Essential
Series

raditeq

Product Manual

RadiCentre®

Compact Test System

Model:

CTR2001E

www.raditeq.com

RadiCentre® Product Manual

This product manual pertains to the RadiCentre® system.
Model: CTR2001E, Made by Raditeq.

Read this manual carefully before operating the product and make sure all the safety instructions are strictly followed.

For all specifications of this specific product, please refer to the data sheet of the product, which can be found at www.raditeq.com

Please keep this manual close at hand when you operate your new Raditeq product(s).

Please contact your local reseller if you have any questions.

Frequently Asked Questions (FAQ)
For the FAQ regarding this product please refer to https://www.raditeq.com/faq/

Supplier Information

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WARNINGS & PRECAUTIONS

Read the contents of this product manual carefully and become familiar with the safety markings, the product instructions and the handling of the system. Please refer to the applicable product manual(s) for further information regarding the operation and control of the product(s).

This product requires a protective earth connection. The mains power source for the equipment must supply an uninterrupted safety ground to the IEC input connector(s).

This equipment is designed to be used as a plug-in card for the RadiCentre® series. Do not use this card on its own or in combination with any other mainframe. Using this product with any other mainframe can cause harm and will void warranty.

To make Raditeq's product as safe as possible, all devices fitted inside a RadiCentre® must comply to the safety interlock system of the RadiCentre®. all Raditeq Plug-in cards are designed to work with the interlock fitted on all RadiCentre® systems.

Only Raditeq qualified maintenance personnel is allowed to perform maintenance and/or repair service on the equipment.

This product® contains materials that can be recycled and reused to minimize material waste. At the 'end-of-life', specialized companies can dismantle the discarded system to collect the reusable and recyclable materials. If your product is at its 'end-of-life', please return it to your local reseller or to Raditeq for recycling.

Position the product in such a fashion that power cables are easily accessible or connect the equipment to a mains network that can be easily disconnected from the mains.

For cleaning, use a clean, dry cloth (or a damp cloth where needed) and wipe the surface of equipment.

This product contains no hazardous substances as described in the RoHS Directive (2011/65/EU).

This product contains embedded software that can be updated via the RadiCentre® web interface. The update procedure is described later in this manual.

Raditeq Introduction

At the core of Raditeq's products and software lies the paradigm of effectiveness, efficiency, and accuracy. We firmly believe in empowering our customers with solutions that deliver unparalleled performance and reliability, without limitations on system extensiveness or compatibility.

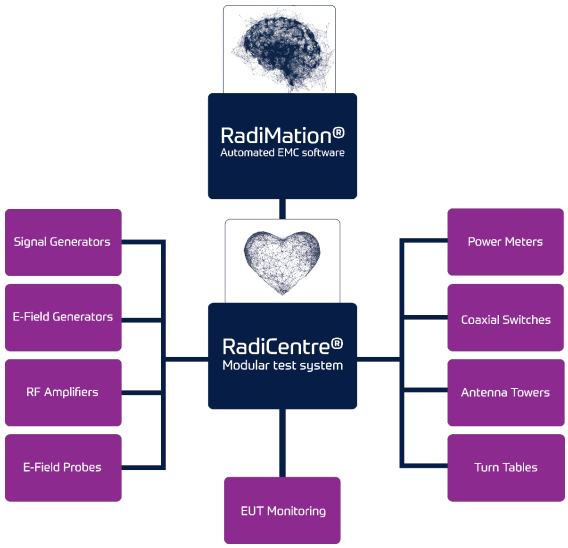
In line with this philosophy, the RadiMation software is designed with an open architecture, welcoming compatibility with other brands and ensuring seamless integration with various EMC test software. This approach allows our customers the flexibility to leverage RadiMation alongside other tools and systems, maximizing their capabilities and streamlining their testing processes.

