Universal-Telemetry, waterproof

W8 · W4

RTM
Rainer Thomas Messtechnik

Version 31

Android Tablet

**BlueTooth**

- **Extremely robustly, make dust and waterproof**

- **8 / 4 selectively programmable channels for thermocouple and strain gauge measurements**

- **Data output - voltage, CAN or USB**

- **Maintenance-free work, by touchless data transfer and integrated battery supply**

- **Easy flange assembly or connection by means of "Peiseler Platte"**

- **Comfortable programming by tablet or notebook with BlueTooth-Link**

- **Automatical adjustment- and test-functions**

- **Applications primarily in real driving attempt and in braking-, wheel- and rim-test benches**

- **With up to 2,500 RPM**
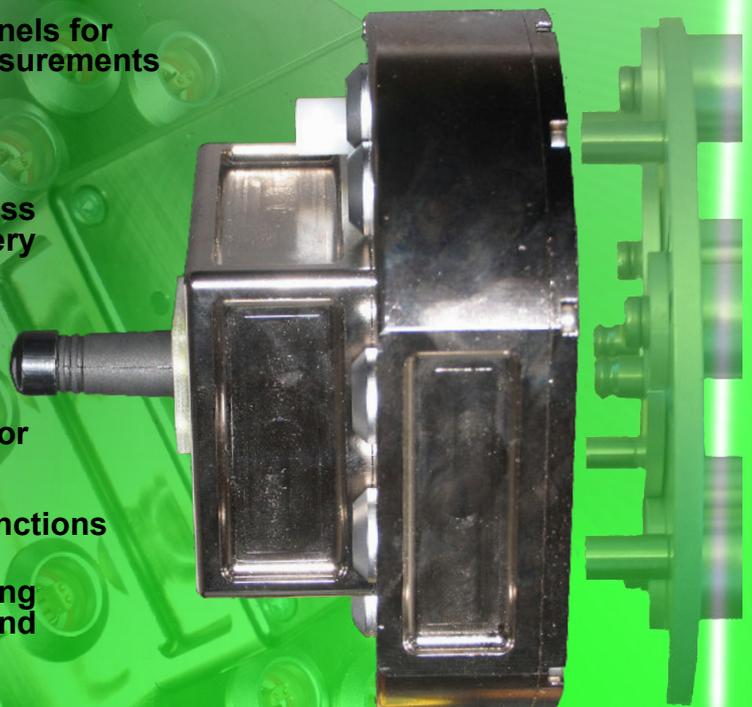
"Peiseler-Platte"

