# TAU-TRM-01

## HYFIRE TAURUS TRANSLATOR MODULE

## TAURUS SERIES

**User instructions manual**

## GENERAL DESCRIPTION

The **TAU-TRM-01** permits to integrate a Taurus wireless network to an intelligent fire security installation. This solution is useful in environments where a wired installation would be difficult, inconvenient or problematic.

The **TAU-TRM-01** has to be connected to the intelligent control panel's loop and the new wireless devices have to be programmed / acquired into panel's view; done so, the panel will have the capability to detect fire alarms in the area protected by the wireless system, and, in general, the capability of controlling the wireless devices of the Taurus system.

**TAU-TRM-01** has to be powered either by:

- an EN 54-4 certified external power supply source or

- the intelligent loop.

## CONTROL PANEL COMPATIBILITY

Check the compatibility of the intelligent control panel:

- **TAU-TRM-01** requires the intelligent Vega / Altair protocol;

- control panel's features and technical specifications ranges and values have to be suitable for the **TAU-TRM-01**.

## WARNINGS AND LIMITATIONS

Our devices use high quality electronic components and plastic materials that are highly resistant to environmental deterioration. However, after 10 years of continuous operation, it is advisable to replace the devices in order to minimize the risk of reduced performance caused by external factors.
Ensure that this device is only used with compatible control panels.
Detection systems must be checked, serviced and maintained on a regular basis to confirm correct operation.
Smoke sensors may respond differently to various kinds of smoke particles, thus application advice should be sought for special risks.
Sensors cannot respond correctly if barriers exist between them and the fire location and may be affected by special environmental conditions.
Refer to and follow national codes of practice and other internationally recognized fire engineering standards.
Appropriate risk assessment should be carried out initially to determine correct design criteria and updated periodically.

Use only in Taurus fire detection and alarm systems.

## WARRANTY

All devices are supplied with the benefit of a limited 5 years warranty relating to faulty materials or manufacturing defects, effective from the production date indicated on each product.
This warranty is invalidated by mechanical or electrical damage caused in the field by incorrect handling or usage.
Product must be returned via your authorized supplier for repair or replacement together with full information on any problem identified.
Full details on our warranty and product's returns policy can be obtained upon request.

**0051**
**20**
**HF-20-024CPR**

**8504**
**22**
**HF-20-024UK**

Hyfire Wireless Fire Solutions Ltd - Unit B12a, Holly Farm Business Park, Honiley, Warwickshire, CV8 1NP - United Kingdom

**TAU-TRM-01**

EN 54-25:2008
EN 54-18:2005
EN 54-17:2005

**TECHNICAL SPECIFICATIONS** *

| Specification | Value |
|---|---|
| Power supply voltage range (from intelligent loop) | from 18 Vdc to 40 Vdc |
| Power supply voltage range (from external EN 54-4 source) | from 9 Vdc to 40 Vdc |
| Maximum loop current (device loop powered) | 1A |
| Maximum loop current (device external source powered) | 0.6A |
| Typical current load | 16 mA (24 Vdc) |
| Wireless frequency band | 868 MHz |
| Radiated power value | 14 dBm (25 mW) |
| Number of wireless channels | 66 |
| Wireless communication range ** | 200 m in open space |
| Maximum number of linked **TAU-EXM-01** expander devices | 15 |
| Maximum number of linked **TAU-EXM-01** expander devices in serial cascade order | 8 |
| Maximum number of linked child devices | 32 |
| Technical temperature range | from -20 °C to 70 °C |
| EN 54 approved temperature range | from -10 °C to 55°C |
| Humidity range without condensing | from 5% RH to 90% RH |
| Device dimensions | 235 mm x 160 mm x 70 mm |
| Device weight | 700 g |
| Technical IP rating | 65 |
| EN 54 approved IP rating | 30 |

**Table 1**

* See TDS-TWMTI technical specification document for further technical data.
** Environmental physical obstacles can reduce this value.

**SHORT CIRCUIT PROTECTION SPECIFICATIONS**

* Specification refers to EN 54-17 Annex A, paragraph A.2.1.

| Specifications topic | Acronym | Min | Typ | Max | Unit | Notes |
|---|---|---|---|---|---|---|
| Line voltage | - | 18 | 24 | 40 | V | |
| Maximum rated continuous current with the switch closed | $I_{C\ max}$ * | | | 1 | A | - |
| Maximum rated switching current | $I_{s\ max}$ * | | | 1 | A | - |
| Current at which the device reconnects | $I_{SC}$ ** | 2 | 3.5 | 4.5 | mA | At 18 V |
| | | 3.5 | 4.5 | 5.5 | mA | At 24 V |
| | | 6 | 8.5 | 10 | mA | At 40 V |
| Leakage current with the switch open | $I_L$ * | 4.5 | 5.5 | 6.5 | mA | At 18 V |
| | | 6 | 7.5 | 8.5 | mA | At 24 V |
| | | 11 | 12.5 | 14 | mA | At 40 V |
| Series impedance with the switch closed | $Z_C$ | | 0.15 | 0.50 | Ω | - |
| Voltage at which the device isolates | $V_{SO}$ | 10 | | 16.5 | V | |

