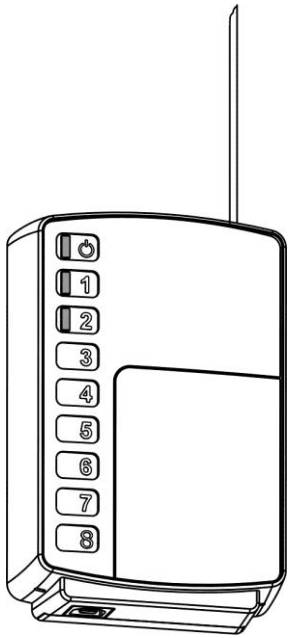
## Transmitting Terminal Device

# TTD Astra-Y

**User guide**



This manual is intended for studying principle of operating, operating conditions and maintenance of Transmitting Terminal Device TTD Astra-Y (figure 1).
The manufacturer reserves the right to make alteration regarding refinement of the product without prior notification. All changes will be imported into new edition of the operation manual.

**List of Abbreviations:**

| | |
|---|---|
| **Astra-Y / System** | Wireless Monitoring System Astra-Y |
| **TTD** | Transmitting Terminal Device |
| **RTD** | Receiving Terminal Device |
| **PC** | Personal Computer |
| **Astra-MP** | Monitoring Panel Astra-Y for monitoring and configuring the system |
| **ARM-Y** | PC with the ARM-Y software functioning as a central monitoring post installed |
| **CP** | Astra-712/4 or Astra-712/8 Control Panel |
| **TM** | Touch Memory Identifier (iButton key) |
| **OC** | Open Collector type output |
| **ZONE** | Hardwired zone (Alarm Loop) |

# 1 Function

**1.1** TTD – Transmitting Terminal Device - is intended for:

– controlling two own alarm loops and processing system events by built-in indicators, 3 outputs (Relay 1, Relay 2, OC) and transferring signals to RTD via radio;

– receiving signals from CP connected through LIN interface and transferring them to RTD via radio.

– Retransmitting of the signals.

**1.2** TTD supports two-level retransmission with MESH topology. Any TTD, depending on the "retransmission level" assigned to it during registration, can perform the function of a repeater (Figure 1).

**TTD level «1»** – operatess directly with RTD and can be a level 1 repeater.

**TTD level «2»** – can operate directly with the RTD or set a route through the TTD-repeater with a level "1" and can be a first or second level repeater.

**TTD level «3»** – cannot be a repeater, can establish a route to the RTD through the TTD with levels "1" and "2", or operate directly with the RTD.

TTD with the retransmission level "2" and "3" automatically set the route and, if communication is lost, establish it through another (backup) TTD-repeater.

Relay levels and routes can be changed from the monitoring station (Astra-MP) or ARM-Y software.

**1.3** TTD-repeater transmits the states of no more than 25 TTDs without taking into account TTD-repeaters of the next level and no more than 30 TTDs taking into account TTD-repeaters of the second level and TTD with level "3".

**1.4** TTD powers from 12 V DC Power supply.

## 2 Specifications

**Wireless channel specifications**

Operating frequency, MHz ..... 433
Frequency channel number ..... 16
Bitrate, bit/s, ..... 9600
Receiver sensitivity, dB not more ..... -105
Radio transmission power, mW ..... 10/30/100
Wireless coverage range, m*, up to:
- with standard whip antenna at power 10/100 mW ..... 2500/3400
- with external antenna ASH-433 at a power of 10/100 mW ..... 4500/8700
- with external antenna AN2-433 for the RTD, AN-433 for the TTD, power 100 mW ..... 12400