W8 · W4

Technical Data

RTM
Rainer Thomas Messtechnik
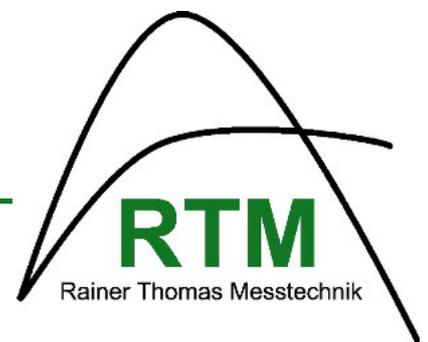
Universal-Telemetry, waterproof, programmable, battery powered	W8-s / W4-s slow	W8-f / W4-f fast	W8-v / W4-v very fast
Mobile unit			
mechanical data			
housing	extremely robust, nickel-plated aluminium case, dust- and waterproof		
mechanical adaptation	4 holes for M5 fixing bolts, drilling picture in conformist with Peiseler Platte *) additional drilling Ø 5H7 for centring		
weight; main dimensions	1.1kg; Ø144mm x 71mm , with antenna 110mm		
maximum rotations	2,500 RPM with concentric, axial mounting		
protection	dust- and hose-waterproof, IP67		
operating temperature	0°C...85°C, **Option -t** -20°C...100°C, not condensed		
powersupply	integrated accumulator with loading state display, capacity 2.4Ah		
operating time, charge time	according to connected sensors 8... 20h / approx. 1.5h for full load		
sensor connection	8 or 4 Lemo sockets, type ERA.0E.304		
data transfer	integrated RF-transmitter, 433MHz ISM-band, 10mW		
transmitting antenna	provided stump antennas alternatively screwable on		
signal inputs	8 differential amplifiers for direct connection of sensors		
configuration	programmable		
sensors	**strain gauge full- and halfbridge** >=350 Ohm **thermocouples type K** (also non-isolated)		
Excitation of strain gauge	5VDC, integrated, per channel separately, Short circuit saved		
measurement range	+/-1mV/V, +/-2mV/V,...+/-16mV/V		
	-100°C ... 250°C/ ... 1,000°C, linearised, could junction compensated		
measuring exactness	+/-0.1% of full scale or +/-1°C		
signal bandwidth -strain gauge	**75Hz / channel**	**300Hz / channel**	**600Hz / channel**
-thermocouple	**10Hz / channel**		
sampling rate -strain gauge	375Hz / channel	1,500Hz / channel	3,000Hz / channel
-thermocouple	100Hz / channel		
antialiasing filter	butterworth, 6 pole		
adjustment functions	automaticaly zero adjustment over more than 4 strain gauge ranges		
control functions	shunt calibration with 80%-detuning in the 2mV/V range		
	negative full scale value (-1,000°C) thermocouple break		
Reproducer unit			
signal output -analogously -digitally	per channel BNC-socket at frontplate, +/-10V, single ended 25 pole D-Sub socket at rear panel, bitparallel; **optional** CAN or USB		
monitor, display	3½ digit LED-display with switch; synchronisation-LED		
RF-receiver/receiving antenna	integrated 433MHz/magnet foot antenna with 3m cable		
powersupply	9... 32VDC, 3W		
dimensions (l x w x h); weight	robust compact housing 200mm x 105mm x 85mm; 1.2kg optional 19" / 3HE plugin module, 21TE (105mm); 1.2kg		
operating temperature	0°C...60°C		
System programming			
programming	wireless; BlueTooth , PC/Notebook and Tablet PC		
functions	kind of sensor, sensitivity, zero adjustment, shunt calibration		
software	workable driver for PC/Notebook and Android-App for tablet		
Accessories			
cable; adapter; antenna	charger; 2m DC-supply cable; 8 or 4 Lemo sensor plugs; Antenna-Combiner and 2 magnet foot receiving antennas, screwable transmitting antenna		
programming accessories	Android tablet; software		
Options /Special accessories	extended temperature range **-t**; CAN-interface **-C**; USB-interface **-U**; Peiseler-Platte **-PP**; adjustment software **-AS**; factory calibration **-WK**		

*) Peiseler-Platte - comfortable mounting plate for measurement of car wheels, Info at www.Peiseler-gmbh.de
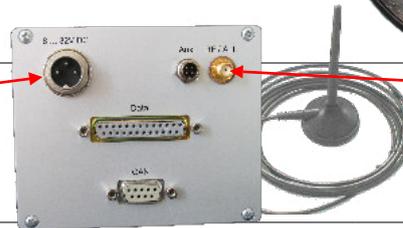
Installation/Introduction

Use 4 screws M5 to fix the mobile part on an assembly flange or a Peiseler Platte *)
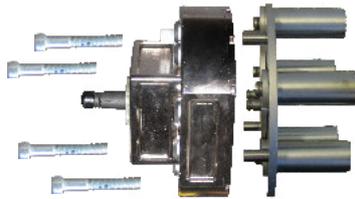
Complement the sensors with Lemo connectors and plug into sockets 1 to 8 (W8) 1, 2, 5, 6 (W4)
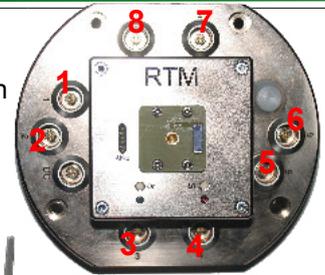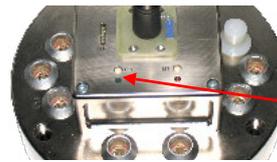
Connect the power cable with the socket " 8... 32VDC " of the reproducer and connect the colored plugs with a DC source
red is "+"   **black is "-"**

receiving antenna to connector "RF/Ant."

