

Prepared by Andrei Sazonov		Product name/number TR06 radio module		
Document responsible (approved by) Andrei Sazonov	Checked	Date: YYYY-MM-DD 2021-03-15	Release F	File Name TR06 User Manual

TR06 Radio Module User Manual



Developed for demanding environments

Scanreco's TR06 is built and designed for the toughest and most demanding of environments. Scanreco can hereby offer the market of crane and machine operators an extremely easy to use radio remote control retaining speed, precision, and control with the maximum of safety.

Behind the development of the radio transceivers lies the idea of providing a product with a high degree of reliability, user-friendliness, and easy upgrade for cable systems or other data radio applications.

The product family includes different transceivers and receivers offering a variety of choice depending on the area of use. These products are based on a modular architecture, which makes them extremely flexible to customize and adapt according to the customer's needs.

The products – which are in high demand – are mainly mounted on cranes and mobile machines. Our customers are some of the world's largest and most challenging crane and machinery manufacturers. Thousands of cranes and machines containing Scanreco's radio products are in use worldwide.

Our products are deployed everywhere, from truck cranes laying heating pipes in Stockholm to lifting oil pipelines in Russia and setting in place concrete sections in Singapore.

Scanreco – What do you want to remote?

Our customers development is our own development. This enables us to offer:

- Customer-specific solutions
- Industrial know-how
- Expertise and experience
- Innovative capacity
- Nimble organisation
- Quality
- Delivery precision
- Service

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TR06 Radio Module Parameters for 2,4GHz band

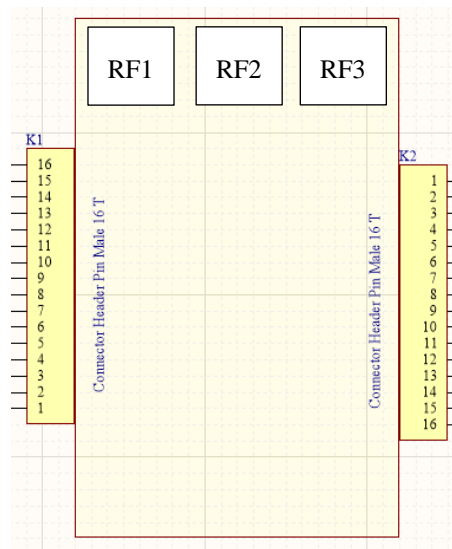
Attribute	Information
Frequency	2405 – 2480 MHz
Channels	16 (5MHz step)
Channel management	FHSS, DSSS
Channel order	Pseudorandom
Channel bandwidth	2,7MHz
Modulation	QPSK
Power	125mW max
Type	Transceiver

TR06 Radio Module Parameters for 915Hz band

Attribute	Information
Frequency	903,5 – 926,53 MHz
Channels	50
Channel management	FHSS
Channel order	Pseudorandom
Channel bandwidth	100 kHz
Data rate	50 kbps
Modulation	FSK
Power	1W max
Type	Transceiver

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TR06 Radio Module RF and I/O Interfaces



RF1 and RF2 are the radio connectors for the 900MHz frequency band.
RF2 and RF3 are the radio connectors for the 2,4GHz frequency band.

K1 and K2 are digital interface and power supply connectors.

TR06 Radio Module Power Sourcing

Voltage	Nominal, V	Max, V
VCC Radio	3	3,4
VCC Amplifier	3,4	4,0

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TR06 Radio Module Integration

This product is intended to be installed in a remote-control system as a transmitter and it is designed preferably for wireless control of crane installations, travelling hoist units, chain and rope hoists, transfer carriages and similar applications.