**Hardwired zones specifications** (**Zone 1, GND, Zone 2 terminals**)

Voltage, V..... from 10,5 to 15
Short circuit current, mA, not more ..... 20
Integration time, msec:
- intrusion type ..... 500
- fire type ..... 300
Wire resistance, Ohm, not more:
- intrusion type ..... 220
- fire type ..... 150
Leakage resistance between zone wires or each wire and "Ground", kOhm, not less:
- intrusion type ..... 20
- fire type ..... 50
Zones resistance**, kOhm, in state of:
- «Norm» ..... from 3 to 5
- «Alarm» ..... …from 0 to 3 or more than 5
- «Fire alarm» ..... from 1.5 to 3 or from 5 to 12
- «FAilure» ..... from 0 to 1.5 or more than 12
Fire type hardwire zone resistance (double event mode)**, kOhm, in state of:
- «Norm» ..... from 3 to 5
- «Alarm» ..... from 0 to 1.5 or from 5 to 12
- «Fire danger» ..... from 1.5 to 3
- «Failure» ..... more than 12
Hardwire zone current for powering detectors, mA, not more ..... 3

**General specifications**

Power voltage, V ..... from 10.5 to 15.0
Current consumption, mA, not more than:
Receiving mode ..... 115
Transmitting mode:
- 10 mW power ..... 200
- 30 mW power ..... 200
- 100 mW power ..... 230
Number of Touch Memory ID registered, not more than ..... 8
Standby time, sec, not more than ..... 8

**Outputs**

Relay 1, 2 (**Relay 1, Relay 2 terminals**):
- max load Voltage, VAC ..... 100
- max load current, mA ..... 100
«Open collector» output **(OC terminal):**
- max load Voltage, VDC ..... 45
- max load current, mA ..... 100

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** Line of sight. The range depends to a degree on the design features of the room, the installation site, and the interference environment.*

*** The permissible range of resistance values is no more than 10%, for a value of 12 kOhm - no more than ± 2 kOhm.*

**LIN interface (+LIN, -LIN terminals):**

Line length, m, not more than ..... 200
Active resistance, Ohm, not more than ..... 100
Conductors capacity, uF, not more than ..... 0.033
LIN interface bitrate, bit/sec ..... 1200/4800
Number of connectable control panels, pcs ..... 1
Overall dimensions, mm, not more than ..... 121 × 79 × 31
Weight (w/o antenna), kg, not more than ..... 0.15

**Operation conditions**

Temperature range, °C ..... from -10 to +50
Relative humidity, % ..... up to 95 at +35°C
w/o moisture condensation

## 3 Delivery set

TTD delivery set:

Transmitting terminal device «TTD Astra-Y» ..... 1 pc.
Whip antenna (173 mm length) ..... 1 pc.
Screw 2.9 × 25 ..... 4 pcs.
Dowel 5 × 25 ..... 4 pcs.
User guide ..... 1 copy

## 4 Structure

Structurally, the TTD is made in the form of a block consisting of a base, a removable cover and an antenna. PCB with radio elements is mounted inside the unit (Figure 2).

The PCB has LEDs for monitoring the operation of the TTD and displaying notifications.
A button is installed on the PCB, which, when the cover is removed, generates "Tampering" notification, and is also used to change the operating modes of the TTD, resetting the memory of the TTD and adding TM ID.

Screw terminal blocks are installed on the PCB (table 1):


**Table 1**

| Terminal name | Purpose |
|---|---|
| **+TM, –TM** | Connecting a control button (with fixed positions) or a TM ID reader |
| **A485, 485B** | RS-485 for connecting PC to update firmware using **ARM-Y software** |
| **Zone 1, GND, Zone 2** | Hardwired zone inputs |
| **Relay 1, Relay 2** | Relay outputs |
| **OC** | “Open collector” output |
| **-LIN, +LIN** | LIN interface for connecting Astra-712/x control panel |
| **+12V, GND** | Power inputs |

| Terminal name | Purpose |
|---|---|
| **RF, GND** | Antenna input |

## 5 Indication

**Green LED** ⏻ in operating mode indicates the state of interference (Table 3).
**LED** 1 and 2 indicates the state of **Zone 1, Zone 2** respectively (Table 2).

Duration of indication - until **Zone** turns to another state or until it is recovers.

TTD, at least once every 2 minutes, transmits notifications that determine its current state and the state of the device connected via the LIN interface with detail to the Zone/partition.

Power supply failure of the TTD and Control Panel connected to the TTD in the extended mode of operation is transmitted only via radio channel.