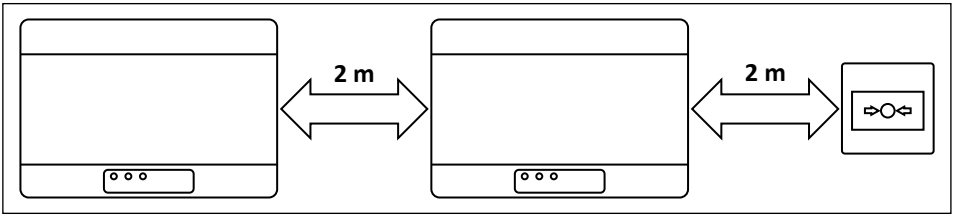
**Table 2**

** Specification refers to EN 54-17 Annex A, paragraph A.3.1.

**CORRECT DEVICE POSITIONING**

- Apply mandatory codes of practice and standards of your country.
- Use wireless channels that are free or reasonably free from other interfering signals; possibly avoid using channels that are already used by other systems.
- Don't install wireless devices in the vicinity of equipment using large amounts of electrical current.
- Don't install wireless devices in the vicinity of large metal objects, structures or metal ceiling structures.
- Don't install wireless devices in the vicinity of fluorescent light fixings.
- Don't install wireless devices in the vicinity of computers, their cabling and their network cabling.
- Wireless devices, in their final installation location, must have a minimum distance of at least 2 meters between each other.
- Install central and expander network nodes at an height of at least 2 - 2.5 meters from the floor.
- Fix central and expander network nodes flat on the wall.
- Environmental temperature and humidity must lay in the ranges specified in the technical specifications at the beginning of this manual. Environmental compatibility applies to all devices in general.
- Environmental conditions must be withstandable by the installed devices. Check the device's IP rating adequacy with the installation's environmental characteristics; IP rating value is found in the technical specifications at the beginning of this manual. Environmental compatibility applies to all devices in general.
- Make sure that all child devices (in their final installation location) are reached by good strong wireless signals from their father nodes (central and expander ones).
- Make sure that all father nodes (central and expander ones, in their final installation location) are reached by good strong wireless signals from their child devices.
- Make sure that all network nodes (central and expander ones, in their final installation location) are reached by good strong wireless signals from their linked-to network nodes.

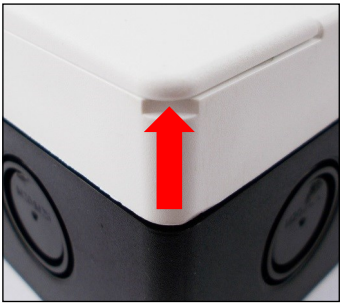
**It is advisable to use the TAU-STK-01 survey kit to locate a good wireless installation location.**




**Picture 1**

**INSTALLATION**

1) Remove the two plastic screw covers from the front side.
   Lifting the protective covers using the gaps at their angles makes this operation easier.



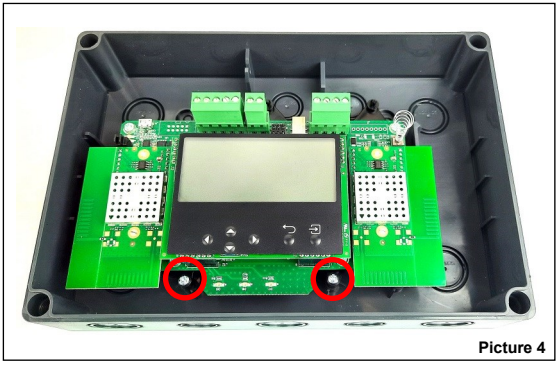
**Picture 2**

2) Remove the four sealing plastic screws.

Picture 3

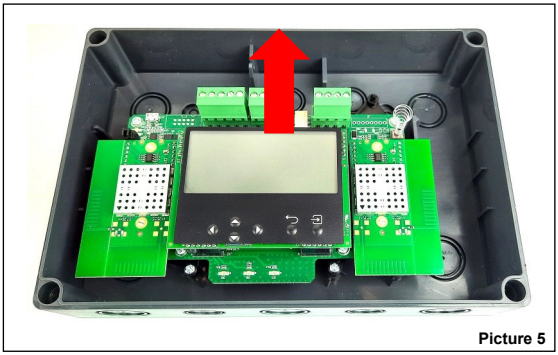
3) Remove the front protective cover.

4) Remove the two holding screws at the base of the printed circuit board.



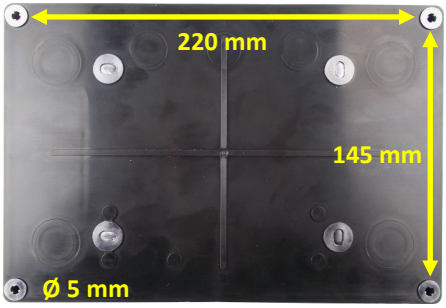
Picture 4

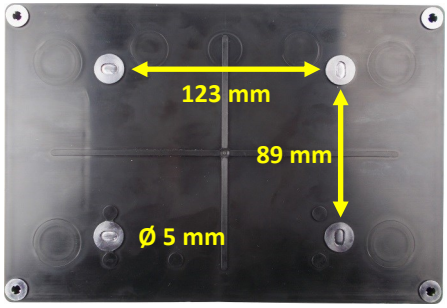
5) Slide upwards the board and extract it from the box.