Similarly, Raditeq hardware is engineered with versatility in mind, making it compatible with a wide range of EMC test software available on the market. Our hardware solutions are meticulously designed to ensure interoperability and ease of integration with third-party software, enabling customers to harness the full potential of their testing setups. In essence, our commitment to openness and compatibility underscores our dedication to empowering our customers with flexible and comprehensive solutions that meet their diverse needs and preferences. With Raditeq, you have the freedom to choose the best combination of hardware and software to achieve your EMC testing objectives with utmost effectiveness, efficiency, and accuracy.

The Brain of the system

RadiMation® serves as the central intelligence (The Brain) of Raditeq systems, seamlessly integrating Raditeq's products with a vast array of other brands. With over 6000 individual drivers available, there's a high probability that your device is already supported by RadiMation®. However, if your device is not yet supported, Raditeq is dedicated to adding support for it at no additional cost. At the heart of RadiMation® is a focus on automating EMC tests and ensuring the quality of the output. Through rigorous driver testing and meticulous command verification, RadiMation® prioritizes accuracy and reliability in delivering results. As a result, it stands as the software with the utmost emphasis on producing correct outputs and achieving precise results, empowering users to conduct EMC testing with confidence and efficiency.

The Heart of the system



All of Raditeq's products are compatible with the RadiCentre® system, serving as its modular heart in EMC testing setups. The RadiCentre® is a versatile unit capable of accommodating up to eight individual devices, offering unparalleled flexibility in system configuration. With the RadiCentre® at its core, users have the freedom to construct comprehensive EMC testing systems tailored to their specific requirements. Whether it's combining multiple Raditeq devices or integrating third-party components, the RadiCentre® provides a seamless platform for building extensive and adaptable systems. This modular approach not only maximizes flexibility but also streamlines system management and maintenance. By consolidating multiple devices into a single unit, the RadiCentre® simplifies setup, operation, and troubleshooting, ensuring efficient and reliable performance in EMC testing endeavors.

The RadiCentre® CTR2001E

The RadiCentre® CTR2001E is intended to be used in combination with the Raditeq range of plug-in card instruments like the RadiSense® laser-powered field probe. The housing of the RadiCentre® CTR2001E has a desktop-friendly form factor, in which a plug-in card instrument can be mounted. The RadiCentre® CTR2001E can be powered by a 12 V DC power supply, or by using a PoE (requiring a PoE type 3 injector) allowing both communication and power to be handled via a single ethernet cable. The CTR2001E is designed to be stackable and can also be mounted to an installation using the T slots and provided hardware.

Related products

RadiMation® Automated EMC/RF Test Software
RadiMation ® is the EMC software package from Raditeq. RadiMation is used for remote control and automated RF and EMC testing. In combination with the RadiCentre®, the software really shines brightest and enables the user to perform fully automated and effective EMC and RF testing. Plug-in cards and modules are sold separately.

RadiSense® Electric field probe

The RadiSense® Electric field probe is currently the most accurate electric field probes available on the market. Operated from the RadiCentre®, it can measure fields up to 60 GHz.

RadiCentre® CTR2001E Components

The CTR2001E is delivered together with the following items:

- 12 V DC mains power supply
- Mains power lead
- Interlock connector (6.35 mm mono jack)
- Mounting hardware
- USB drive containing this user manual and data sheet

Compatible plug-in cards:

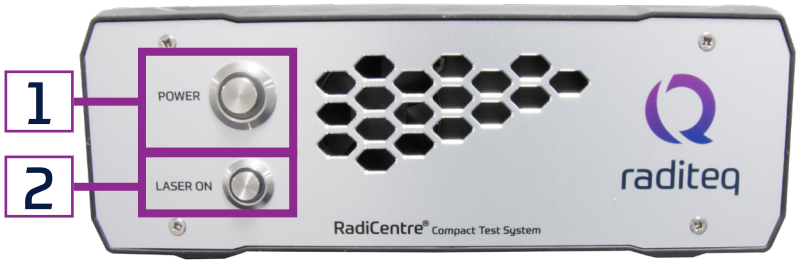
RadiSense®	: LASER powered E-Field Sensors
RadiGen®	: RF signal generators
RadiSwitch®	: RF coaxial switch cards *
RadiLink®	: Analogue, fibre coupled, optical links