LED at front plate lights red and goes to green switching on the mobile unit. data are synchronised.

power on the mobile unit is done by pressing the key "On" and is showed by the green LED

Battery unit

The mobile unit is powered by an integrated NiMH-Accumulator.

LED charge display gives an information of filling state in steps of 20%

To charge the battery, switch off the mobile unit and connect the socket "**DC**" with the charger.
Flashing LEDs signalize running charging.

On the charger, a LED indicates the charging status.
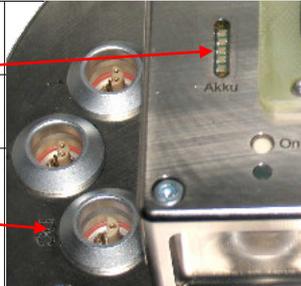
Charge electronics allows connection to the charger at any time. Unused Batteries are buffered.

Attention!
Do not store mobile unit with empty batteries, connect it to charger at any time.

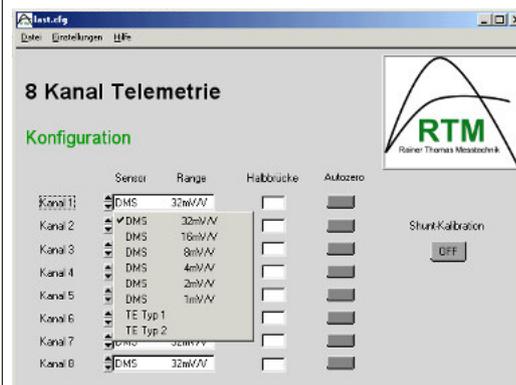# Configuration - Software   RTM-Config

In the mobile unit integrated BlueTooth transceiver allows the bidirectional communication to configure the parameters of telemetry system. For that an Android Tablet and a Software for use with PC/Notebook, are part of the delivery volume.

At the mobile unit the BlueTooth transceiver will be activated briefly pressing the key "BT" (red LED lights). After configuration it is advisable to switch off the BlueTooth-Modul to save battery energie. Parameters will be stored.
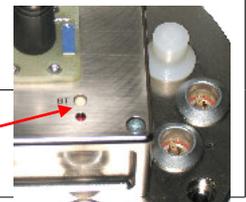
Installation PC-Software
Run **RTM-Config/setup.exe**
Installation goes automatically.
Changing the german language to the english language is possible.

Installation of Android App
The App RTMBtConfig is already installed on the tablet.

Parametres setting
The selfexplicatory surface of the software **RTM-Config** allows a channel-selective setting of the parametres.

Parametres
Sensor:
Strain gauge -Fullbridge
Strain gauge -Halfbridge
Thermocouple -K
Sensitivity:
1mV/V...32mV/V
250°C or 1,000°C

Functions
Zero adjustment
Shunt-calibration

For the installation of the BlueTooth components the manufacturer's formations are to be followed. Use and service of the PC according to his documentation. The Tablet is usable in his full functional circumference. The configuration software **RTM-Config** is executable under Windows 98 / 2000 / XP/ Vista, Win7 and Win10.
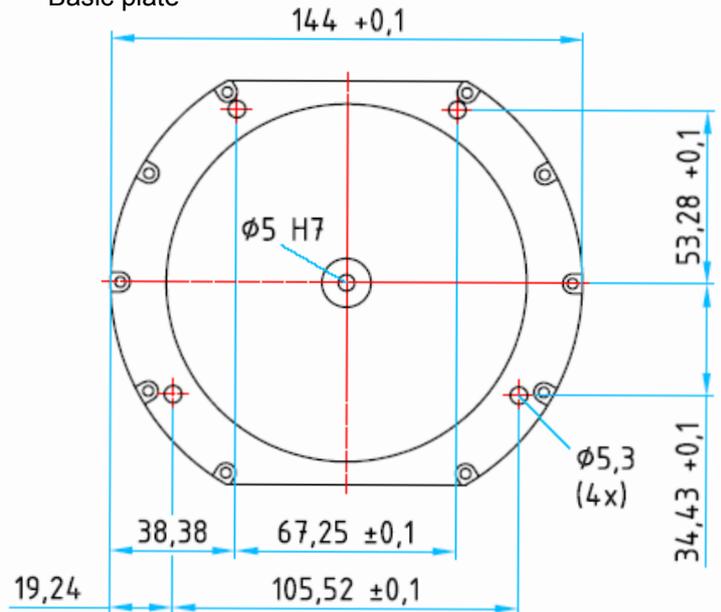
Fixation of mobile unit

