

**IO\_TRANSMITTER****USER MANUAL****This user manual refers to:**

PCB (K1002) version 2.0

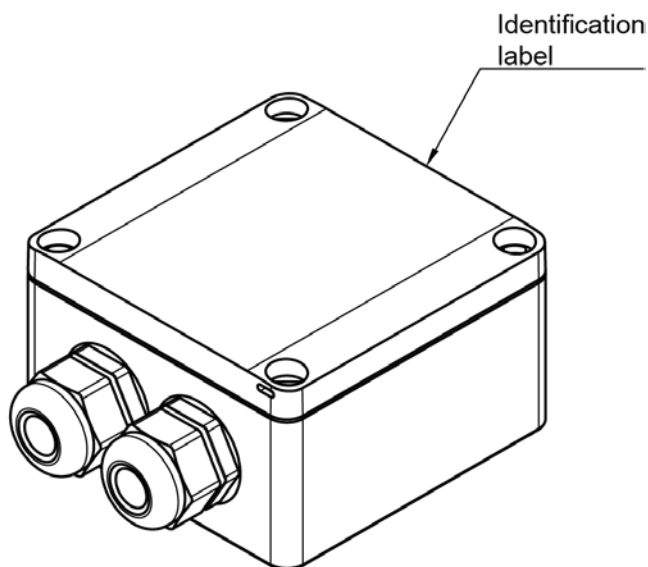
Firmware version 1.1

## 1 INTRODUCTION

The IO\_Transmitter is mainly designed to be used for transmitting signals from external sources to receivers within the Tele Radio Panther range.

High level digital sources, such as sensors (5-32V) and Low level (Gnd) such as push buttons, switches or other external sources, can be used.

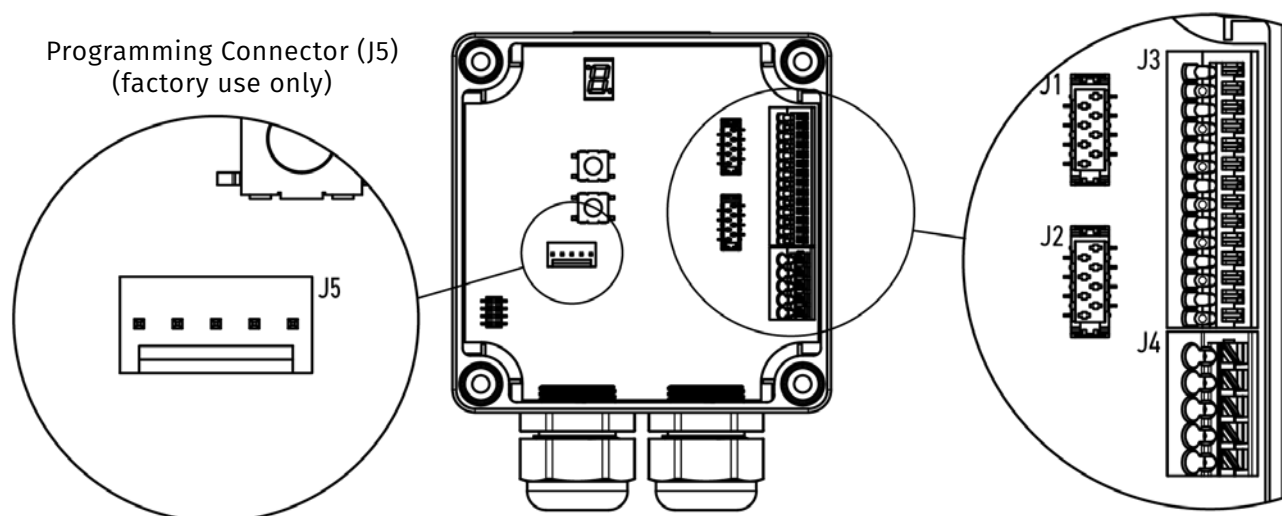
Please read this manual carefully before mounting, installing, configuring or operating this product.