Picture 5

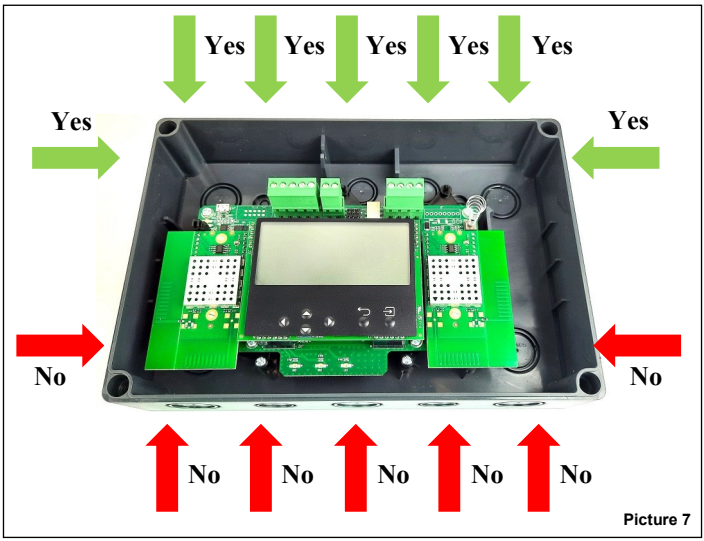
6) Drill into the wall the required number of holes you need to fix the box. Refer to the following pictures for the distances between the four "IP safe" holes and the distances between the four mould-printed knock-out slots on the rear side of the box. Use the IP safe holes if you want to preserve the original IP rating of the device box, otherwise use the internal knock-out slots. If you use the internal knock-outs, the manufacturer is discharged from the liability following damage to the device that can occur from environmental factors.




Picture 6

7) The box is designed with M16/M20/M25 knock-out holes to provide IP safe compatibility with electrical cable glands. Knock out the required ones. If one or more holes have been opened but remain unused, fill them with suitable IP safe blanking plugs in order to maintain the native ingress protection degree of the box. It is suggested to select external cabling entries that are at a certain distance from the device's antennas. Upper side entries of the box are the best choice.




Picture 7

8) Install the required cable glands.

9) Fix the device box to the wall; use adequate screws and avoid the countersunk type.

10) Slide into the box the printed circuit board.

11) Fix the board to the box using the two screws you removed before.

12) Perform the required wiring.

13) Program the device.

14) Reinstall the front cover.

15) Screw the front cover: fixing has to be IP safe and not loose.

16) Reinstall the plastic screw covers.

17) Check that your installation is safe, secure and fault-free; perform the functional test.

## WIRING - PRELIMINARY NOTES

**The external power input is not isolated and its negative terminal is directly connected to the device internal reference. The external power supply must provide the needed isolation to avoid panel earth fault and to guarantee the correct behaviour of isolators.**

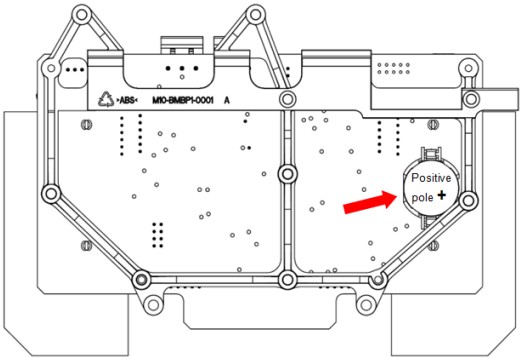
- Apply mandatory codes of practice and safety standards of your country.
- This device requires either:
  - a EN 54-4 certified power supply source or
  - to be power supplied directly from the intelligent loop.
- If the **TAU-TRM-01** is externally powered, allow a maximum cable length of 3 meters between the EN 54-4 power supply source and the device.
- When performing wiring operations, disconnect either the external power supply source or the intelligent loop.
- The printed circuit board is sensitive to electrostatic discharges: take suitable precautions when handling it in order to avoid damage.
- Connect the wire terminals to their correct blocks on the printed circuit board; keep this manual handy as a reference for good connection implementation.
- Safely screw the wire terminals to their corresponding blocks.
- Avoid mechanically loose or weak connections.
- Avoid accidental shorts between terminals.
- Allow sufficient wire length into the device box so you can comfortably screw the terminals to their corresponding blocks; this is also important to avoid mechanical stress on terminal-block couplings.

**The printed circuit board is sensitive to electrostatic discharges: take suitable precautions when handling it in order to avoid damage.**

## TRANSLATOR BACKUP BATTERY

Ensure the Translator Backup Battery is correctly installed on the Translator. The Translator Backup Battery has to be inserted to preserve the Time clock and Date when the Translator is not powered by loop or external PSU. Moreover, the Translator Backup Battery is needed also in order to use the auto-address procedure on Fire Control Panel.

The Translator Backup Battery is located on the rear of the translator board. Make sure to insert the battery with the correct polarity; positive pole up.

