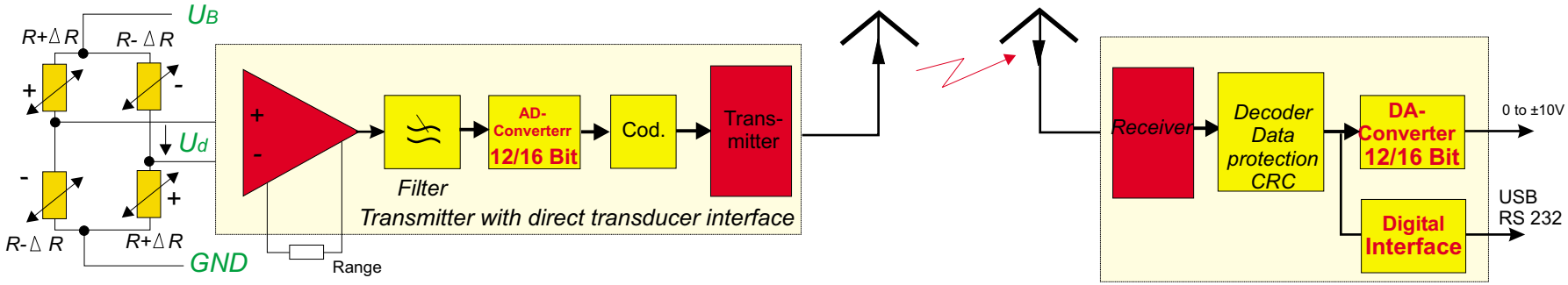
Radio Sensortelemetry

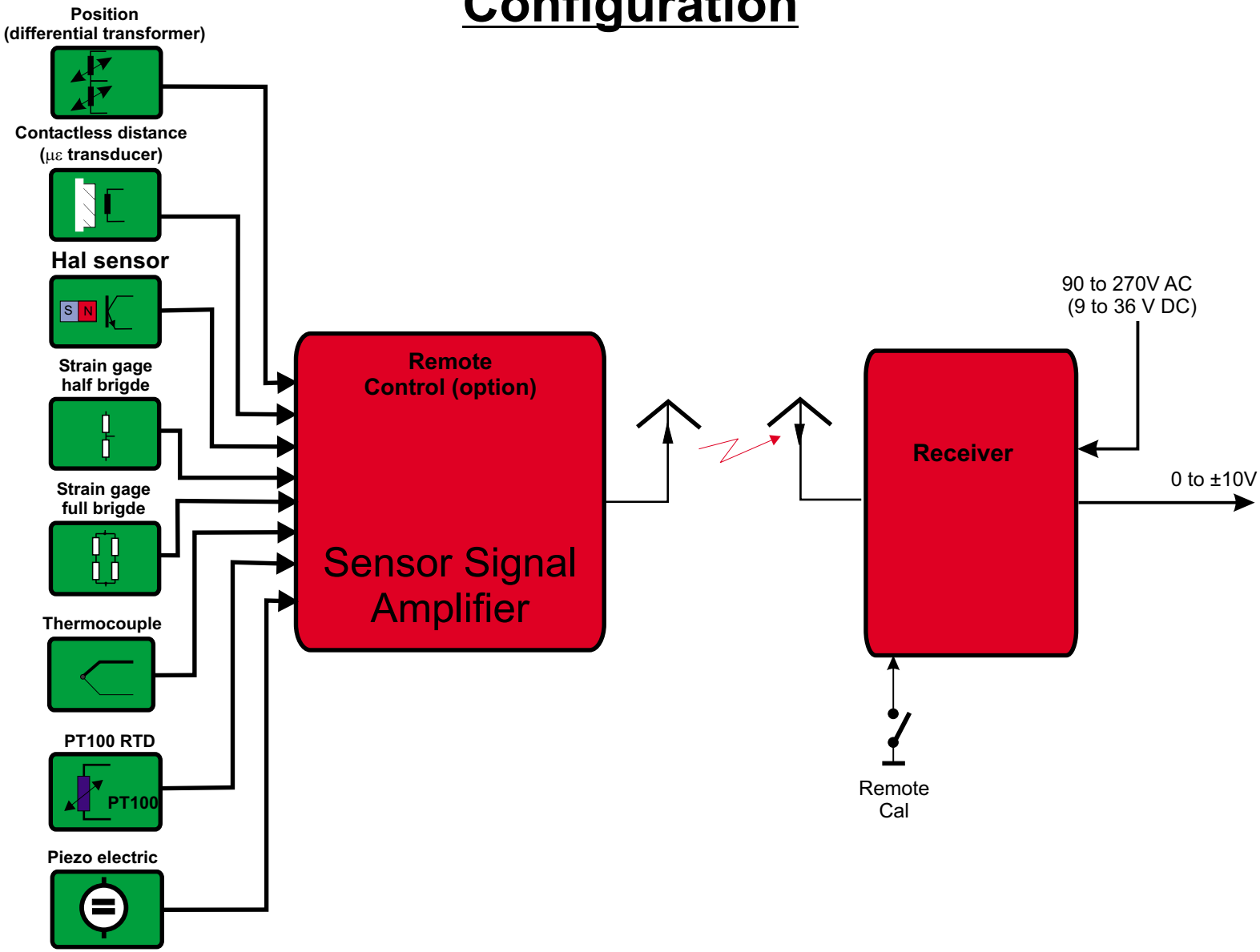
Short Description of Manner Radio-Sensortelemetry

The Manner Radio Telemetry was special developed for working in heavy environment conditions. The consists of radio transmitter and miniaturized Sensor Signal Amplifier. Strain gage brigdes and thermocouples, RTD (PT100) are direct interfaced with the Sensor Signal Amplifier. The signal from the transducer will be enforced, filtered due to the Antialaising and digitized. The resolution of the signal can be 12 Bit or 16 Bit (option). The digital data will then be coded and a special checksum word will be generated. This special checksum word garantees absolut noisefree data transmission. The data word and special checksum word will be FM-modulated of the RF carrier 433/868 MHz. The garanties wireless transmitting over about 50 meters in free aera. The system is available in single an multi channel version (2, 4, 8, 16 channels). For every channel exists a seperate power supply, amplifier, AD-Converter and DA-Converter. There no crosstalk between the channels and no backslash in case a short circuit. The range adjustment, auto zero can be programmed electrically remote by a PC.

Diagramm of one channel

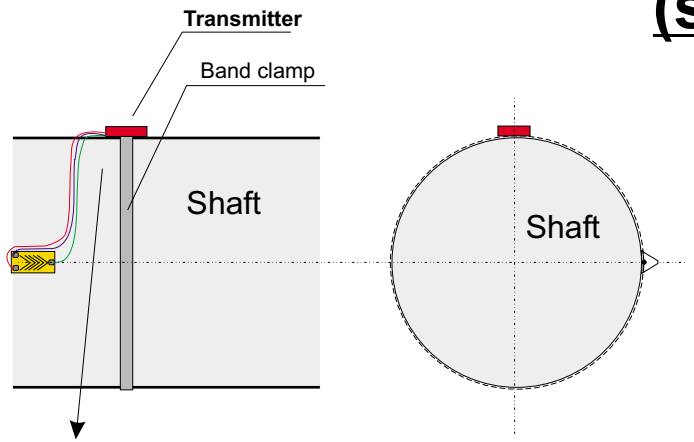


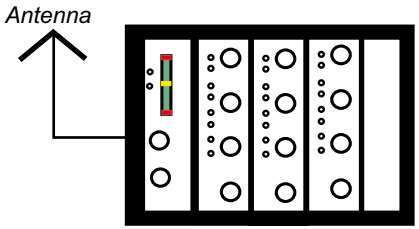
Configuration



MANNER® Sensortelemetrie

MANNER Radio Sensortelemetry (shaft - stationary)





Receiver

Type: AW_T_<bandwidth>_<channels>_<supply>_<output>_<mod>_F

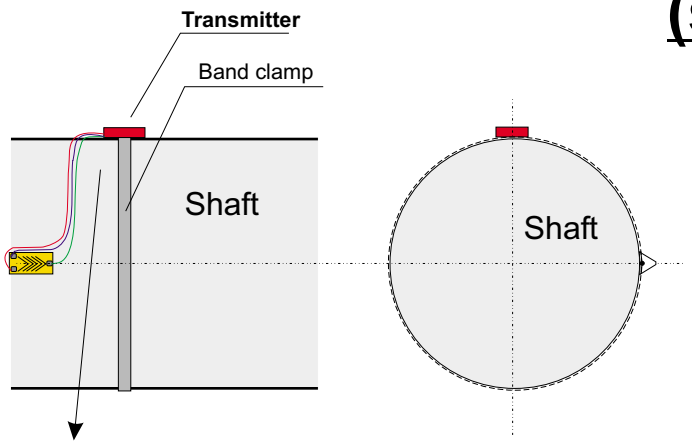
Type: **SV_4_**<bandwidth>_<accuracy>_<temp>_<mod>_F

Features:

- **Easy mounting**
- **with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)**
- **Channel count: max. 16**
- **Samplerate: 4000 Sample/s (1 channel)**
- **Samplerate: 1100 Sample/s /channel at 8 channels**
- **Digital transmitting: 12/16 Bit resolution with checksum (CRC)**
- **Transmitting: Radio f = 433/868 MHz, 16 different frequencies**
- **RF-Power: 10 mW; range: 50 m in open field**
- **Integrated data protection by checksum 16 Bit CRC**
- **Low current consumption by low power C-MOS technique: 3,6 V supply**
- **Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V**
- **Range adjustable by solderable resistors**
- **or optional electrical remote programmable range with 12 Bit resolution**
- **Transducer: Strain gage, full- / half bridge, Thermocouple type K**
- **Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)**
- **Optional inductive supply**
- **Max. accelaration: 1500 g**
- **Optional -40 to +120°C environmental temperature**

MANNER® Sensortelemetrie

MANNER Radio Sensortelemetry (shaft - stationary)



Type: **SV_4**_<bandwidth>_<accuracy>_<temp>_<mod>_F

Type: **AW_M**_<bandwidth>_<supply>_
<output>_<mod>_F

Features:

Easy mounting
with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)
Channel count: 1
Samplerate: 4000 Sample/s (1 channel)
Digital transmitting 12/16 Bit resolution with checksum (CRC)
Transmitting: Radio f = 433/868 MHz, 16 different frequencies
RF-Power: 10 mW; range: 50 m in open field
Integrated data protection by checksum 16 Bit CRC
Low current consumption by low power C-MOS technique: 3,6 V supply
Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V
Range adjustable by solderable resistor
or optional electrical remote programmable range with 12 Bit resolution
Transducer: Strain gage, full- / half bridge, Thermocouple type K
Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)
Optional inductive supply
Max. accelaration: 1500 g
Temperature range: -10 to +85°C
Optional -40 to +120°C environmental temperature