* Note: the RadiSwitch® SP6T relays use two slots, and therefore are not compatible with the CTR2001E

RadiCentre® CTR2001E Front

1. Power switch
Turns the RadiCentre® CTR2001E on/off. Lights up when the RadiCentre® is turned on.

2. Laser button
Turns on the laser if the RadiCentre® CTR2001E is outfitted with a laser equipped plug-in card. If said laser is active, the button lights up red.



RadiCentre® CTR2001E Back

1. PoE type 3 LAN port
Used for both powering and communicating with the RadiCentre® CTR2001E and the plug-in card.

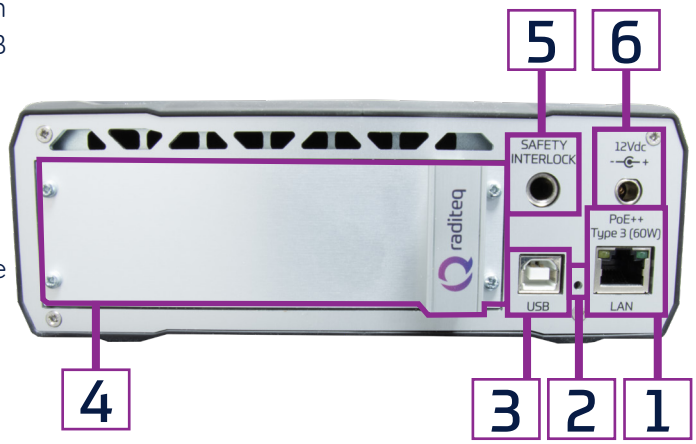
2. Status LED and reset

3. USB-B port
Can be used as an alternative communication method. The plug-in card will present itself as a USB device.

4. Raditeq plug-in card

5. Interlock
Hardware interlock plug needs to be inserted here for plug-in cards that require it.

6. 12 V DC power jack



The RadiCentre® CTR2001E has two communication interfaces:

1. Ethernet, with the default IP address 192.168.1.200.
2. USB, over a virtual COM port with a baud rate of 115200 baud.

Installation

Plug-in card installation

Follow the steps below for the correct installation of a Raditeq plug-in card into the RadiCentre®. Ensure that the RadiCentre® is turned off before installing a new plug-in card.

1. Insert the plug-in card into the rail of the empty RadiCentre®. Position it and gently push it using the lower part until it reaches the end of the rail. Secure the plug-in card into the socket.
2. Once the plug-in card is correctly inserted, secure it by tightening the four screws at the top and bottom. Use a Pozi screwdriver, size PZ1.

RadiCentre® installation

The following steps assume that a Raditeq plug-in card has been installed (described above) and connected according to the plug-in card's manual .