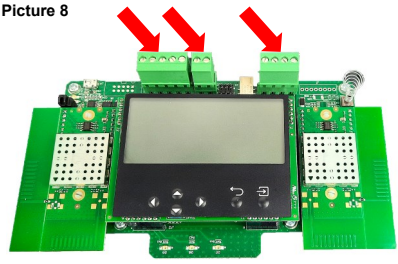



| Battery Specification | Value |
|---|---|
| Battery type | CR2032 Lithium Battery |

## TERMINAL BLOCKS LOCATION

Terminal blocks are located on the printed circuit board in the positions highlighted in the following picture:

**Picture 8**



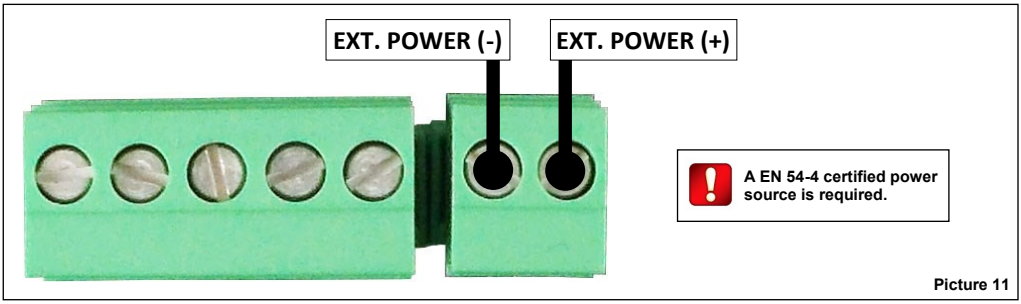
## TAU-TRM-01 WIRING PROCEDURE - POWER SUPPLY FROM LOOP

1) Install the shorting jumpers cap onto the loop power supply habilitation pins.
2) Connect the loop terminals.

## TAU-TRM-01 WIRING PROCEDURE - EN 54-4 EXTERNAL POWER SUPPLY

1) Install the shorting jumpers cap onto the EN 54-4 external power supply habilitation pins.
2) Connect the power supply terminals.
3) Connect the power supply's monitoring inputs (optional).
4) Connect the loop terminals.

**WIRING - POWER SUPPLY'S TERMINAL BLOCKS LAYOUT**



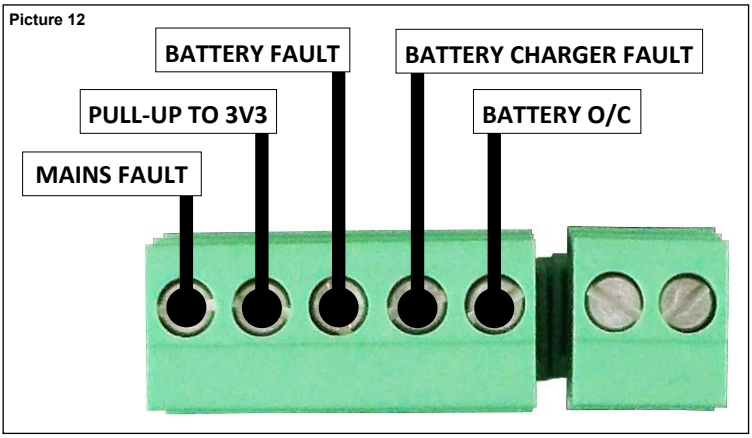

Picture 11

| Block | Description | Note |
|---|---|---|
| **EXT. POWER (-)** | Power supply, negative pole | EN 54-4 certified power source is required |
| **EXT. POWER (+)** | Power supply, positive pole | EN 54-4 certified power source is required |

Table 3

**WIRING - POWER SUPPLY'S FAULT DETECTION INPUTS - TERMINAL BLOCKS LAYOUT**

Picture 12




| Block | Description | Note |
|---|---|---|
| **MAINS FAULT** | Mains' power supply fault input | Check settings.<br>See: **EN 54-4 POWER SUPPLY SUPERVISORY FEATURES MANAGEMENT** |
| **PULL-UP TO 3V3** | Internal pull-up to 3.3 V | - |
| **BATTERY FAULT** | Battery fault's input | Check settings.<br>See: **EN 54-4 POWER SUPPLY SUPERVISORY FEATURES MANAGEMENT** |
| **BATTERY CHARGER FAULT** | Battery charger fault's input | |
| **BATTERY O/C** | Battery open circuit fault's input | |

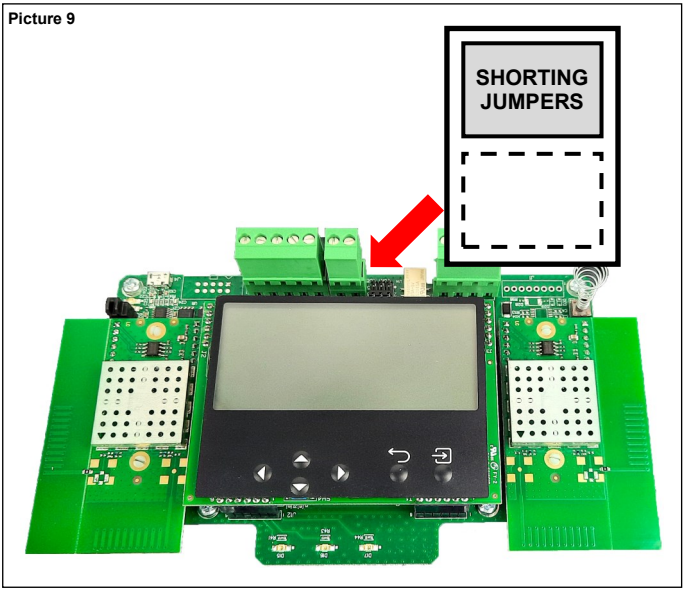
Table 4

**Through the TauREX configuration software always check and, eventually, activate / deactivate / set the EN 54-4 power supply supervisory features and settings.**