Torque Meter based on Radio Telemetry

Type: **MF**_<range>_<bandwidth>_<precision>_<mod>_**F**

Further information:
see **“Meßflansch”**

Type: **AW_M**_<bandwidth>_<supply>_
<output>_<mod>_F

Features:

- **Universal torque meter for short term use**
- **Ranges available: 10 Nm to 50 kNm**
- **Linearity and hysteresis: 0,2 %**
- **High bandwidth 0 to 1 kHz(-3 dB)**
- **High reliable digital transmitting 16 Bit resolution**
- **Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)**
- **Easy mounting**
- **Transmitting: Radio f = 433/868 MHz**
- **RF-Power: 10 mW; range: 40 m in open field**
- **Integrated data protection by checksum (16 Bit CRC)**
- **Low current consumption by low power C-MOS technique: 3,6 V supply with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)**
- **Max. radial accelaration: 1500 g**
- **Temperature range: -10 to +85°C**
- **Optional -40 to +120°C environmental temperature**
- **Supply receiver: 9 to 36 V DC, 100 mA**
- **Output voltage: 0 to ±10 V, 0(4) to 20 mA, USB**
- **Type system:** type: **MF**_<range>_<precision>_<bandwidth>_<mod>_<AW>_**F**

10 Nm	0,25%	10 Hz	PCM12	AW_M
to		100 Hz	PCM16	AW_T
50 kNm	0,1%	1 kHz		

Climate Compressor Torque Meter based on Radio Telemetry

Type: **MFC_**<range>_<precision>_<bandwidth>_<mod>**_F**

Type: **AW_M**_<bandwidth>_<supply>_<output>_<mod>_F

Features:

Climate compressor torque meter for short term use
Ranges available: 20 Nm to 50 kNm
Linearity and hysteresis: 0,25 %
High bandwidth 0 to 1 kHz(-3 dB)
High reliable digital transmitting 16 Bit resolution
Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)
Easy mounting
Transmitting: Radio f = 433/868 MHz
RF-Power: 10 mW; range: 40 m in open field
Integrated data protection by checksum (16 Bit CRC)
Low current consumption by low power C-MOS technique: 3,6 V supply with Accu-supply 3,6 V Lithium, max 25 hours (one cycle)
Max. radial accelaration: 1500 g
Temperature range: -10 to +85°C
Optional -40 to +120°C environmental temperature
Supply receiver: 9 to 36 V DC, 100 mA
Output voltage: 0 to ±10 V, 0(4) to 20 mA, USB
Type system: type: **MFC_**<range>_<precision>_<bandwidth>_<mod>_<AW>**_F**

	20 Nm	0,25%	10 Hz	PCM16	AW_M
	to		100 Hz		
	50 Nm		1 kHz		

MANNER® Sensortelemetrie

Wheel Torque Meter based on Radio Telemetry

Type: **MFW_**<range>_<precision>_<bandwidth>_<mod>**_F**

Type: **AW_M_**<bandwidth>_<supply>_<output>_<mod>_F

Features:

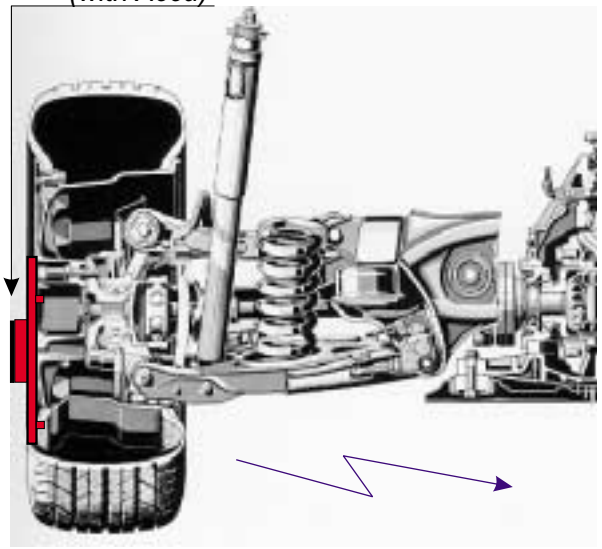
Wheel torque meter for cars
Ranges available: 500 Nm to 4 kNm
Linearity and hysteresis: 0,1 %
Based on titanium with overload protection
High bandwidth 0 to 1 kHz(-3 dB)
High reliable digital transmitting 16 Bit resolution
Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)
Easy mounting
Transmitting: Radio f = 433/868 MHz, 16 different frequencies
Integrated transmitting antenna, waterproof
RF-Power: 10 mW; range: 20 m in open field
Integrated data protection by checksum (16 Bit CRC)
Low current consumption by low power C-MOS technique: 3,6 V supply with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)
Max. radial accelaration: 1500 g
Temperature range: -25 to +85°C
Optional -40 to +120°C environmental temperature
Supply receiver: 9 to 36 V DC, 100 mA
Output voltage: 0 to ±10 V, 0(4) to 20 mA, USB, CAN-Bus

Type system: type: **MFW_**<range>_<precision>_<bandwidth>_<mod>_<AW>**_F**

	500 Nm to 4 kNm	0,1%	100 Hz to 1 kHz	PCM16	AW_M

Wheel Radio Telemetry with CAN-Bus Interface

Multichannel transmitter with integrated strain gage amplifier (with Accu)



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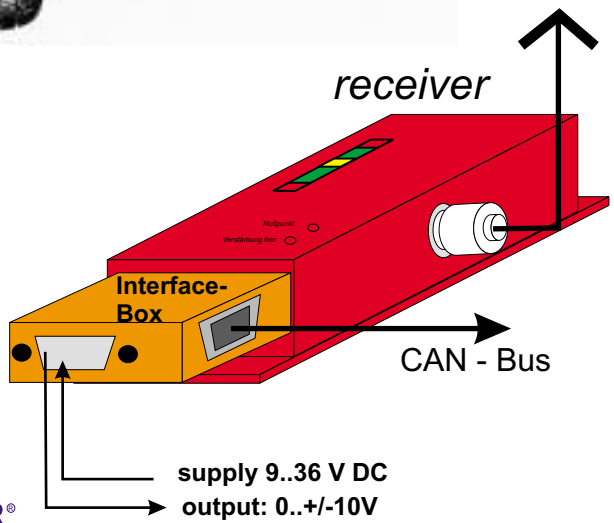
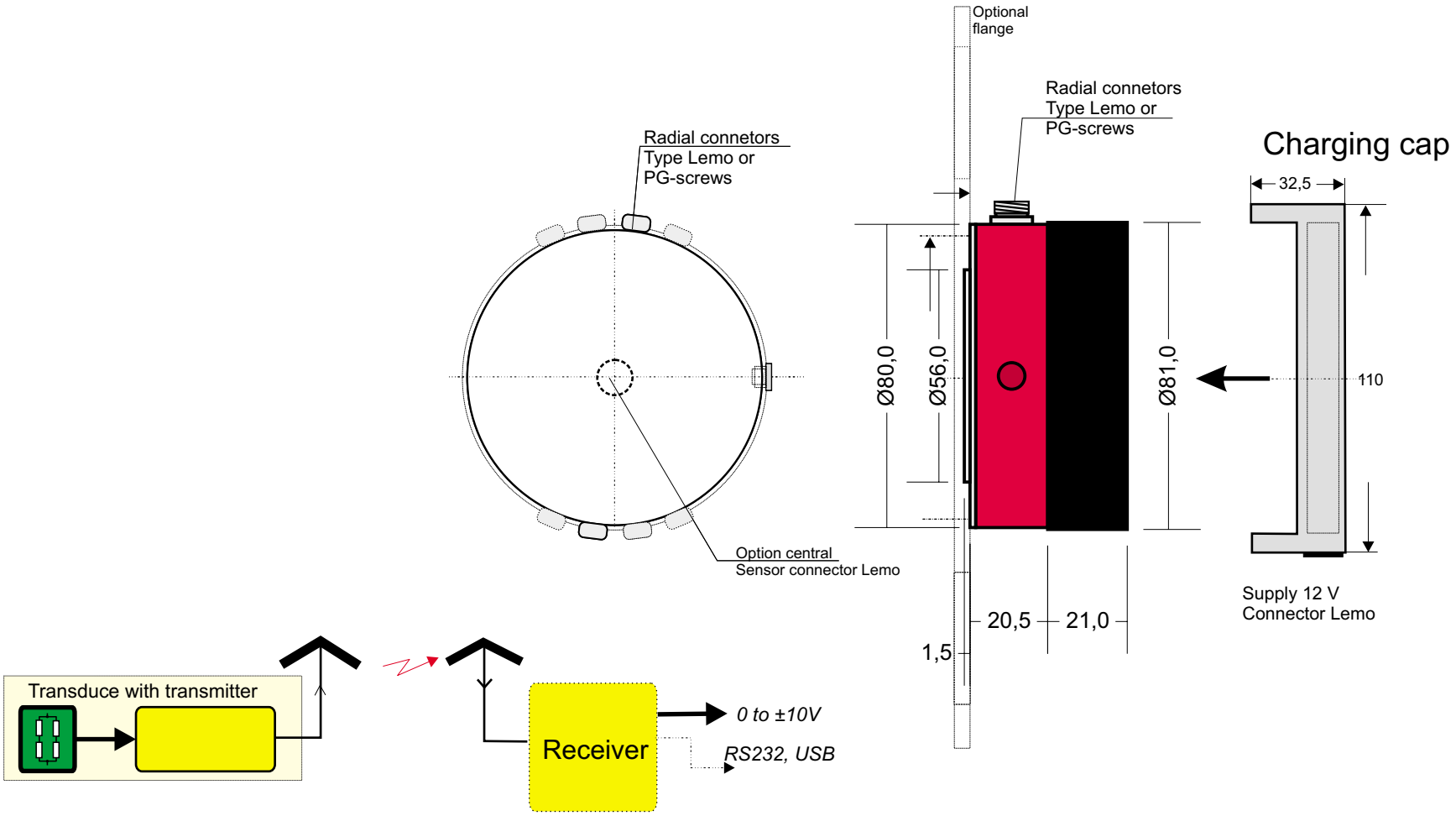


Features:

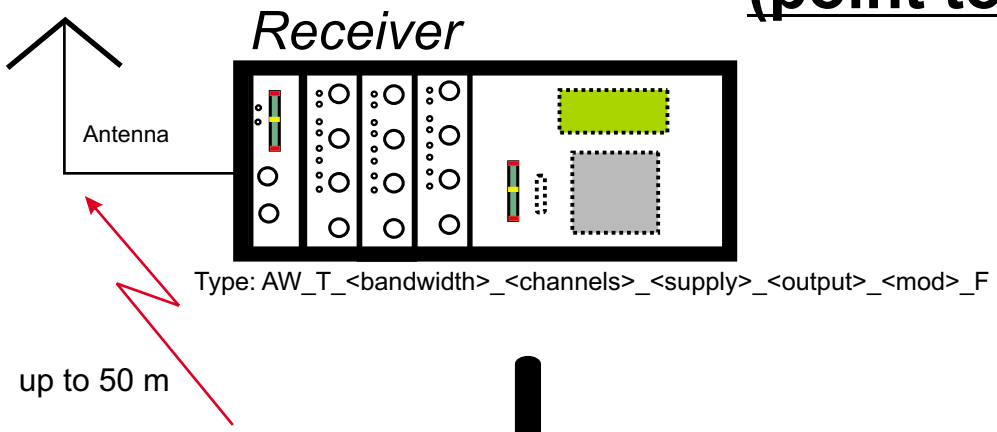
- **Easy mounting**
- **with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)**
- **Channel count: 1 or multi channel (max. 16)**
- **Samplerate: 4000 Sample/s 1 channel)**
- **Samplerate: 1100 Sample/s /channel at 8 channels**
- **Digital transmitting 12/16 Bit resolution with checksum (CRC)**
- **Transmitting: Radio f = 433/868 MHz, 16 different frequencies**
- **RF-Power: 10 mW; range: 30 m in open field**
- **Low current consumption by low power C-MOS technique: 3,6 V supply**
- **Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V**
- **Range adjustable by solderable resistors**
- **or optional electrical remote programmable range with 12 Bit resolution**
- **Transducer: strain gage, full- / half bridge, Thermocouple type K**
- **Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)**
- **Optional inductive supply**
- **Max. accelaration: 1500 g**
- **Optional -40 to +120°C environmental temperature**

MANNER® Sensortelemetrie

Dimensions


Optional
flange
Radial connetors
Type Lemo or
PG-screws
Radial connetors
Type Lemo or
PG-screws
Charging cap
32,5
Ø80,0
Ø56,0
Ø81,0
110
Option central
Sensor connector Lemo
20,5
21,0
1,5
Supply 12 V
Connector Lemo
Transduce with transmitter
Receiver
0 to ±10V
RS232, USB

MANNER Radio Sensortelemetry (point to point)



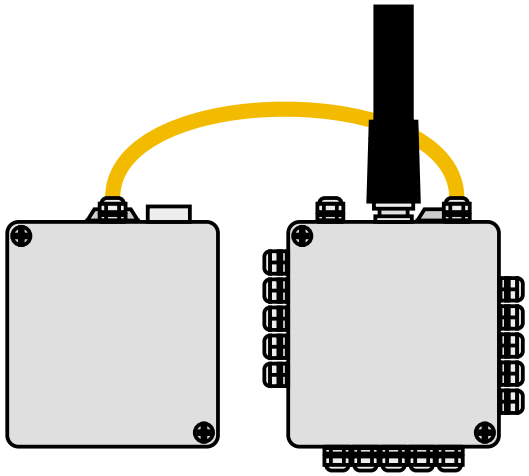
Features:

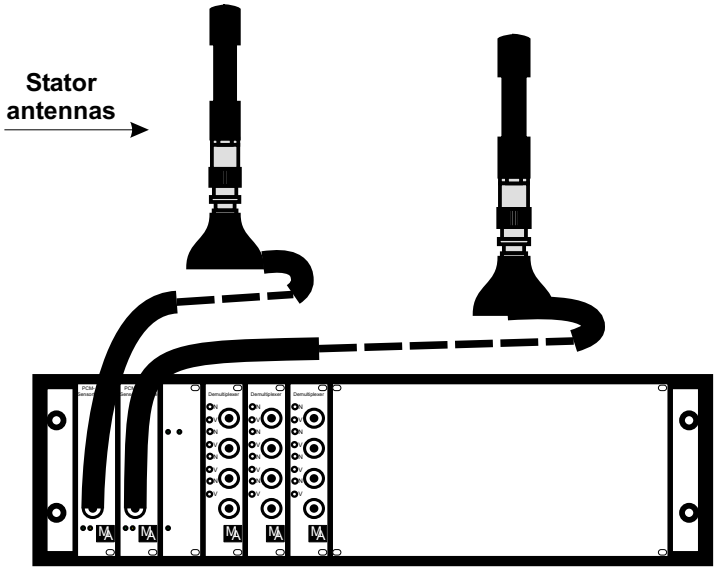
- Easy mounting
- with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)
- Channel count: max. 16
- Samplerate: 4000 Sample/s 1 channel)
- Samplerate: 1100 Sample/s /channel at 8 channels
- Digital transmitting 12/16 Bit resolution with checksum (CRC)
- Transmitting: Radio f = 433/868 MHz, 16 different frequencies
- RF-Power: 10 mW; range: 50 m in open field
- Integrated data protection by checksum 16 Bit CRC
- Low current consumption by low power C-MOS technique: 3,6 V supply
- Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V
- Range adjustable by solderable resistors
- or optional electrical remote programmable range with 12 Bit resolution
- Transducer: Strain gage, full- / half bridge, Thermocouple type K
- Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)
- Optional inductive supply
- Max. accelaration: 1500 g
- Optional -40 to + 120°C environmental temperature

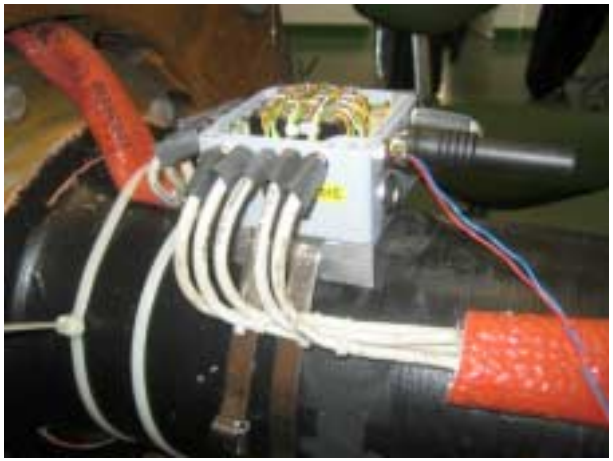
MANNER® Sensortelemetrie

MANNER Radio Sensortelemetry special for Train Application

with Antenna Diversity





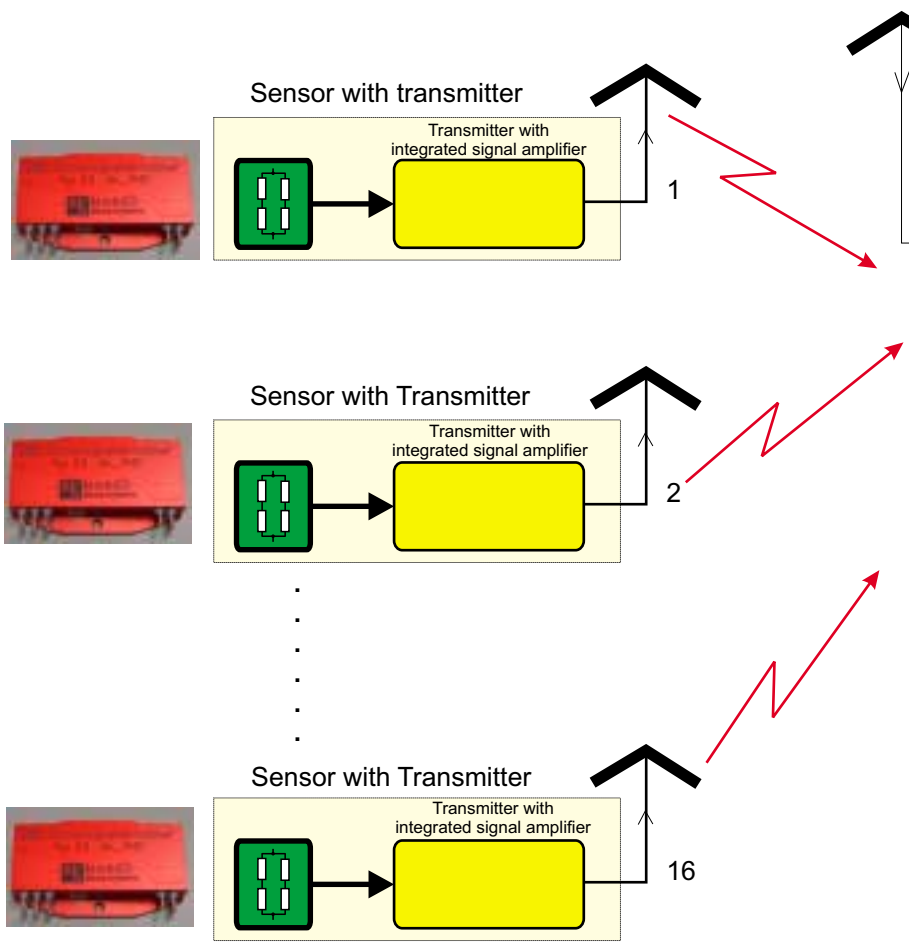


Features:

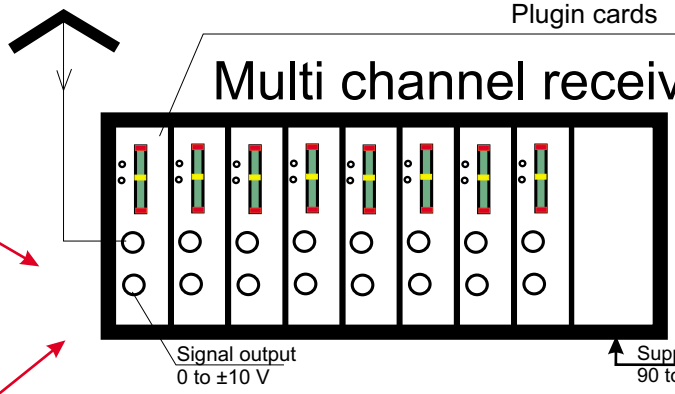
- Easy mounting
- with Accu-supply 3,6 V Lithium,
- Max 35 hours (one cycle)
- Channel count: 16 (max. 32)
- Samplerate: 4000 Sample/s 1 channel)
- Samplerate: 750 Sample/s at 16 ch.
- Digital transmitting 12/16 Bit resolution
- with checksum (CRC)
- Transmitting: Radio f = 433/868 MHz,
- 16 different frequencies
- RF-Power: 10 mW; range: 30 m
- integrated Data protection
- Antenna diversity for improved reception
- by checksum 16 Bit CRC
- Low current consumption by low power
- C-MOS technique: 3,6 V supply
- Integrated transducer amplifier range:
- 0,1 mV/V to 20 mV/V
- Electrical remote programmable range
- with 12 Bit resolution
- Transducer: Strain gage, full- / ,
- half bridge, Thermocouple type K
- Zerodrift / Gaindrift: 0,01 %/°C
- Optional inductive supply
- Max. accelaration: 1500 g
- Temperature -40 to +85°C