## 2 TECHNICAL DATA

Input Voltage	8-32 VDC (see capter 3 **)
Current Consumption	~ 25 mA + (DO max 0,4 A) + (5V max 0,75 A)
Inputs (IN_1-12)	12 pcs (DIGITAL); configurable LOW or HIGH
Reference Voltage Outputs (REF5)	1 pc (5V, max 0,75 A)
Digital Outputs (DO)	1 pc (8-32 VDC, activated by Inputs)
Ingress Protection	IP66
Dimensions (width x length x height)	100 x 100 x 60 mm
Connectors Dimensions	GND, BATT, DO, REF5: max 1,5 m2 IN_1-12, GND: max 0,5 m2
Weight	250g
Certifications	CE, FFC, IC
Operating frequency	2,4 GHz (2,405 - 2,480 GHz as per IEEE 802.15.4)

## 3 ELECTRICAL CONNECTION



## Connector Terminal Blocks J1 - J3

J1-1 & J3-1	GND	Ground
J1-2 & J3-2	IN_12	Input 12*
J1-3 & J3-3	IN_11	Input 11*
J1-4 & J3-4	IN_10	Input 10*
J1-5 & J3-5	IN_9	Input 9*
J1-6 & J3-6	IN_8	Input 8*
J1-7 & J3-7	IN_7	Input 7*
J2-1 & J3-8	IN_6	Input 6*
J2-2 & J3-9	IN_5	Input 5*
J2-3 & J3-10	IN_4	Input 4*
J2-4 & J3-11	IN_3	Input 3*
J2-5 & J3-12	IN_2	Input 2*
J2-6 & J3-13	IN_1	Input 1*
J2-7 & J3-14	GND	Ground

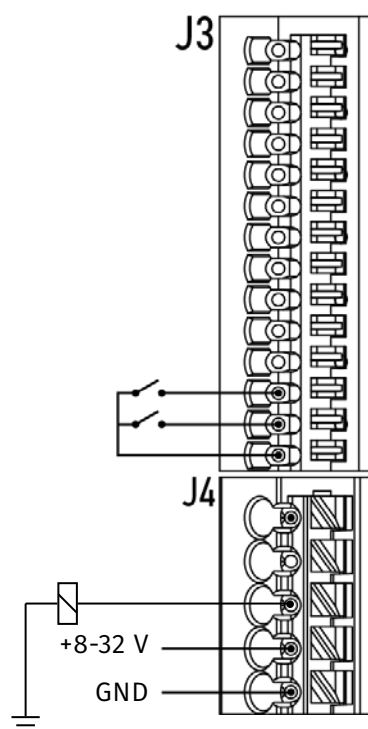
\* All inputs are configurable **HI** or **LO** (see chapter 4.2.2)

## Connector Terminal Block J4

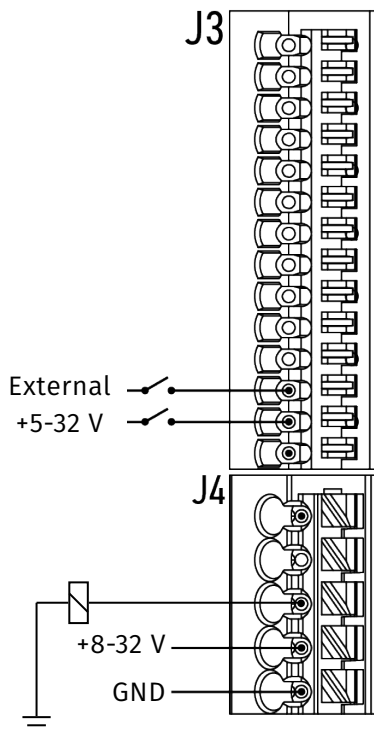
J4-1	GND	Ground
J4-2	POT/EXT_IN	5V output/input /0,75A)**
J4-3	SW_OUT	Outputs sourcing power, supplies power(8-32VDC / 0,4A) when any input is activated.
J4-4	BATT+	Supply power (8-32VDC)
J4-5	GND	Supply Ground

\*\* 5V can be used as power supply if connected to POT/EXT\_IN. (This disables DO). Higher than 5,5V will damage the transmitter