**POWER SUPPLY SELECTION - EN 54-4 EXTERNAL SOURCE**

If the **TAU-TRM-01** takes its power supply from the EN 54-4 external source, install the shorting jumpers cap onto the upper set of pins in the following location:

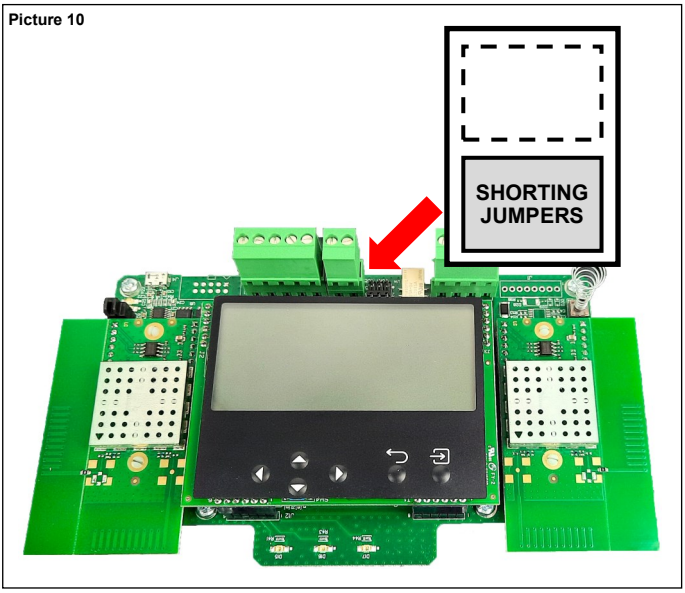
**Picture 9**



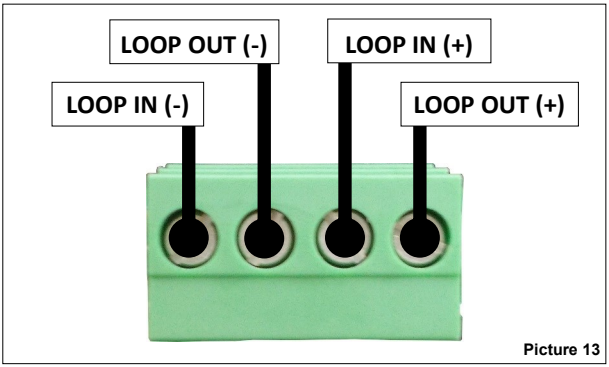

**POWER SUPPLY TYPE SELECTION - LOOP**

If the **TAU-TRM-01** takes its power supply from the intelligent loop, install the shorting jumpers cap onto the lower set of pins in the following location:

**Picture 10**



**WIRING - INTELLIGENT LOOP - TERMINAL BLOCKS LAYOUT**




**Picture 13**

| Block | Description | Note |
|---|---|---|
| **LOOP IN (-)** | Loop negative input | Short circuit protected |
| **LOOP OUT (-)** | Loop negative output | |
| **LOOP IN (+)** | Loop positive input | |
| **LOOP OUT (+)** | Loop positive output | |

**Table 5**

**THE PURPOSES OF PROGRAMMING**

Programming is done for the following purposes:

- activating or deactivating the signalling of power supply's fault events;

- activating or deactivating the signalling of tamper events;

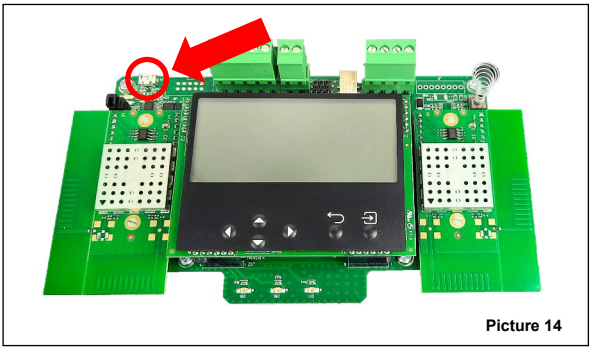
- integrating the **TAU-TRM-01** into the wireless system; this means creating a wireless exclusive direct link with **TAU-EXM-01** expanders;

- creating wireless exclusive links with local child devices (detectors, call point, sounders….).

**PROGRAMMING SETUP PROCEDURE**

1) Install on your personal computer the **TauREX** software.

2) Connect your personal computer to the printed circuit board; for this operation a standard-to-micro USB cable is used; micro USB socket location is highlighted in the picture below:



**Picture 14**

3) Make sure the device is powered up.

**PROGRAMMING**

For more data about programming this device refer to the following documentation:

- the **TauREX** software manual;

- the user instructions manuals of the Taurus series' products.