Multi Channel Radio Sensortelemetry

(separate frequencies)



Type: **SV_4_**<bandwidth>_<accuracy>_<temp>_<mod>_F



Type: **AW_ES_**<bandwidth>_<supply>_<output>_<mod>_**F**

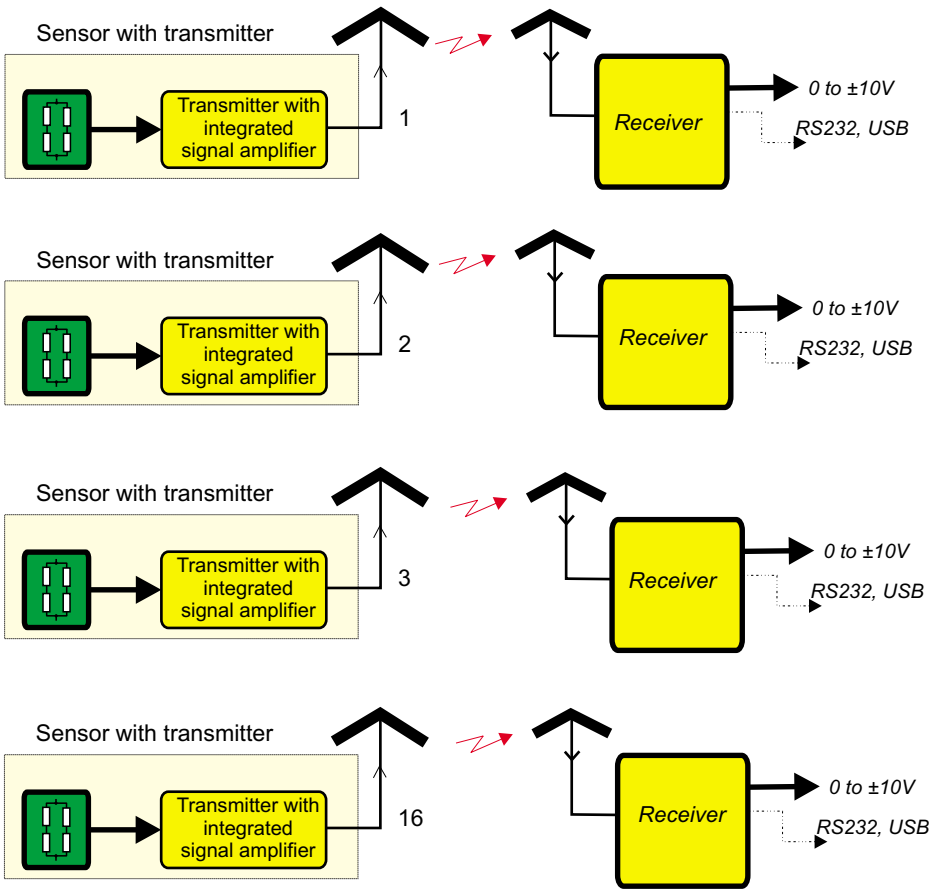
Features:

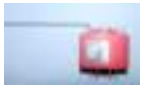
Easy handling
with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)
Channel count: 1 to 16 (every channel has its own frequency)
Samplerate: 4000 Sample/s (1 channel)
Digital transmitting 12/16 Bit resolution with checksum (CRC)
Transmitting: Radio f = 433/868 MHz, 16 different frequencies
RF-Power: 10 mW; range: 50 m in open field
Integrated data protection by checksum 16 Bit CRC
Low current consumption by low power C-MOS technique: 3,6 V supply
Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V
Range adjustable by solderable resistors
or optional electrical remote programmable range with 12 Bit resolution
Transducer: Strain gage, full- / half bridge, Thermocouple type K
Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)
Optional inductive supply
Max. accelaration: 1500 g
Temperature range: -10 to +85°C
Optional -40 to +120°C environmental temperature

MANNER® Sensortelemetrie

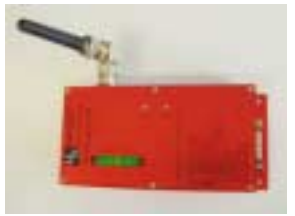
Multi Channel Radio Sensortelemetry

(separate frequencies, point to point)





or



Type: **SV_4_**<bandwidth>_<accuracy>_<temp>_<mod>_F

Type: **SV_8_**<bandwidth>_<accuracy>_<temp>_<mod>_F

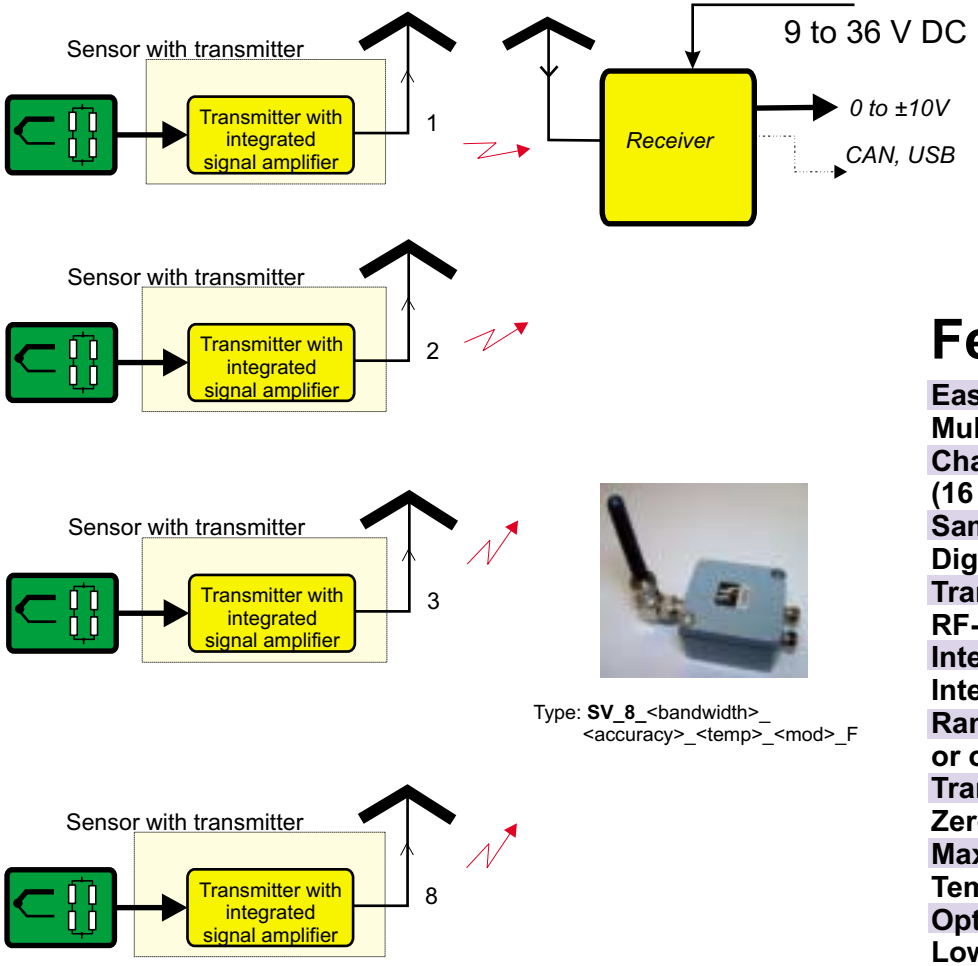
type: **AW_M_**<bandwidth>_<supply>_<output>_<mod>_F

Features:

Easy handling
Channel count: 1
(16 different frequencies)
Samplerate: 4000 Sample/s (1 channel)
Digital transmitting 12/16 Bit resolution with checksum (CRC)
Transmitting: Radio f = 433/868 MHz, 16 different frequencies
RF-Power: 10 mW; range: 50 m in open field
Integrated data protection by checksum 16 Bit CRC
Low current consumption by low power C-MOS technique: 3,6 V supply
Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V
Range adjustable by solderable resistors
or optional electrical remote programmable range with 12 Bit resolution
Transducer: Strain gage, full- / half bridge, Thermocouple type K
Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)
Max. accelaration: 1500 g
Temperature range: -10 to +85°C
Optional -40 to +120°C environmental temperature
with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)

Multi Channel Radio Sensortelemetry

(multiplex mode, one frequency, multi point to point, low speed application)



Type: **AW_M**_<bandwidth>_<supply>_<output>_<mod>_F

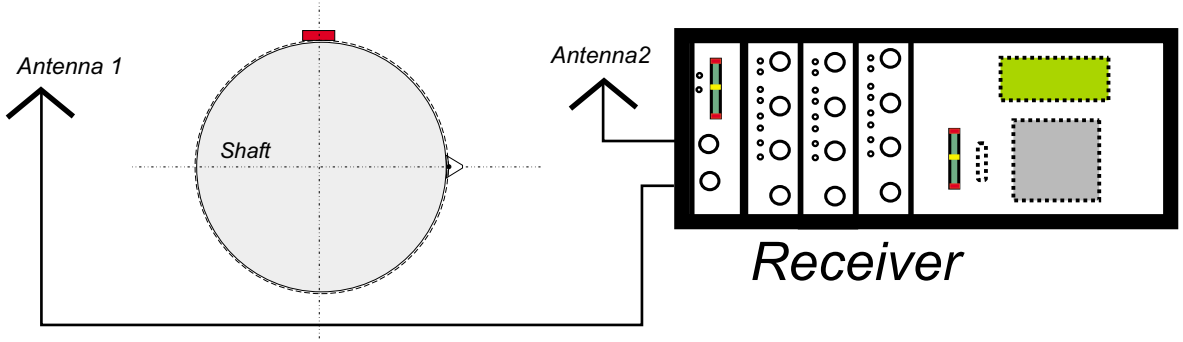
Type: **SV_8**_<bandwidth>_<accuracy>_<temp>_<mod>_F