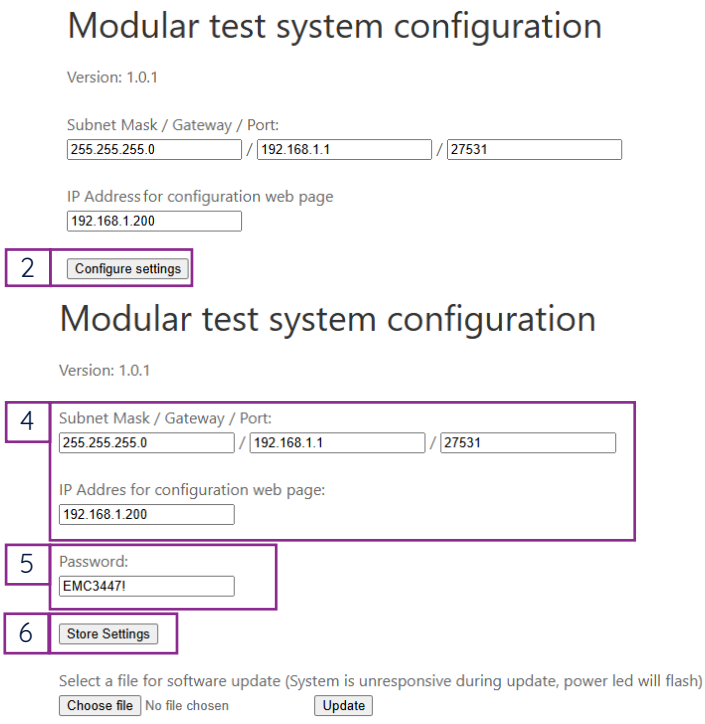
1. Either connect the RadiCentre® directly to a PC using a USB-A to USB-B cable or connect it to the same network as the PC using the ethernet port.
2. If required by the plug-in card, insert the interlock jack.
3. Connect the mains adapter to the RadiCentre® and press the power switch on the front panel (the switch lights up white and the status LED on the rear side lights up blue).

Alternatively, the RadiCentre® can also be powered via a PoE type 3 injector, for this do not use the mains adapter and follow the instructions of your PoE injector. It is still possible to communicate with the RadiCentre® over the USB interface.

Setup network access and password

These steps are only applicable if the RadiCentre® is connected via ethernet. The default IP address of the RadiCentre® is http://192.168.1.200. If required, the IP address can be changed with the following

1. In a browser on a PC on the same network as the RadiCentre®, navigate to the IP address of the RadiCentre® (default 192.168.1.200).
2. Select "Configure settings".
3. Log in using the username "admin" and the password (default password is "EMC3447!").
4. On the following page, set up the network settings as desired.
5. It is recommended to change the password.
6. Select "Store Settings". If the IP address was changed, you will automatically be redirected to the new configuration page.



Controls

Laser Activation

The RadiCentre® CTR2001E is often used in combination with the RadiSense® electric field probe series. The probe is powered by a RadiSense® laser power card housed in and controlled by the RadiCentre®. As a basic safety feature, the RadiSense® laser power card can only be activated with a “laser code” and manual interaction. As the RadiCentre® CTR2001E doesn’t have the inputs to insert a code, it uses the following activation sequence to ensure deliberate activation of the laser.

1. Press and hold the “Laser on” button on the RadiCentre®.
2. After 5 “beep” sounds release the button.
3. The laser is now active, as indicated by the “Laser on” button lighting up red.

The laser will not turn on if the button is released before the fifth beep. Also, if the button is not released after the fifth beep, the laser will turn off. If the laser is shut down unexpectedly (for instance when the interlock circuit is opened), the RadiCentre® will emit a beeping sound. This alarm can be acknowledged and halted with a single press of the “Laser on” button.

Plug-in card control

The plug-in card inserted in the RadiCentre® CTR2001E can be controlled through either the RadiMation® EMC software package from Raditeq or via custom made software. The commands used for controlling the plug-in cards can be found in the programming manual. Note that since the RadiCentre® CTR2001E only has one slot, the device IDs and command prefixes can be omitted.