## THE USER'S KEYPAD AND DISPLAY

**In this edition of the manual, programming procedures through the keypad / display system is not described. Use TauREX instead.**

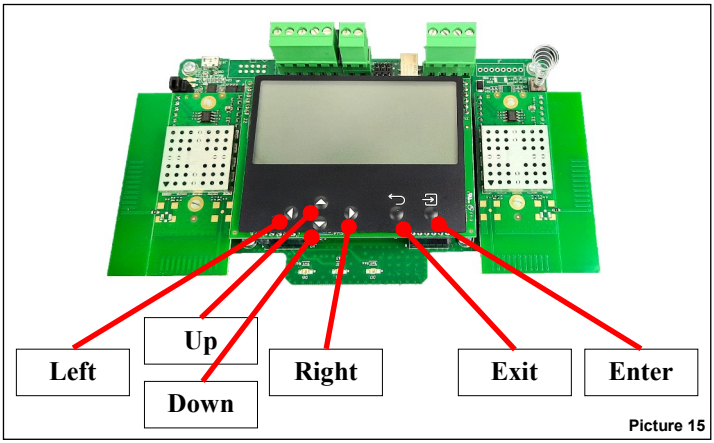
The device keypad and display system is used for two basic purposes:

- Diagnose the **TAU-TRM-01** and the system: check event occurrences, faults, settings, etc.

- Program device and system's settings.

Keypad and display system is the manual alternative to the use of the **TauREX** configuration software.

## THE USER'S KEYPAD




**Picture 15**

Keypad buttons are:

**Up** Pulls up the display's menu selection.
If applied to a value, the selected digit is increased.

**Down** Pushes down the display's menu selection.
If applied to a value, the selected digit is decreased.

**Left** Returns to the previous menu.
If editing a value, sets the cursor to the left digit.

**Right** Enters into the next submenu.
Some options require exclusively the "Enter" key to gain access to the next submenu.
If editing a value, sets the cursor to the right digit.

**Enter** Enters into the next submenu.
Confirms the selected setting.

**Exit** Returns to the previous menu.

## THE USER'S DISPLAY

In a normal and eventless condition the display will have picture 16's lookalike.

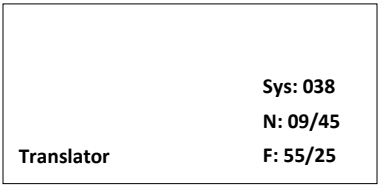
Of the main window, displayed data has the following meaning:

**Translator** Indicates that this device is a **TAU-TRM-01**.

**Sys: 038** Indicates the number that identifies the Taurus wireless system (system code); in this case 038.

**N: 09/45** "Network" channels; system-wide wireless network numbered channels that are used by the **TAU-TRM-01** to exchange data with the expanders; in this case channel 9 and channel 45.

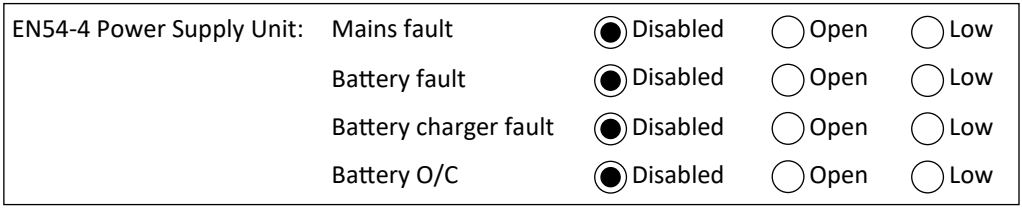
**F: 55/25** "Field" channels; local wireless network numbered channels that are used by the **TAU-TRM-01** to exchange data with local child devices; in this case channel 55 and channel 25.




**Picture 16**

**EN 54-4 POWER SUPPLY SUPERVISORY FEATURES MANAGEMENT**

On **TAU-TRM-01**'s properties window of the **TauREX** software, you will have the following options:




**Picture 17**

| Selected option | "Open" is selected | "Low" is selected |
|---|---|---|
| **Mains fault** | A fault condition is raised if there is an open circuit between **MAINS FAULT** terminal block and **EXT. POWER (-)**. Signal is in a high impedance state. | A fault condition is raised if there is a short circuit between **MAINS FAULT** and **EXT. POWER (-).** Signal is in a low state. |
| **Battery fault** | A fault condition is raised if there is an open circuit between **BATTERY FAULT** terminal block and **EXT. POWER (-)**. Signal is in a high impedance state. | A fault condition is raised if there is a short circuit between **BATTERY FAULT** and **EXT. POWER (-).** Signal is in a low state. |
| **Battery charger fault** | A fault condition is raised if there is an open circuit between **BATTERY CHARGER FAULT** terminal block and **EXT. POWER (-)**. Signal is in a high impedance state. | A fault condition is raised if there is a short circuit between **BATTERY CHARGER FAULT** and **EXT. POWER (-).** Signal is in a low state. |
| **Battery O/C** | A fault condition is raised if there is an high impedance between **BATTERY O/C** terminal block and **EXT. POWER (-)**. Signal is in a high impedance state. | A fault condition is raised if there is a short circuit between **BATTERY O/C** and **EXT. POWER (-).** Signal is in a low state. |

**Table 6**

**THE DISCOVERY OPERATION**

The discovery of all possible routes for the wireless messages travelling throughout the system is called "discovery".