Fixation drawing for assembling flange

TK-Ø126 ±0,05
67,3
M5
64,57°
90,86°
90,86°
113,71°
105,5
87,71
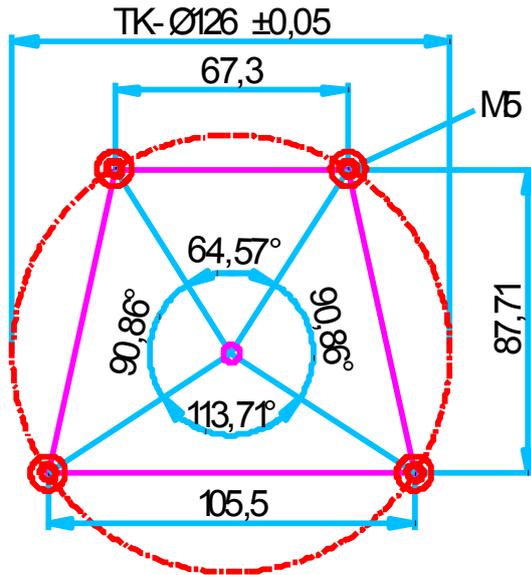
*) according to Peiseler-Platte

Basic plate

144 +0,1
53,28 +0,1
Ø5 H7
Ø5,3 (4x)
34,43 +0,1
38,38
67,25 ±0,1
19,24
105,52 ±0,1

Pinning connectors of mobile unit

Sensor-input connector		Lemo plug 4 pole, type FFA.0E.304 on sensor cable		
contact	**Full-** / **Half-Bridge** / **Thermocouple**	contact	**Full-** / **Half-Bridge** / **Thermocouple**
1	**-In** negatively input ● / nc. / ●	3	**-GV** negatively supply ● / ● / nc.
2	**+GV** positively supply ● / ● / nc.	4	**+In** positively input ● / ● / ●

Pinning connectors of reproducer unit

Data			SubD-25 socket on rear plate
contact	signal	contact	signal
1...12	DB15...DB04	16...19	AB07...AB04
13	PCM	20	WP
14	/SL	21	Gnd
15	FR	22...25	AB03...AB0

8...32V DC

socket 3 pole on cable
type Binder 680 0306-00-03

contact	Signal
1	+ power supply
3	- power supply

CAN (optional)			SubD-9 socket on rear plate
contact	signal	contact	signal
2	CAN-Low	7	CAN-High

Aux   (reserved for special functions)

socket 4 pole on cable
type Binder 711 2 99-0080-00-04

Delivery volume, Accessories, Options

**Universal-Telemetry W8 or W4
with reproducer unit**

Power cable
Charger with Lemo plug FFA.0E.303
8 or 4 Lemo sensor plugs type FFA.0E.304 CLAC
2 receiving antennas and combiner module
Screwable transmitting antenna
Android Tablet-PC
Software RTM-Config
Documentation
Transport suitcase

optional

Software CAN-Bus (Option **-C**)
Software USB (Option -U)
Software Adjustment (Option **-AS**)
Factory calibration (Option **-WK**)
Peiseler-Plate (Option **-PP**)

Servicing hints, Recalibration cycle

Devices W8/W4 have no special service hints. Recommended Calibration cycle is 2 years.
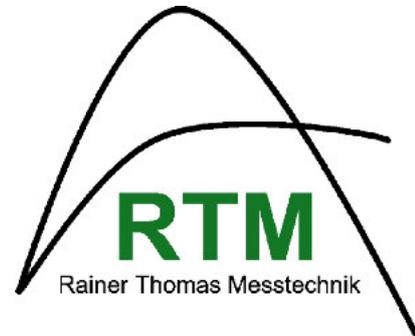
W-COM