Table 2 **- LED 1 and 2 indication**

| Indication meaning | LEDs 1 and 2 |
|---|---|
| Test (after powering on) | Turn on for 1 sec **red light**,<br>then **green light** |
| Disarmed – not ready for arming,<br>Not added to RTD or Power supply lower than 9 V | Off |

| Indication meaning | LEDs 1 and 2 |
|---|---|
| *Standalone mode* | |
| | **Green light** |
| Disarmed-ready for arming | Once every 2 sec (short flashes) |
| Exit delay | 2 times every 2 sec (short flashes) |
| Armed | On |
| Fire type hardwire zone failure | Once every 2 sec (long flashes) |
| No connection with RTD | LED 2<br>8 times every 1 sec |
| | **Red light** |
| Entry delay | Once every 2 sec (short flashes) |
| Fire alarm | 2 times every 1 sec |
| Alarm | 2 times every 1 sec |
| *Extended mode* | |
| | **Green light** |
| TTD added to RTD's memory, connection with control panel via LIN interface | LED 1<br>Once every 2 sec (short flashes) |
| No connection to the CP via LIN interface | LED 1<br>8 times every 1 sec |
| No connection with RTD | LED 2<br>8 times every 1 sec |

| Indication meaning | LEDs 1 and 2 |
|---|---|
| *In radio extender mode* | |
| | **Green light** |
| Norm | On |
| | **Red light** |
| Alarm | 2 times every 1 sec |
| *Connection test between TTD and RTD* | |
| | **Red light** |
| Test signal transmitting | LED 1<br>Lights up N times (N – number of packets) |
| Receiving receipt from RTD | LED 1<br>Lights up for 1 sec |
| *Registration mode (during adding procedure)* | |
| | **Red light** |
| Registration mode | LED 1<br>Turns on for 30 seconds |
| Successful adding | LED 1<br>2 times every 1 sec |
| *TM ID adding mode* | |
| | **Red light** |
| TM ID adding for Zone 1 | LED 1<br>Once every 2 sec (long flashes) |
| TM ID adding for Zone 2 | LED 2<br>Once every 2 sec (long flashes) |
| TM ID Successful adding for Zone1 | LED 1<br>2 times every 1 sec |

| Indication meaning | LEDs 1 and 2 |
|---|---|
| TM ID Successful adding for Zone2 | LED 2<br>2 times every 1 sec |
| Unsuccessful adding for Zone 1 or already added | LED 1<br>8 times every 1 sec during 2 sec |
| Unsuccessful adding for Zone 1 or already added | LED 2<br>8 times every 1 sec during 2 sec |
| ***Any*** *operation mode* | |
| | **Red light** |
| Receipt from RTD receiving | LED 1<br>Turn on for 1 sec |

Table 3 – **LED** ⏻

| Indication meaning | LED ⏻ |
|---|---|
| | **Green light** |
| Interference on the carrier frequency | Off or blinking |
| No interference on the carrier frequency | On |

In all modes, when connection is lost, the TTD begins to perform the function of searching for the new frequency channel.

## 6 Marking

The label on the body of TTD:
- brand name;
- TTD name;
- firmware version;
- date of production;
- conformity mark;
- barcode duplicating text information.

## 7 Maintenance

**7.1** Maintenance of the TTD is carried out according to a planned preventive system at least once a year.

**7.2** Maintenance work includes:

a) checking the external condition of the TTD, the reliability of the fastening of the TTD, the condition of the external installation wires, contact connections;

b) cleaning the TTD body from contamination;

c) performance test of the TTD (p**. 11.2**.)

## 8 Disposal

TTD does not pose a danger to life, health of people and the environment; after the end of its service life, its disposal is carried out without taking special measures to protect the environment.

## 9 Warranty

**9.1** The quality management system is certified for compliance with ISO 9001.

**9.2** The warranty period of operation is 5 years from the date of commissioning, but not more than 5 years 6 months from the date of production. The manufacturer is obliged to repair or replace the TTD during the warranty period.

**The manufacturer is not liable for any damage to health, property, or other accidental or intentional loss, direct or indirect damage based on the user's statement that the TTD did not fulfill its functions, or as a result of misuse, failure or temporary inoperability of the TTD.**

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