Ground Check Device RI41

Features

- Interface for wireless short range communication between Vaisala Radiosonde RS41 family and Vaisala sounding software
- Interface is active – no short range transmitter in radiosonde
- Detects and powers up RS41 automatically
- RI41-B is equipped with accurate barometer module

Vaisala Ground Check Device RI41 – reliability with RS41 radiosonde.

RI41 is an essential tool for carrying out ground preparation of Vaisala Radiosonde RS41. RI41-B model is similar to RI41 but is equipped with a barometer module to provide an alternative to the ground check of the radiosonde's pressure measurement or surface pressure observation. Both RI41 and RI41-B are configured and operated with Vaisala sounding systems.

RS41 ground check with RI41

Vaisala sounding system detects and automatically powers up RS41 radiosonde when it is placed onto the ground check device.

Radiosonde preparation includes sensor functionality checks and setting the options for inflight operational parameters, like timer to power off the radiosonde at the desired time, pressure, or altitude. During the preparation, you can also set the transmitter frequency of the radiosonde or apply the station default frequency.

Temperature checks

A ground check of RS41 temperature sensor includes several advanced electrical checks and a comparison against the temperature element of the humidity sensor. For RS41 temperature sensor only comparison is made, meaning no corrections to radiosonde measurement are applied. Due to the lack of environmental control, the acceptance limits for the comparison are set accordingly.

Humidity checks

The unique design of the sensors in RS41 enables automatic reconditioning and physical zero humidity check of the humidity sensor during ground preparations. Preflight automatic recondition of the humidity sensor effectively removes chemical contaminants and ensures excellent humidity measurement accuracy. The physical zero humidity check is based on generating dry conditions by heating the humidity sensor. This results in dry reference corrections that are more reliable than those made using drying desiccants with limited drying capacity.

Pressure checks and surface pressure

For the pressure measurement ground check, Vaisala sounding software compares the pressure sensor reading of RS41 with that of the RI41-B's highly accurate, built-in barometer module and adjusts the measurement accordingly. Alternatively, you can use an external precision barometer for the comparison and you can manually enter the pressure value in Vaisala sounding software.

You can also use the pressure measurement from the RI41-B barometer module as a surface pressure value, when sounding station parameters are set accordingly.

Wireless short-range communication link

RI41 uses a wireless short-range data link for communication between RS41 and the sounding system. The link uses RF technology and has a range of 4 cm (1.57 in). During ground preparations, only RI41 device is active, and there is no short-range transmitter on the radiosonde. The communication link operates at 13.56 MHz in compliance with relevant standards.

Technical data

Operating environment

Operating temperature	+10 … +45 °C (+50 … +113 °F)
Storage temperature	−40 … +65 °C (−40 … +149 °F)
Operating humidity	10–90 %RH
Storage humidity	5–95 %RH
Operating frequency (carrier)	13.56 MHz
Short range wireless communication	RF technique
Communication link range	0.04 m (1.57 in)
Electrical interface	USB 1.1/2.0
Cable with connector	USB

Inputs and outputs

Power supply	
Input	Through USB interface
Voltage	5 V DC
Typical current	300 mA

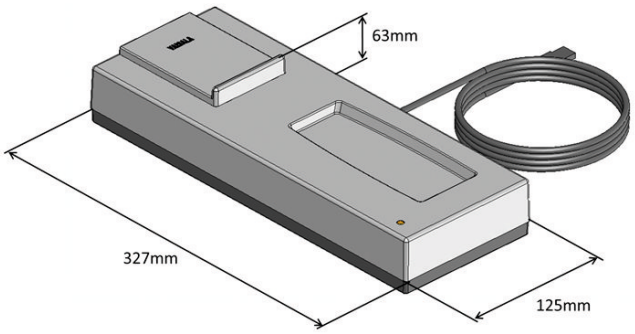
Mechanical specifications

Dimensions (H × W × L)	63 × 125 × 327 mm (2.48 × 4.92 × 12.87 in)
Weight	1.1 kg (2.43 lb)
Material	Polyurethane
Cable length	1.8 m (5 ft 11 in)

Reference sensors

Pressure	Only in the RI41-B model
Calibration of the module	Class A, NIST traceable
Uncertainty [1)]	0.15 hPa
Long term stability	0.1 hPa/year

1) *The recommended in-field calibration interval for barometer module is one year*



Compliance

EU directives and regulations	Radio Equipment Directive, RED (2014/53/EU) RoHS Directive (2011/65/EU) amended by 2015/863
Electromagnetic compatibility (EMC)	CISPR 32 / EN 55032, Class B FCC part 15 B, Class B EN 61326-1, industrial environment EN 301 489-1 EN 301 489-3 EN 301 489-19 ICES-3 / NMB-3 (Class B)
Radio compatibility	EN 300 220-1 EN 300 220-2
Electrical safety	IEC 62368
Compliance marks	CE, RCM, RoHS China, UKCA

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