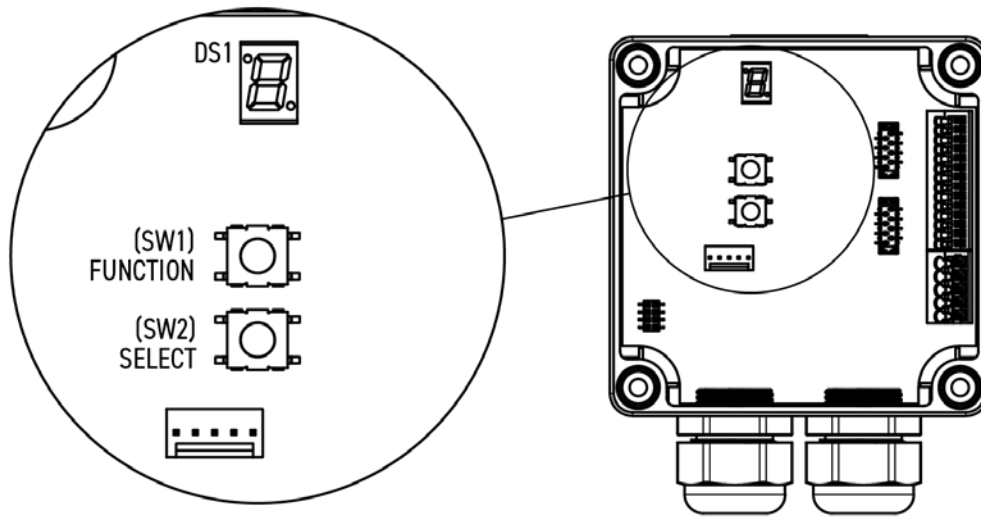
Wiring  
example **LO**\*:



Wiring  
example **HI**\*:



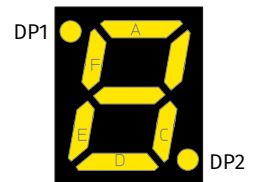
## 4 OPERATION



By default the Display shows the active input. 1...9, A=10, B=11, C=12.

The Dot (DP2) flashes when the transmitter is powered and also to indicate every new digit.

During restart, the firmware version is displayed.



### 4.1 REGISTERING

Registering means linking or joining a transmitter and a receiver. Make sure both are powered up before proceeding.

To enter Register Mode:

- press the FUNCTION button - *the Dot (DP2) lits.*
- within 10 seconds, press the SELECT button - *the transmitter is now in register mode.*



In the receiver, also press the FUNCTION button and then the SELECT button.

*When the registration is successful, all LEDs in the receiver flashes once.*

*(Depending on receiver-model, the registering procedure may differ slightly.)*

To exit register mode, press any button, activate any input or power-cycle the transmitter.

## 4.2 MENU

To enter Menu Mode press and hold the FUNCTION button for 10 seconds.

In the Menu, press the FUNCTION button to navigate to next Menu Section.

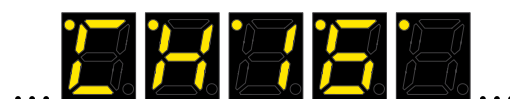
To save and Exit Menu Mode, leave the transmitter without pressing anything for 10 seconds - *the transimtter saves all changes and restarts.*

### 4.2.1 CHANNEL (Menu Section 1)

The transmitter can send on 16 different (11-26) channels.

To change channel press the SELECT button.

If used in a dense wi-fi environments it's recommended to use channels 15, 20, 25 or 26. Heavy traffic on wi-fi (802.11) channels 1, 6 and 11 may otherwise cause some interference.



### 4.2.2 INPUT MODE (Menu Section 2)

To change Input Mode press the SELECT button.

HI = Activated when  
pulled HIGH (5-32V)

LO = Activated when  
pulled LOW (Ground)



### 4.2.3 OFF DELAY (Menu Section 3)

The time the SW\_OUT output (J4-3) deactivates after deactivating an input can be set from 0-1,5 seconds in steps of 0,1 seconds.



To change channel press the SELECT button.

#### 4.2.4 REGION (Menu Section 4)

To change region press the SELECT button.

**EU** = For use in Europe. This setting ensures compliance with ETSI EN 300 328 clause 4.3.2.2 Maximum Power Spectral Density.