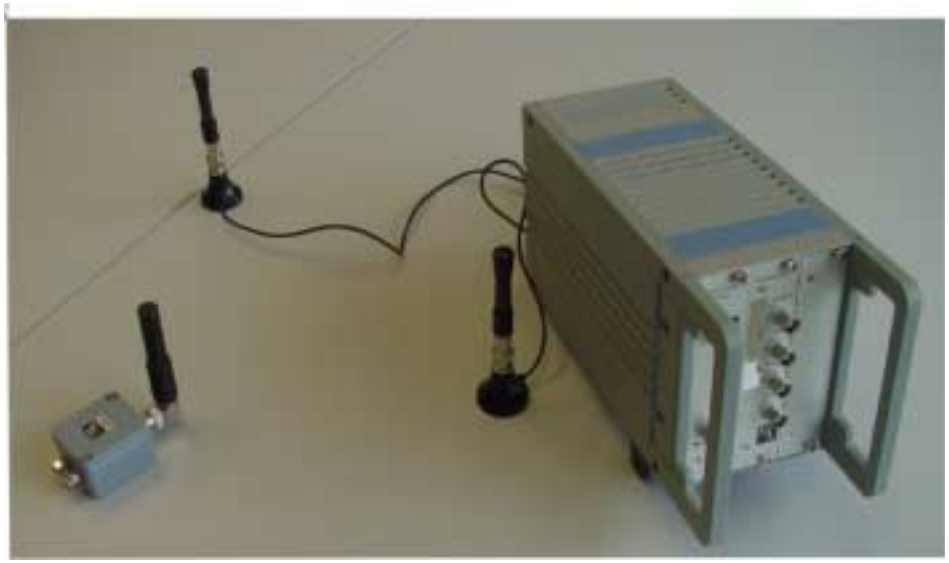
Features:

- **Easy handling**
- **Multichannel (time multiplex)**
- **Channel count (max): 8**
- **(16 different frequencies)**
- **Samplerate: 10 Sample/s/channel**
- **Digital transmitting 12/16 Bit resolution with checksum (CRC)**
- **Transmitting: Radio f = 433/868 MHz, 16 different frequencies**
- **RF-Power: 10 mW; range: 50 m in open field**
- **Integrated data protection by checksum 16 Bit CRC**
- **Integrated transducer amplifier range: 0,1 mV/V to 20 mV/V**
- **Range adjustable by solderable resistors**
- **or optional electrical remote programmable range with 12 Bit resolution**
- **Transducer: Strain gage, full- / half bridge, Thermocouple type K**
- **Zerodrift / Gaindrift: 0,01 %/°C (0,003 %/°C optional)**
- **Max. accelaration: 1500 g**
- **Temperature range: -10 to +85°C**
- **Optional -40 to +120°C environmental temperature**
- **Low power mode, low power C-MOS technique: 3,6 V supply**
- **with Accu-supply 3,6 V Lithium, max 150 hours (one cycle)**

Option Radio Sensortelemetry with Antenna Diversity

(improvement of the security of data transmitting by use of 2 antennas)



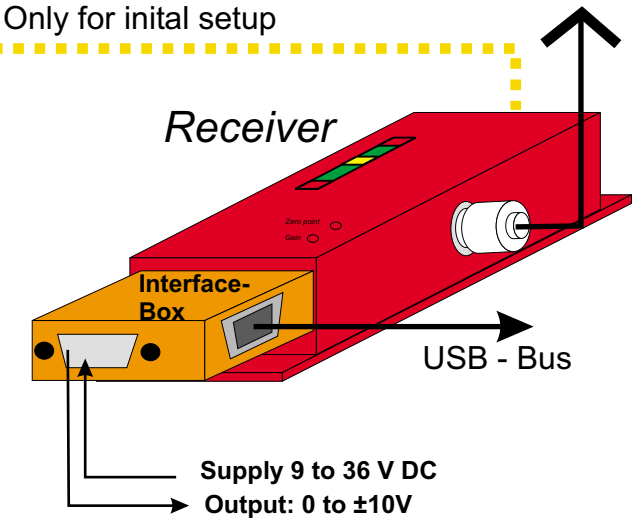


Features:

- Impovement of reception by 1000 times in case interferences
- 2 receiver system with 2 antennas
- Diversity combiner chooses at every time the best signal
- Avoiding of lost of sensor data in case of bad reception or interferences
- Digital transmitting 12/16 Bit resolution with checksum (CRC)
- Transmitting: Radio f = 433/868 MHz, 16 different frequencies
- RF-Power: 10 mW; range: 50 m in open field
- Integrated data protection by checksum 16 Bit CRC
- Special for big shafts
- Special for train application
- Special for hard environment

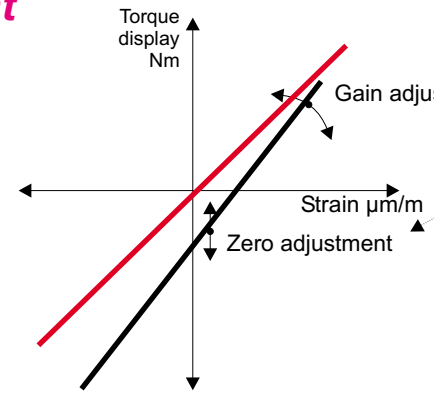
Option RMC Sensortelemetry

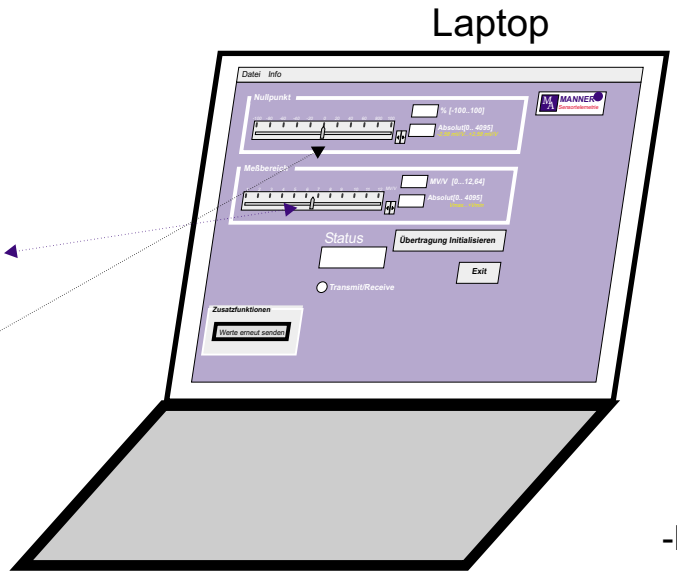
For initial remote setup of the of strain gage application at installation



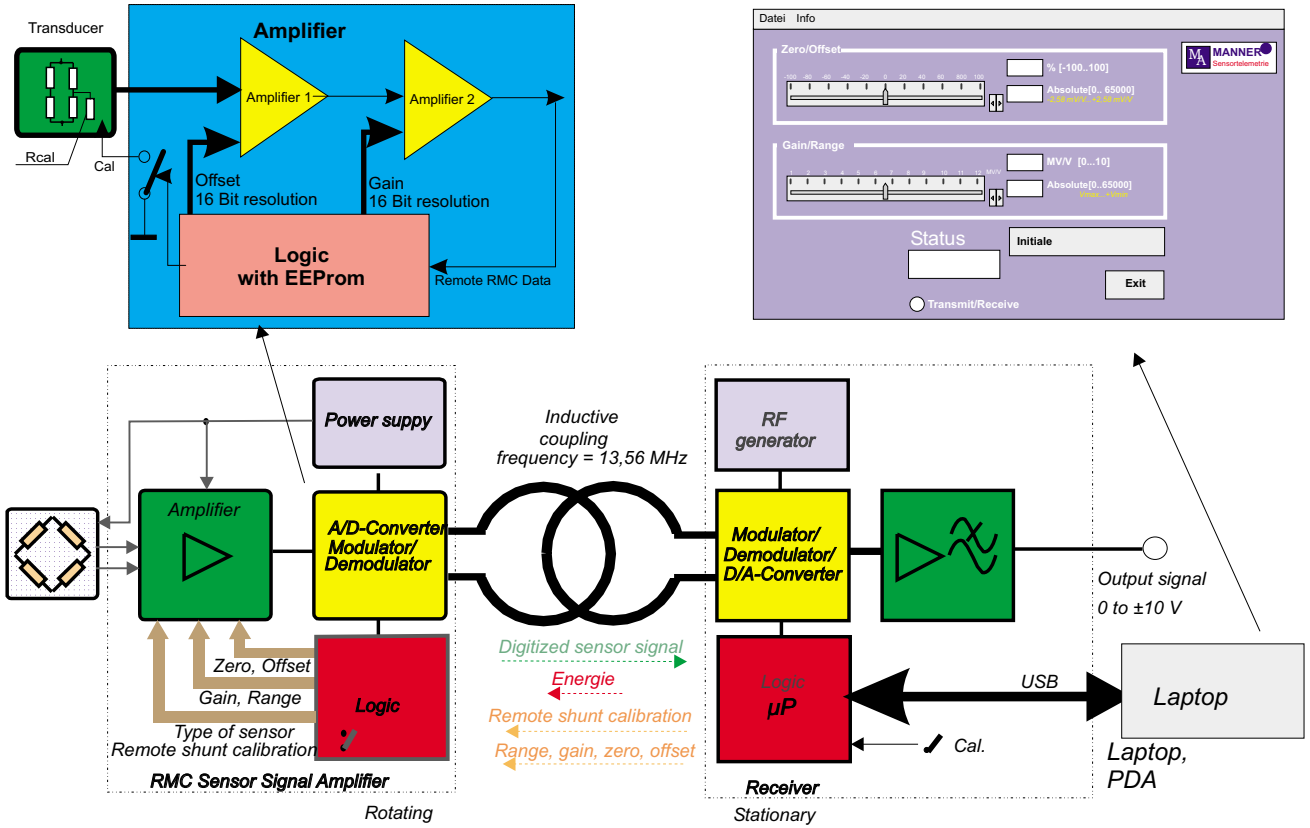
Auto zero,
Adjusting tolerances in zero point
Adjusting tolerances in gain

Remote online re-conditioning without opening of the amplifier





How does RMC Sensortelemetry work?