Combiner module   principle overview

Antenna arrangement when using an antenna combiner

Transmitter
telemetry system with integrated RF

Antenna1

Antenna2

Combiner
SN 0454

Ant.1   Ant.2

RF-Out

Control unit
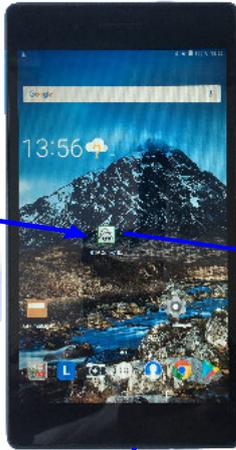with receiver

8 ... 32V DC

Aux   RF / Ant.

Data

CAN

Configuration of the telemetry system W8 using an Android tablet

The app is already installed on the included tablet, but it can be installed on any Android device with version 2.2 or later
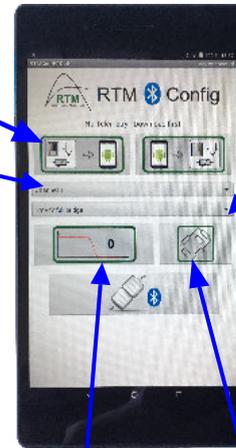

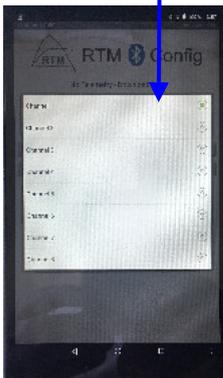1. **Turn on the tablet**

2. **Start RTMCon-K1000**

3. **Connect by BlueTooth**
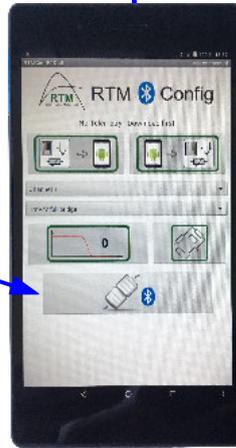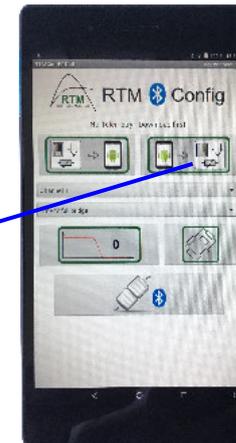
4. **Load parameter set from Rotor unit**

Sensor selection
Senssitivity selection

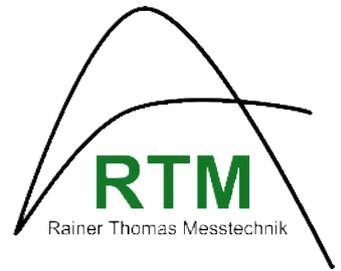**Channel selection**

AutoZero   **Shunt-calibration**

5. **Configuration of Channels**

6. **Load complete parameter set to Rotor unit**

Type W84

EC – Certificate of Conformity

The company

Rainer Thomas Messtechnik GmbH
Wiesseer Str.1
 D-83703 Gmund / Germany

herewith explains, that the telemetry devices   **Type W84**
in from it implementation brought in the traffic fulfils the regulations of the following
appropriate harmonisation regulations of the community:

EMV-Richtlinie 2014/30/EU
DIN EN 61326-1; VDE 0843-20-1:2013-07 Elektrische Mess-, Steuer-, Regel- und Laborgeräte -
EMV-Anforderungen - Teil 1:Allgemeine Anforderungen (IEC 61326-1:2012);
Deutsche Fassung EN 61326-1:2013

The protective aims of the low-voltage directive   2014 / 35 / EU are kept.

Commissioned person for the arrangement of the technical documents:

Rainer Thomas, company RTM GmbH, Wiesseer Str.1, D-83703 Gmund

Commissioned testing centre / accredited lab:
Schwille-Elektronik GmbH, Benzstr.1A, D-85551 Kirchheim, M.Schiedrich

The following basic norms were applied:

- IEC 61000-4-2
- IEC 61000-4-3

- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- CISPR 55011

Rainer Thomas, GF

Gmund, Apr. 9th. 2015