**US** = For use in USA or Canada. This setting ensures FCC and IC compliance.



## 5 APPROVALS AND SAFETY

### 5.1 EMC TESTS

Emission tests according to the E/ECE Regulation No. 10, Revision 6 (2019)

Emission test	Test method	Conclusion
Measurement of radiated interference field strength in the frequency range 30 – 1000 MHz	E/ECE Reg. No. 10, Annexes 7 and 8	Pass
Measurement of conducted disturbances	E/ECE Reg. No. 10, Annex 10	Pass

Immunity tests according to the E/ECE Regulation No. 10, Revision 6 (2019)

Emission test	Test method	Conclusion
Radiated radio-frequency electromagnetic field	E/ECE Reg. No. 10, Annex 9	Pass
Immunity to transient disturbances conducted along supply lines	E/ECE Reg. No. 10, Annex 10	Pass

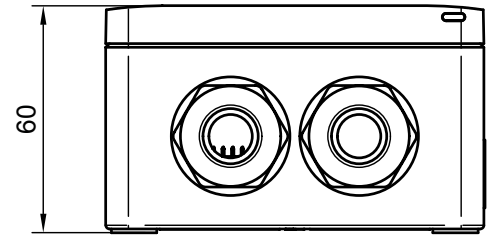
### 5.2 ENVIRONMENTAL TESTS

The enclosure is certified according to EN 62208:2011:2011

Degree of protection (EN 60529)	IP66 / IP67
Mechanical strength (EN 62262)	IK08 +35 oC / -40 oC
Material	Polycarbonate

## 6 DIMENSIONS AND MOUNTING

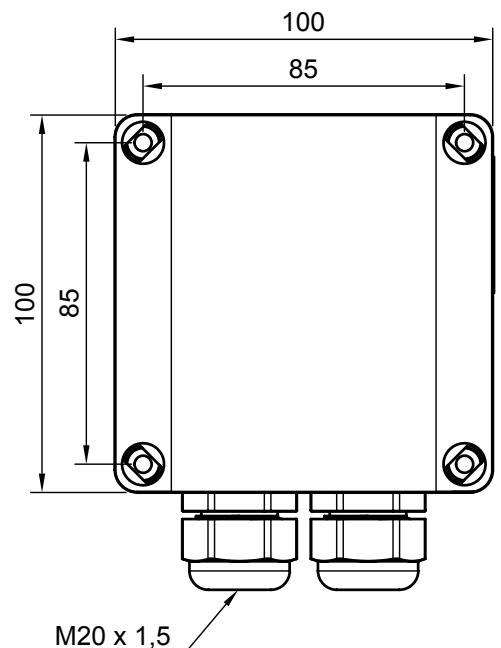
When mounting the transmitter in moist or otherwise harsh environments, make sure that the cable glands are pointing downwards.



## 7 WARRANTY AND SERVICE

The enclosure is rated IP66, however cable glands may be a subject of leakage and should be mounted pointing downwards. Warranty does not cover failure or damage caused by water or moist, incorrect installation or normal wear and tear. High pressure water cleaning is NOT recommended.

For service or repair, Tele Radio Finland should be contacted for further instructions.



## 8 REGULATORY INFORMATION

This product is subject to THE EUROPEAN PARLIAMENT AND OF THE COUNCIL DIRECTIVE 2012/19/EU on waste electrical and electronic equipment (WEEE). For proper treatment, recovery and recycling, please take this product to a designated collection point.



This product is in compliance with the Radio Equipment Directive 2014/53/EU. The latest version of the complete EU Declaration of Conformity is available on request from Tele Radio Finland Oy.





IMPORTANT: Contains FCC ID: VW4A091729. This equipment 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 (FCC 15.19).



IMPORTANT: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense (FCC section 15.105).

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.



Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with radio frequency exposure limits set forth by Industry Canada for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the device and the user or bystanders.

Cet équipement est conforme aux limites d'exposition aux radiofréquences définies par Industrie Canada pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre le dispositif et l'utilisateur ou des tiers.

Contains Transmitter Module IC:11019A-091729