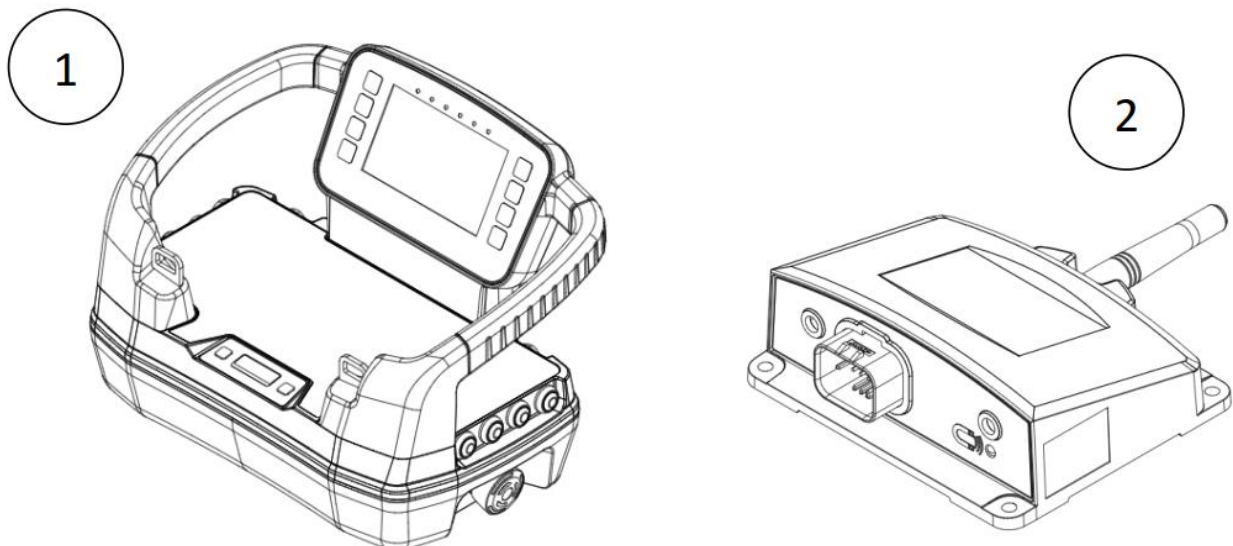
The host products labels shall state depending on the model used:

Contains FCC ID: N5OTR061, Contains IC ID: 6476A-TR061,

Contains FCC ID: N5OTR062, Contains IC ID: 6476A-TR062,

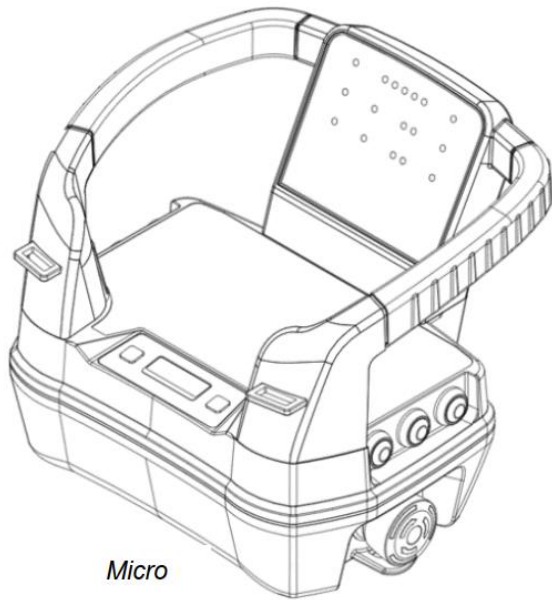
Contains FCC ID: N5OTR064, Contains IC ID: 6476A-TR064.

Host example: 1 – Remote control; 2 – Control box

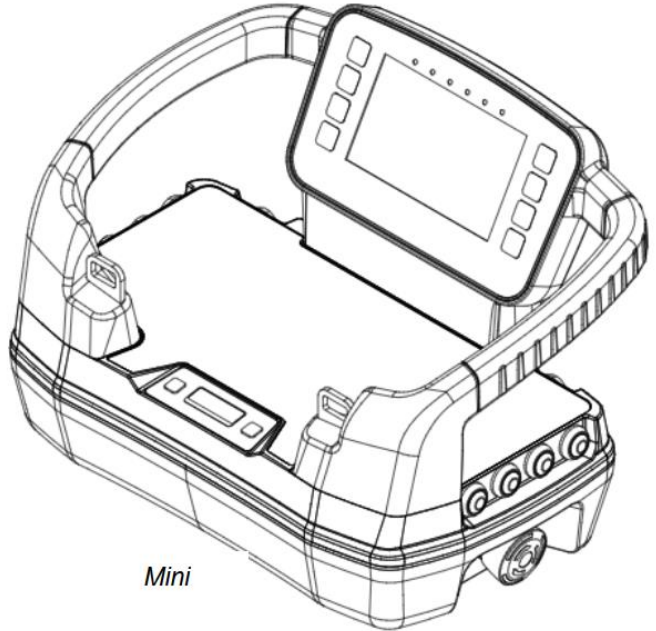


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Remote Controls “Mico” and “Mini”