Factory reset procedure

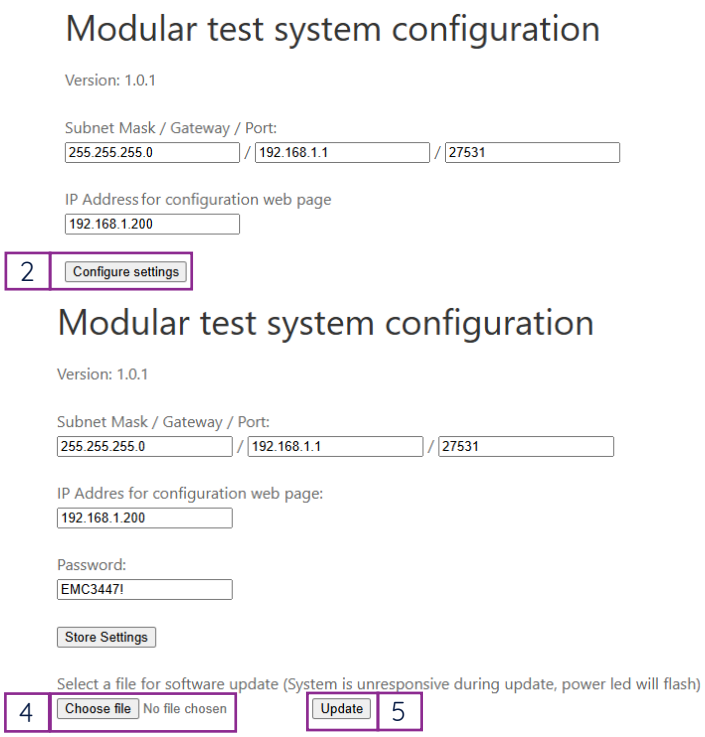
The IP address and password are reset to their factory defaults as follows:

1. Insert a pointed object into the hole of the status LED (backside of the RadiCentre®) to press and hold down the reset button.
2. The status LED will start blinking slowly (1 Hz)
3. After 10 seconds, it will blink faster (4 Hz), indicating that the factory defaults are reset.
4. Release the reset button.

Updating the RadiCentre® firmware

Updating the firmware of the RadiCentre® is done via the same configuration page used to set the IP address and password.
First, ensure that you have downloaded the latest firmware from our website.

1. In a browser on a PC on the same network as the RadiCentre®, navigate to the IP address of the RadiCentre® (default 192.168.1.200).
2. Select “Configure settings”.
3. Log in using the username “admin” and the password (default password is “EMC3447!”).
4. On the following page, select “Choose File” and, in the navigation window that opens window, select the downloaded firmware.
5. Select “Update” to start the firmware update. Note that the update might take some time, during which the RadiCentre® CTR2001E is unresponsive.



Warranty Conditions

Raditeq B.V. offers a standard warranty term of three (3) years on their products, calculated from the shipping date.

Return Material Authorization (RMA) & Warranty repair

If a defect occurs to our product within the warranty term, a Return Material Authorization (RMA) 'Warranty Repair' request can be issued using the RMA link at www.raditeq.com/support**.** Upon receipt of the request, an RMA number will be provided. Please do not send the product without this RMA number! The defective product should be shipped to our service department at the following address:

Raditeq B.V. – Service Department
Vijzelmolenlaan 3
3447GX WOERDEN
The Netherlands

There will be no charge for repair services (materials or labour) within the (extended) warranty term.
These warranty terms are not applicable to:

- Normal wear and tear
- Fibre optic cables
- Products that have been improperly used
- Products that have been used outside their specified range
- Products that have been improperly installed and/or maintained
- Products that have been modified without approval of Raditeq
- Calibration and/or re-calibration of the product

Repair services on products that are not covered by the Raditeq warranty will be charged to the customer.

Repairs outside warranty

If a defect is not covered under warranty, an RMA fixed-repair can be ordered on the RMA link: www.raditeq.com/support If a re-calibration is needed after repair, this calibration should be ordered separately. The calibration will be performed at the ISO17025 accredited calibration laboratories of DARE!! Calibrations, based on the applicable service code / prices.

Warranty after repair

For repairs outside the original warranty period, a limited warranty of six months is applicable on the performed repair. Shipping conditions are the same as with repairs that are covered within the original warranty period.

Shipping

The customer will need to arrange shipping and cover for the costs (like e.g. transportation costs, duties, taxes) for sending the defect product the service department of Raditeq in The Netherlands. Raditeq will arrange the courier and cover for the costs for the return shipment after repair.