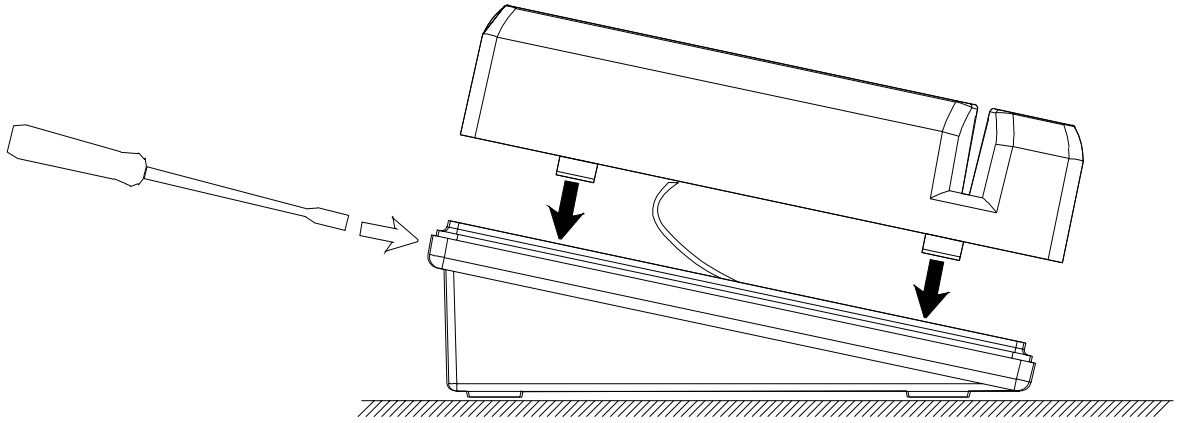

Figure 12. Closing the Terminal (Turnstile-Mounted Assembly)

ACTIVATION

Identification via the Service Pin

To identify the node, you can activate 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 activate 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 communication to and from the TemaServer is working.
3. Check that the service LED remains off after you have completed this operation.

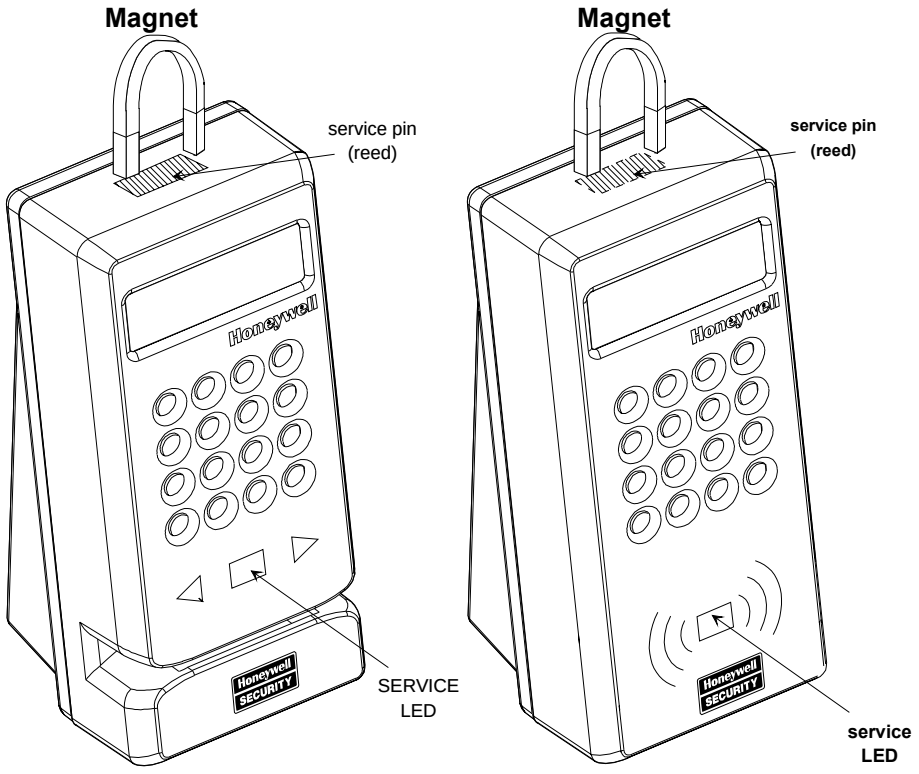

Figure 13. Using a Magnet to Activate the Service Pin

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*	
TKC01 (RTU-K01) ☐ TKC02 (RTU-K02) ☒ TKC03 (RTU-K03) ☐	

Table 3. Example of Completed Identification Form

TECHNICAL SPECIFICATIONS

TemaKey TK C01 (RTU-K01 code 1500072xx)

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.