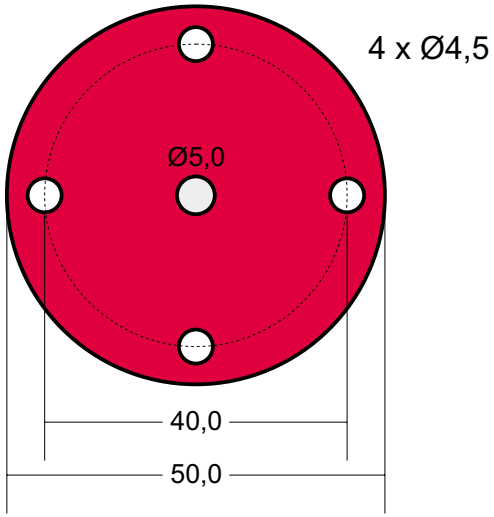
The control data for gain and zero will be online transferred via the telemetry channel

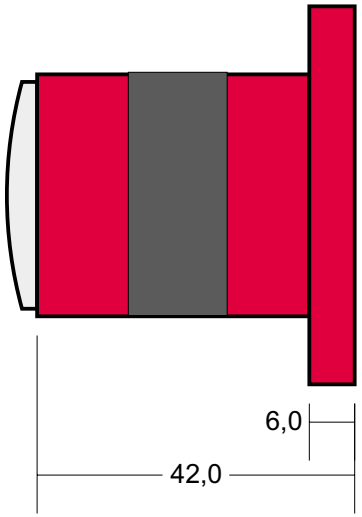
Features:

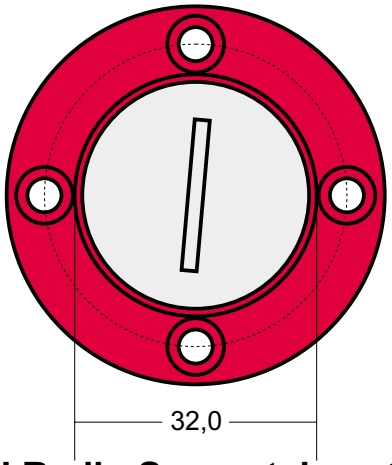
* *Remote high resolution adjustment (16 Bit) of gain, range (0,05 to 10 mV/V)*
* *Auto zero*
* *Remote high resolution adjustment (16 Bit) of zero, offset (±500% from the adjusted range)*
* *Digitizing of sensor signal with 16 Bit resolution inside the sensor signal amplifier*
* *Integrated sensor signal amplifier for direct interface of strain gage:*
  Standard: strain gage, PT100
  Option: Thermocouple, piezo electric, ICP, LVDT
* *Remote shunt calibration (option)*
* *Integrated power supply for transducer and amplifier*
* *Very small zero/gain drift: 0,003 %/°C*
* *Very good linearity: <0,003 %*
* *Environment temperature: -25 to +125°C (-45 to +120°C option)*
* *Protektion: IP67*
* *Integrated speed sensor (option)*
* *Serial interface USB, direct control of gain and auto zero by Laptop, PDA*

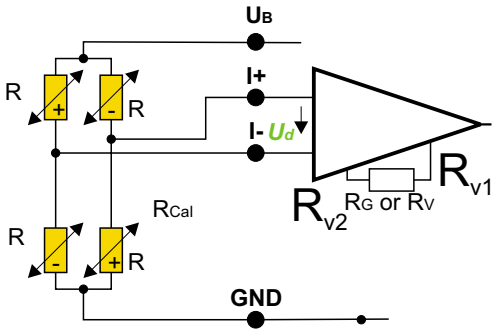
Radio-Sensortelemetry Components

Sensor Signal Amplifier Type 2
End of shaft







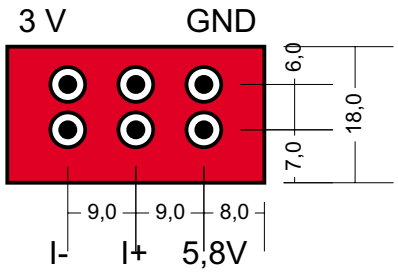


1 Channel Radio Sensortelemetry transmitter

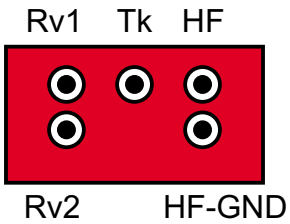
- For strain gage, PT100, Thermocouple
- Sensitivity: 0,02 to 20 mV/V
- Bandwidth (10 Hz / 0 Hz to 1 kHz
- Brigde supply: 3 V
- Strain gage: 350 Ω
- Transmission: Radio Sensortelemetry PCM
- Integrated filter
- Resolution: 14 Bit (16 Bit)
- Drift zero: 0,02 (0,01, 0,005 option)
- Supply: 3,3 to 12 V, 50 mA
- Remote range control, auto zero (option)
- Environmental temperature: -25 to +85°C (120°C)
- Max load: 1 000 g (depends on fixing)
- Type: SV_2_<bandwidth>_<accuracy>_<temp>_<mod>_F

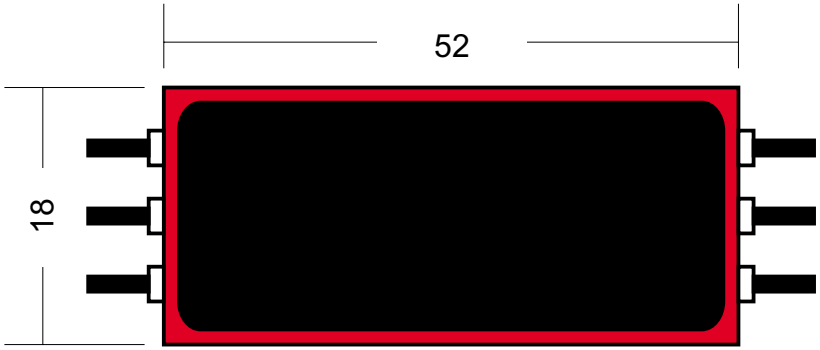
1 kHz	0,02	85	PCM12
	0,01	120	PCM16
	0,005		

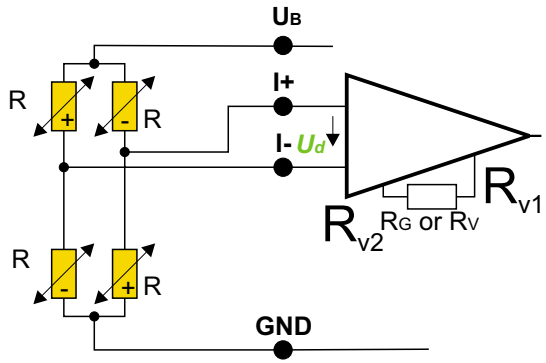
Sensor Signal Amplifier Type 3C



Weight: about 12g







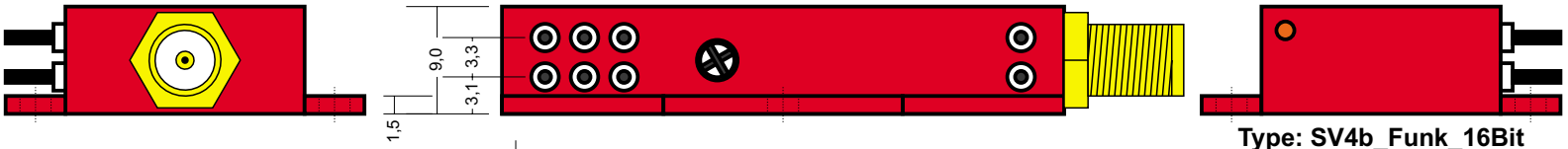
1 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple
Sensitivity: 0,02 to 20 mV/V
Bandwidth (10 Hz / 0 Hz to 1 kHz
Brigde supply: 3 V
Strain gage: 350 Ω
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Drift zero: 0,02 (0,01, 0,005 option)
Supply: 3,3 to 12 V, 50 mA
Remote range control, auto zero (option)
Environmental temperature: -25 to +85°C (120°C)
Max load: 1 000 g (depends on fixing)
Type: SV_3c_<bandwidth>_<accuracy>_<temp>_<mod>_F