The discovery operation concerns only the network devices (**TAU-TRM-01** and **TAU-EXM-01**s) and not the child devices.

Discovery is performed only once at the beginning, during the installation phase. It can be performed successively (e.g. following environmental changes) in order to redefine the best messaging routes for the system.

Discovery procedure:

1) Set all **TAU-EXM-01** system's devices in "Discovery mode".
   This operation is accomplished only through the **TAU-EXM-01**'s keypad / display system.
   See the **TAU-EXM-01**'s manual for precise instructions.

2) Trigger and complete the discovery operation from **TauREX**.
   See **TauREX**'s manual.

**TAU-EXM-01's user interface and TauREX will prompt you whether to use channel A, B or C for discovery. Use the less congested / relatively free channel: if channel A gives problems use B; if B gives problems use C.**

**Preferably, use the TAU-STK-01 survey kit to diagnose channel A, B and C.**

**Make sure you specify the same channel on the TAU-EXM-01s and TauREX.**

**TAU-TRM-01 does not require any particular keypad / display operation for the discovery operation.**

**EVENT SIGNALLING**

Wireless system's events, like faults and alarms, are notified to the user in both of the following ways:

- through specific LEDs, visible even if the printed circuit board is hidden by the front cover;
- through written messages visualized on the LCD display; the LCD is visible only if the front cover is not installed.

**LED SIGNALS - DEVICE IS POWERED ON**

The blinking green LED above the “Power” icon indicates that the device is switched on.

**Picture 18**

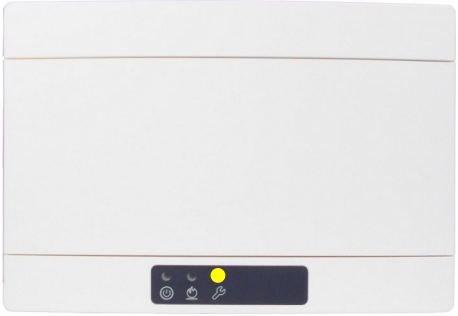
**LED SIGNALS - ALARM**

The red LED above the “Flame” icon indicates that an alarm event has occurred.

**Picture 19**

**LED SIGNALS - FAULT**

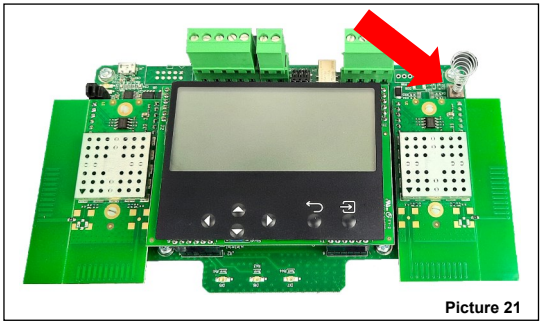
The yellow LED above the “Spanner” icon indicates that a fault event has occurred.



**Picture 20**

## TAMPER DETECTION

**TAU-TRM-01** is equipped with a tamper detection switch; when the front cover is removed, the switch-spring system is released, causing a temper event message to be routed to the control panel.



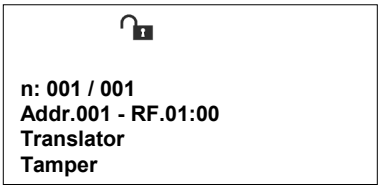
**Picture 21**

Tamper detection capability can be disabled / enabled from **TauREX**.

**EN 54 requires you to keep tamper detection enabled.**

## ONBOARD DISPLAY'S EVENT SIGNALLING

Event occurrences are notified on the **TAU-TRM-01**'s onboard display as in the following example:




**Picture 22**

Where:

**n:** The "n:" row indicates the number of the message event and the total of the messages available for viewing. To go through the message events use the left / right and up / down keys.

**Addr. - RF** This row indicates the address of the device "affected" by the event.
"Addr." is the analogue address as seen by the wired control panel.
"RF" is the wireless address which is a composed by the network device address (**TAU-TRM-01**'s, **TAU-EXM-01**'s) and the child device address (if "0" refers to the network device itself).

**Translator** In this example it is the generic description of the **TAU-TRM-01**.

**Tamper** In this example it is a "tamper" detection event type.

During event signalling icons are also displayed, carrying the following meanings:

**File alarm.**

**Missing link event detected.**

**Generic fault event detected.**
**Includes power supply faults.**

**Substitution attempt**

**Tamper event detected.**

**Low battery fault.**

**Communicating with computer.**

**Picture 23**

**SUBSTITUTION ATTEMPT**

**Substitution attempt of a child device linked to the translator**: it happens when there is a device that communicates with the **TW-MTI-01** using the same RF address of another device correctly linked.

- The device that caused the substitution attempt are disabled by the **TW-MTI-01** and blinks amber two times and repeats the blinking periodically.
- The LCD of the translator indicates the substitution attempt and, after the link fault timeout, also the link fault.
- The substitution attempt and then the link fault are signalled to the control panel.

**Substitution attempt of a child device linked to an expander**: it happens when there is a device that communicates with the **TW-ME-01** using the same RF address of another device correctly linked

- The device that caused the substitution attempt is disabled by the **TW-ME-01** and blinks amber two times and repeat the blinking periodically.
- The LCD of the translator indicates the substitution attempt and, after the link fault timeout, also the link fault.
- The LCD of the expander indicates the substitution attempt and, after the link fault timeout, also the link fault.
- The substitution attempt and then the link fault are signalled to the control panel.