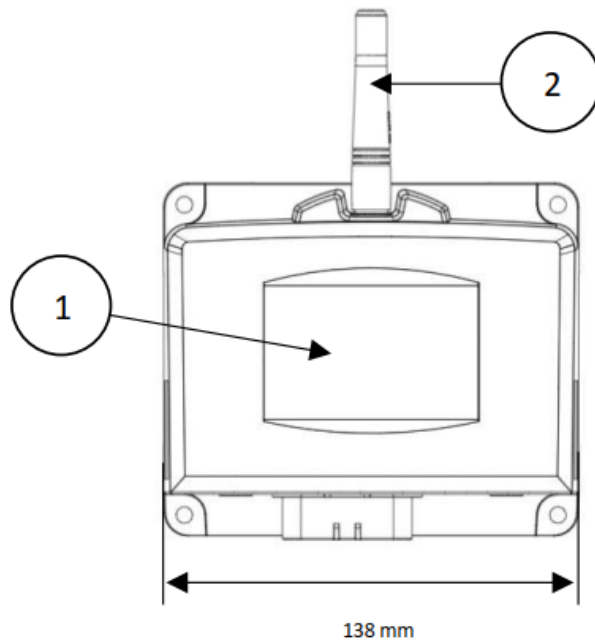


Micro



Mini

Control box



Top View

1. General label
2. External antenna

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Installation description:

1. Mount the TR06 radio module on a main electronics boards with help of 4 screws. Solder the radio modules pinheaders or use connectors for establish the electrical contacts with a main board.
2. Mount the main board with the TR06 radio module inside a host.

Note: The host products labels shall state:

Contains FCC ID: N5OTR061, Contains IC ID: 6476A-TR061

Contains FCC ID: N5OTR062, Contains IC ID: 6476A-TR062

Contains FCC ID: N5OTR064, Contains IC ID: 6476A-TR064

Antennas

For available antennas – please, see the document “Theory of operation of TR06 radio module.

In hand-held / hand operated hosts for 915MHz band just antennas with max gain 0dBi should be used (for example art. n. 103003 and 102986).

Test modes and additional testing

The special test software for measurement of radio parameters and spurious emission is provided.

TR06 radio module compiles with Part 15.247 of FCC Rules. But final host product still requires the Part 15 Subpart B compliance testing with the radio modul installed.

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FCC Information

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.

This device complies with Part 15 of 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 undesirable operation.

Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada Information

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.

CAN ICES-3 (A)/NMB-3(A)

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Radiation Exposure Statement

To comply with FCC/IC RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

For radio modules installed into the hand-held / hand operated hosts the minimum separation distance from antennas to hands is 5 mm for 2,4GHz frequency band and 30 mm for 915MHz frequency band.

Déclaration d'exposition à la radiation

Pour se conformer aux limites d'exposition RF FCC / IC pour la population générale / exposition incontrôlée, la ou les antennes utilisées pour cet émetteur doivent être installées de manière à fournir une distance de séparation d'au moins 20 cm de toutes les personnes et ne doivent pas être colocalisées ou en fonctionnement en conjonction avec toute autre antenne ou émetteur.

Pour les modules radio installés dans les hôtes portatifs / manuels, la distance de séparation minimale entre les antennes et les mains est de 5 mm pour la bande de fréquences 2,4 GHz et de 30 mm pour la bande de fréquences 915 MHz.

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Revision history

Release	Date: YYYY-MM-DD	Edited By	Changes
A	2020-09-23	Andrei Sazonov	First creating of document
B	2020-11-26	Amie Hafström	Changed from Class A to Class B equipment for FCC
C	2020-11-26	Andrei Sazonov	Revised document
D	2021-01-14	Andrei Sazonov/ Amie Hafström	Revised document
E	2021-03-02	Andrei Sazonov	Page 4: antenna using condition for hand-held / hand operated hosts added. Page 6: specific FCC rula part added. Page 8: separation distance for hand-held / hand operated hosts specified.
F	2021-03-15	Andrei Sazonov	Page 6: antenna pn 102890 corrected to 103003