1 kHz	0,02	85	PCM12
	0,01	120	PCM16
	0,005		

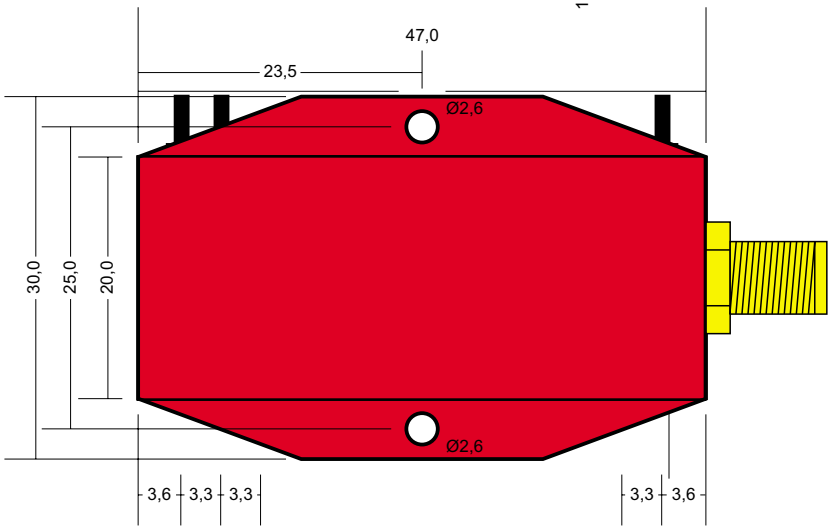
MANNER® Sensortelemetrie

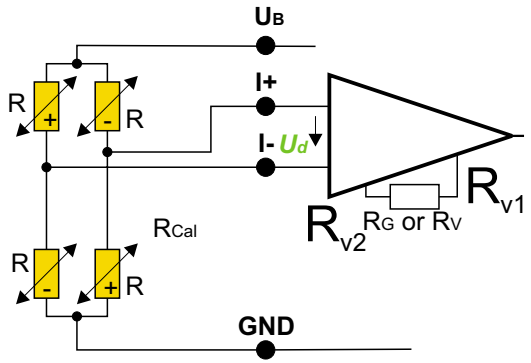
Sensor Signal Amplifier Type 4B



Type: SV4b_Funk_16Bit

Weight: about 12g



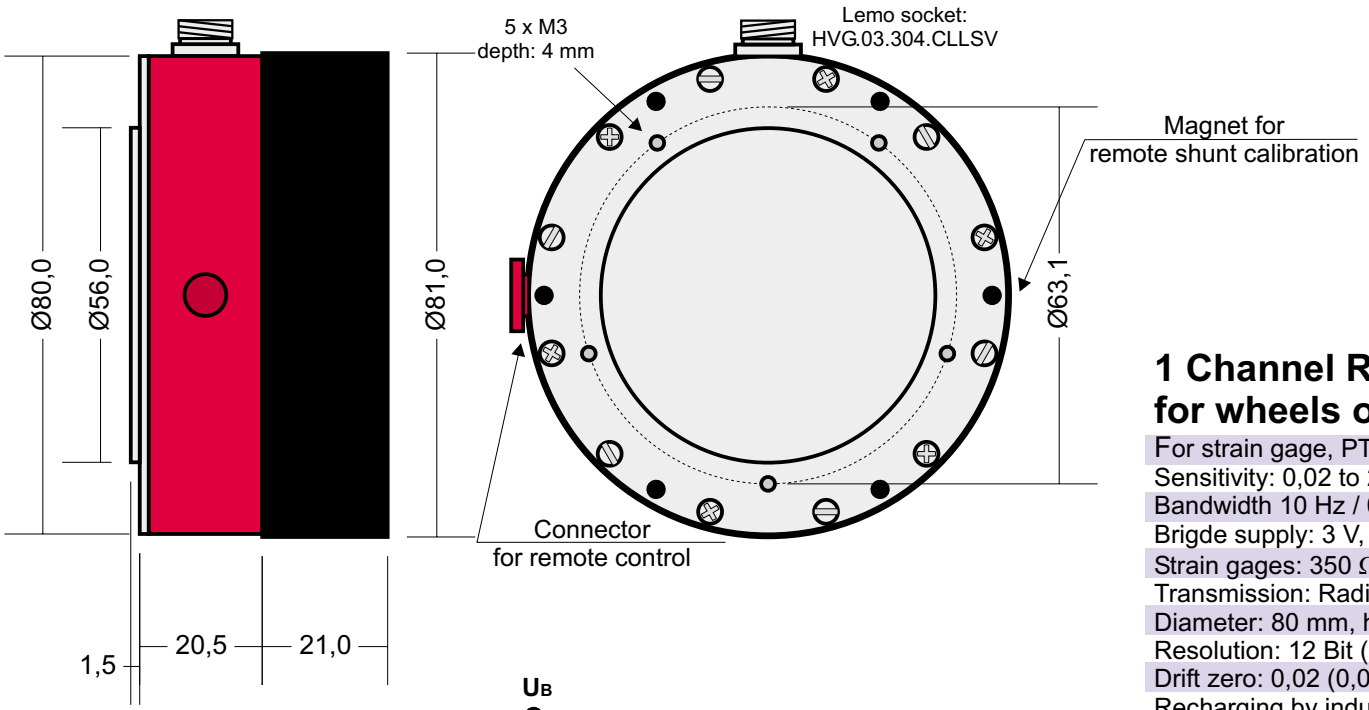


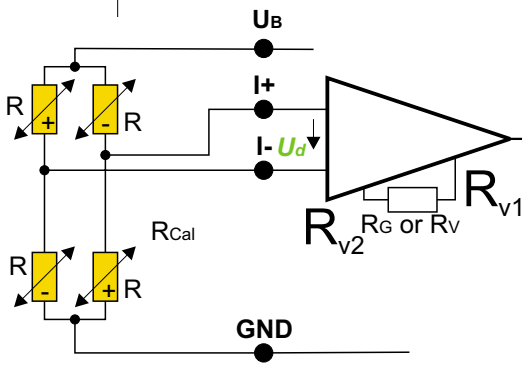
1 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple
Sensitivity: 0,02 to 20 mV/V
Bandwidth 10 Hz / 0 Hz to 1 kHz
Brigde supply: 3 V
Strain gage: 350 Ω
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Drift zero: 0,02 (0,01, 0,005 option)
Supply: 3,3 to 12 V, 50 mA
Remote range control, auto zero (option)
Environmental temperature: -25 to +85°C (120°C)
Max load: 1 000 g (depends on fixing)
Type: SV_4b_<bandwidth>_<accuracy>_<temp>_<mod>_F

1 kHz	0,02	85	PCM12
	0,01	120	PCM16
	0,005		

Sensor Signal Amplifier Type 5d

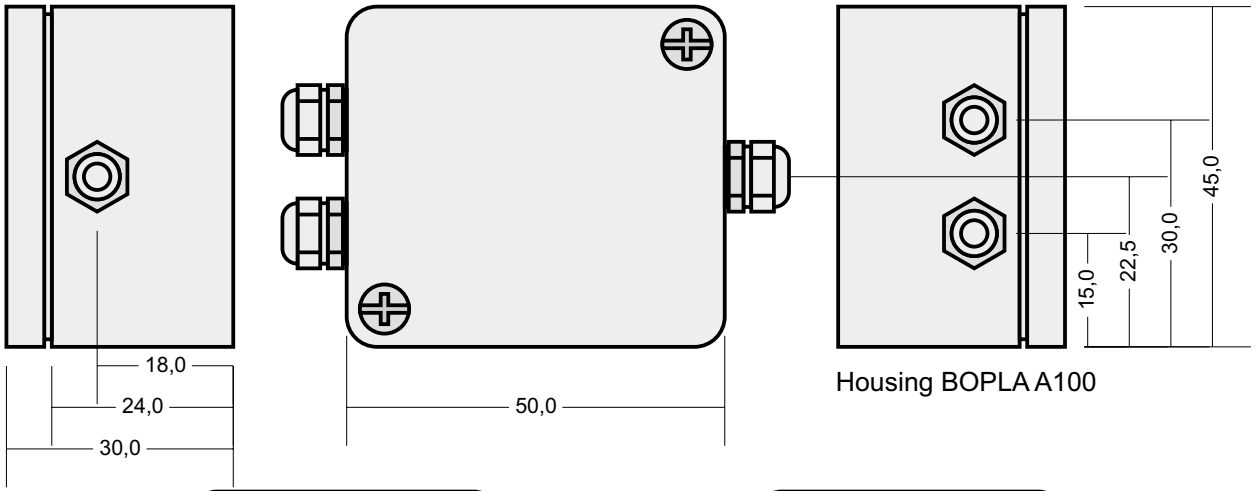




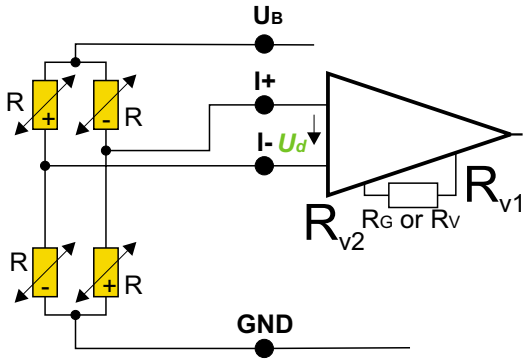
1 Channel Radio Sensortelemetry transmitter for wheels or end shaft applications

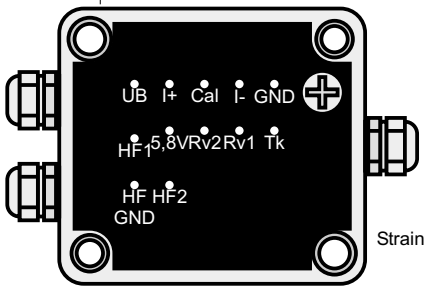
For strain gage, PT100, Thermocouple			
Sensitivity: 0,02 to 20 mV/V			
Bandwidth 10 Hz / 0 Hz to 1 kHz			
Brigde supply: 3 V, Accu rechargeable			
Strain gages: 350 Ω			
Transmission: Radio Sensortelemetry PCM			
Diameter: 80 mm, height: 43 mm			
Resolution: 12 Bit (16 Bit)			
Drift zero: 0,02 (0,01, 0,005 option)			
Recharging by inductive recharging cap (contactless)			
Operating time between recharging: 30 hours			
Activating by switch			
Remote range control, auto zero (option)			
Environmental temperature: -25 to +85°C (120°C)			
Protection: IP67			
Max load: 1 000 g (depends on fixing)			
Type: SV_5d_<bandwidth>_<accuracy>_<temp>_<mod>_F			
1 kHz	0,02	85	PCM12
	0,01	120	PCM16
	0,005		

Sensor Signal Amplifier Type 8



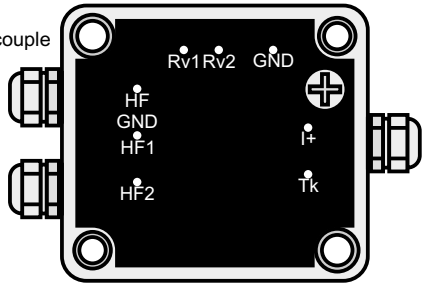
Housing BOPLA A100

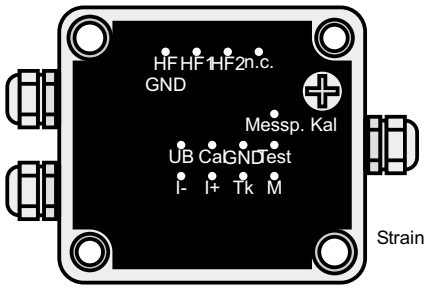




Strain Gage Bridge

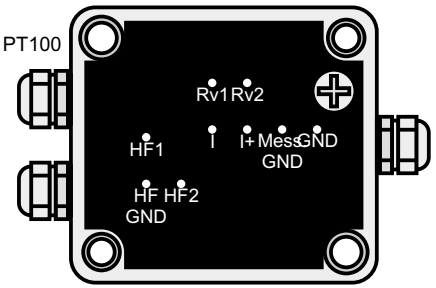
Thermocouple





Strain Gage Bridge

PT100

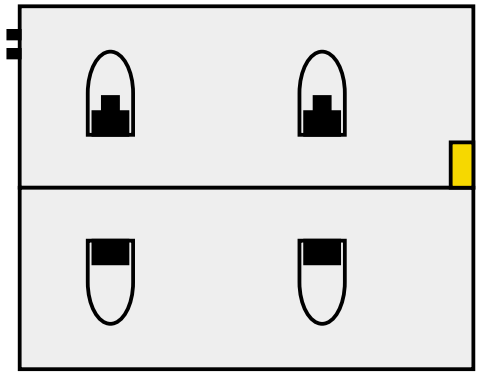


1 Channel Radio Sensortelemetry transmitter

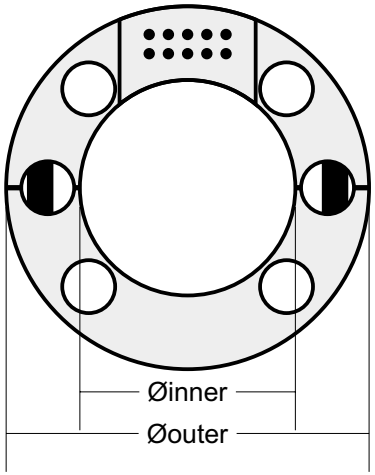
For strain gage, PT100, Thermocouple
Sensitivity: 0,02 to 20 mV/V
Bandwidth 10 Hz / 0 Hz to 1 kHz
Brigde supply: 3 V
Strain gages: 350 Ω
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Drift zero: 0,02 (0,01, 0,005 option)
Supply: 3,3 to 12 V, 50 mA
Remote range control, auto zero (option)
Environmental temperature: -25 to +85°C (120°C)
Max load: 1 000 g (depends on fixing)
Type: SV_8_<bandwidth>_<accuracy>_<temp>_<mod>_F