**Substitution attempt of an expander**: it happens when there is an expander that communicates with the other network devices using the same RF address of another expander correctly configured.

- The device that caused the substitution attempt is disabled and its LCD attempt shows “Authentication failed”
- The LCD of the translator indicates the substitution attempt and the link fault of the expander. Also, all the child devices linked to the expander are in link fault.
- The substitution attempt and the link faults are signalled to the control panel.

To clear a substitution attempt fault:

| | |
|---|---|
| Child device (linked to translator) substitution attempt | • Look for the device/devices that caused the substitution attempt: LEDs blink amber two times and repeat the blinking periodically.<br>• Remove batteries.<br>• Power off – Power on the translator |
| Child device (linked to translator) substitution attempt | • Look for the device/devices that caused the substitution attempt: LEDs blink amber two times and repeat the blinking periodically.<br>• Remove batteries<br>• Power off – Power on the expander to which the device in substitution attempt is linked and then Power off – Power on the translator |
| Expander substitution attempt | • Look for the expander that caused the substitution attempt: LCD shows “Authentication failed”.<br>• Power off the expander.<br>• Power off – Power on the translator |

**FUNCTIONAL TEST - ALARM TESTING**

Test the **TAU-TRM-01**'s alarm signalling capability as follows:

1) Activate an alarm on the Taurus system.
2) Check that the **TAU-TRM-01** locally displays the alarm event.
3) Check that the control panel displays the alarm event.
4) Check that Taurus and intelligent output child devices activate (e.g. sounders...).
5) Reset all system from the control panel.

**FUNCTIONAL TEST - FAULT TESTING**

Test the **TAU-TRM-01**'s fault signalling capability as follows:

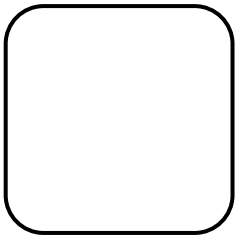
1) Activate a fault event.
2) Check that the **TAU-TRM-01** locally displays the fault event.
3) Check that the control panel displays and notifies the fault event.
4) Reset all the system from the control panel.

**Apply mandatory testing and periodic testing policies of your country.**

## NETWORK DEVICE QR CODE

NOTE

## FIELD DEVICES QR CODE



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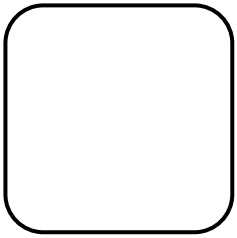

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# FIELD DEVICES QR CODE

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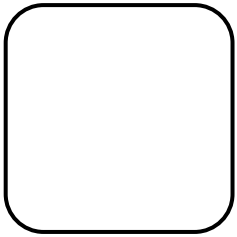

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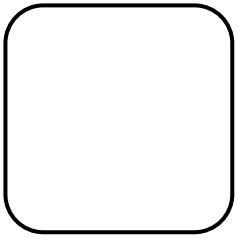

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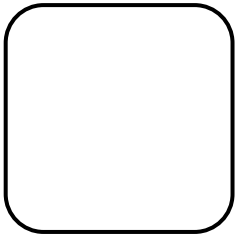

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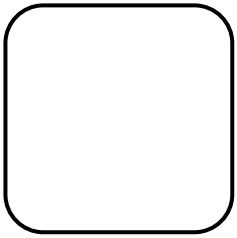

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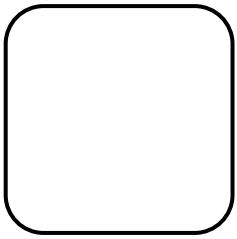

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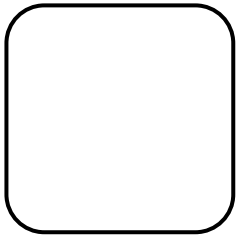

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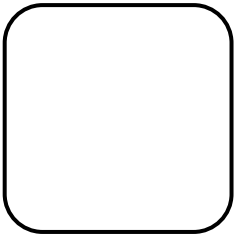

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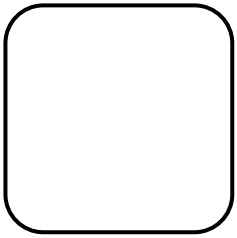

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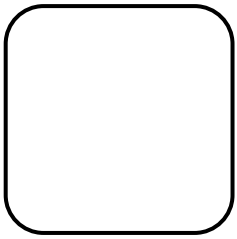

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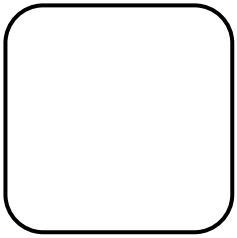

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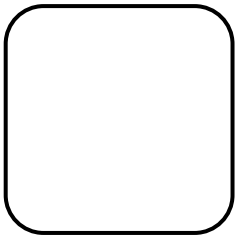

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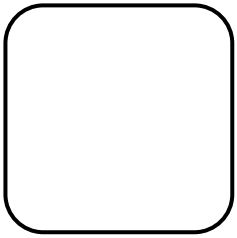

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