Parameter	Value
DC power supply	$12V_{DC}$±15% 100mA nominal (1.4W), 120mA max (1.7W)
Weight	0.5 kg
Size	72x160x75 mm
Protection Level	IP55 (excluding magnetic pickup IP31)
Operational temperature	0 ÷ 50 °C
Storage temperature	-20 ÷ 70 °C
Storage relative humidity	0 ÷ 90 % without condensation
Inputs	Number of inputs: 2 Resistance: 2.2 Kohm Logic level high: >4.0 V_{DC} (max. positive +18 V_{DC}) Logic level low: <1.0 V_{DC} (min. negative –0.5 V_{DC})

Relay outputs	Number of outputs: 2 $30V_{DC}$ 1A $42V_{AC}$ 200 mA
Magnetic pickup module	ISO 7811 track 2, 1.000.000 scans
LONWORKS®[2] connection	Unshielded twisted-pair cable in free topology (transceiver FTT10A, 78Kbps)
Compliance with Regulations	CE Directive EMC 89/336/EEC, 92/31/EEC, Directive Low Voltage 72/23/EEC, 93/68/EEC: EN60950, EN55024, EN55022, EN 300 330
	FC **This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**
	12 Vdc ±15% **1.7 W** c UL US LISTED **UL60950** **E197303** Honeywell International Inc Model: RTU-K01 Manufacturer: Meg Italia S.R.L.

Optional Parts

TORX screwdriver	TX10 code 1500108AA

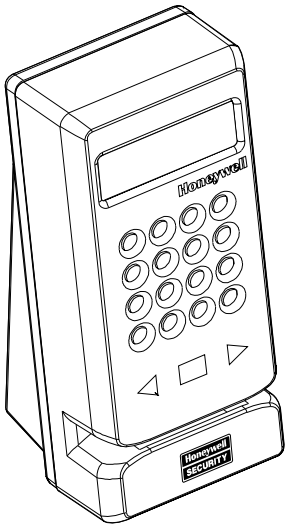

Figure 14. TemaKey TK C01

[2] LONWORKS® is a trademark of Echelon Corporation

TemaKey TK C02 (RTU-K02 code 1500073BA)

Parameter	Value
DC power supply	$12V_{DC}$±15% 120mA nominal (1.7W), 140mA max (1.9W)
Weight	0.4 kg
Size	72x160x75 mm
Operational temperature	0 ÷ 50 °C
Storage temperature	-20 ÷ 70 °C
Storage relative humidity	0 ÷ 90 % without condensation
Protection level	IP55
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 $42V_{AC}$ 200 mA
Proxy antenna	125KHz for Unique cards Read distance 0 to 50mm
LONWORKS®[3] connection	Unshielded twisted-pair cable in free topology (transceiver FTT10A, 78Kbps)
Compliance with Regulations	CE Directive EMC 89/336/EEC, 92/31/EEC, Directive Low Voltage 72/23/EEC, 93/68/EEC: EN60950, EN55024, EN55022, EN 300 330

[3] LONWORKS® is a trademark of Echelon Corporation

Optional Parts

TORX screwdriver	TX10 code 1500108AA

Figure 15. Temakey TK C02

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.

Parameter	Value
DC power supply	12V_{DC}±15% 130mA nominal (1.8W), 150mA max (2.1W)
Weight	0.4 kg
Size	72x160x75 mm
Protection level	IP55
Operational temperature	-20 ÷ 60 °C
Storage temperature	-20 ÷ 70 °C
Storage relative humidity	0 ÷ 90 % without condensation
Proxy receiver	Double antenna 125KHz for HID cards (HID "Prox Point Cod 4068A" controller inside) Read distance 0…50mm
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 42V_{AC} 200 mA

LONWORKS®[4] connection	Unshielded twisted-pair cable in free topology (transceiver FTT10A, 78Kbps)
Compliance with Regulations	CE Directive EMC 89/336/EEC, 92/31/EEC, Directive Low Voltage 72/23/EEC, 93/68/EEC: EN60950, EN55024, EN55022, EN 300 330
	FC **FCC-ID = HS9-RTU-K03** **This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**
	c UL US LISTED **UL60950** **E197303** **12 Vdc ±15%** **1.8 W** Honeywell International Inc Model: RTU-K03 Manufacturer: Meg Italia S.R.L.

Optional Parts

TORX screwdriver	TX10 code 1500108AA

Figure 16: Temakey TK C03

[4] LONWORKS® is a trademark of Echelon Corporation