1 kHz	0,02	85	PCM12
	0,01	120	PCM16
	0,005		

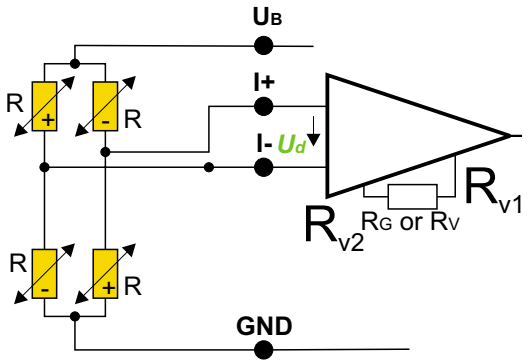
Sensor Signal Amplifier Type 9



Inner diameter: 17 to 50mm
Outer diameter = Inner diameter + 20mm



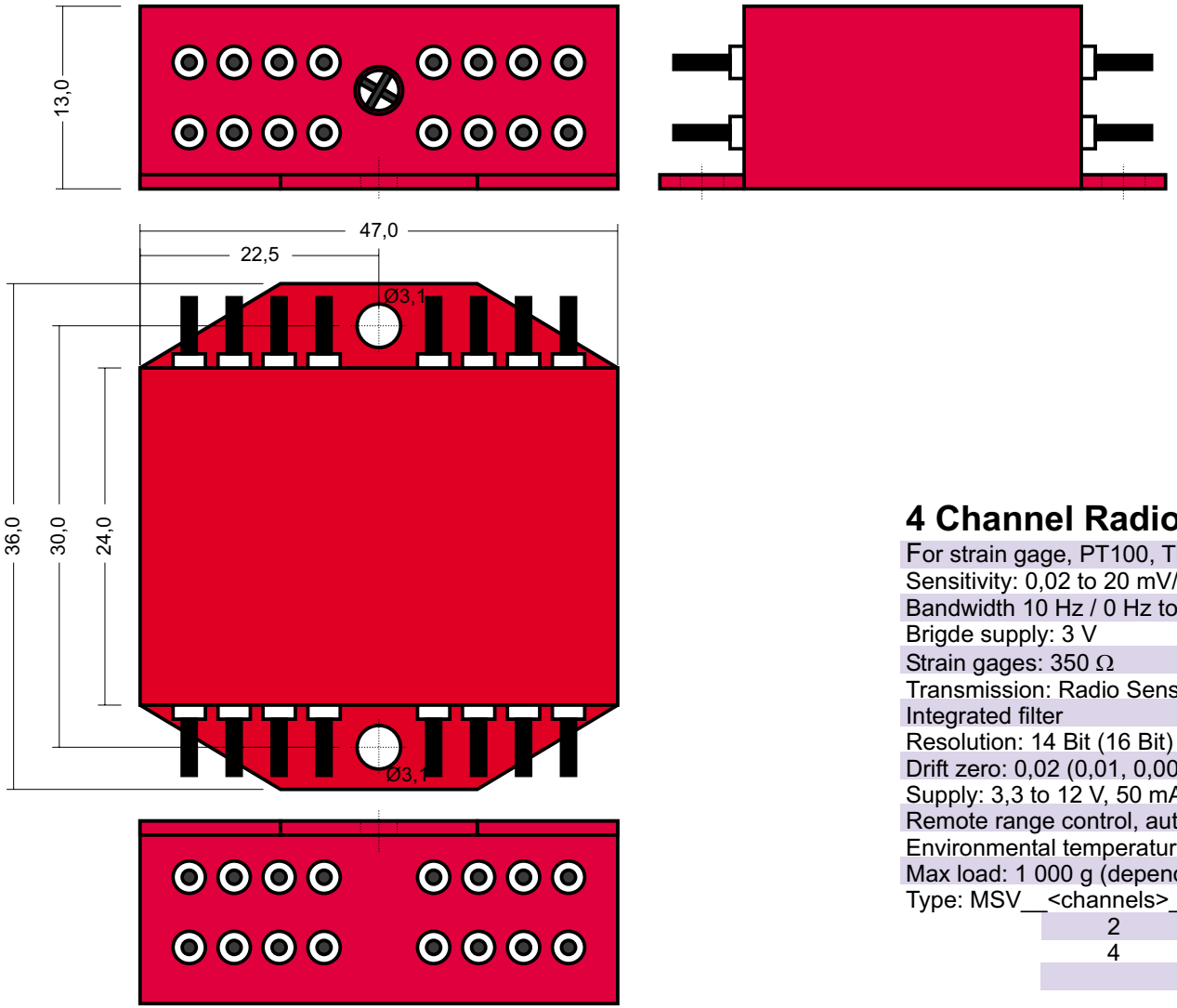
Through hole
Ø = 7mm for weight reduction



1 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple			
Sensitivity: 0,02 to 20 mV/V			
Bandwidth 10 Hz / 0 Hz to 1 kHz			
Brigde supply: 3 V			
Strain gages: 350 Ω			
Transmission: Radio Sensortelemetry PCM			
Integrated filter			
Resolution: 14 Bit (16 Bit)			
Drift zero: 0,02 (0,01, 0,005 option)			
Supply: 3,3 to 12 V, 50 mA			
Remote range control, auto zero (option)			
Environmental temperature: -25 to +85°C (120°C)			
Max load: 1 000 g (depends on fixing)			
Type: SV_8_<bandwidth>_<accuracy>_<temp>_<mod>_F			
1 kHz	0,02	85	PCM12
	0,01	120	PCM16
	0,005		

2/4 Channel Radio Sensortelemetry Amplifier



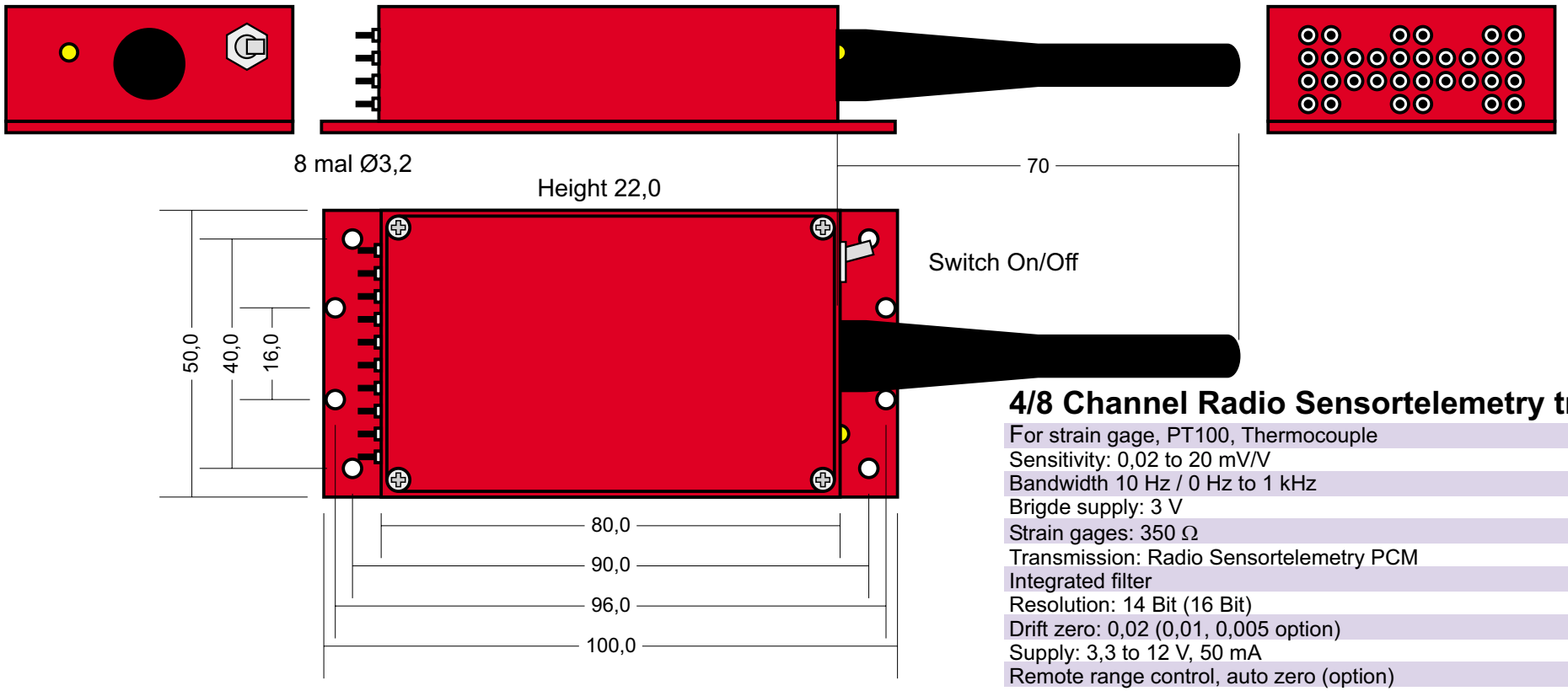
4 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple
Sensitivity: 0,02 to 20 mV/V
Bandwidth 10 Hz / 0 Hz to 1 kHz
Brigde supply: 3 V
Strain gages: 350 Ω
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Drift zero: 0,02 (0,01, 0,005 option)
Supply: 3,3 to 12 V, 50 mA
Remote range control, auto zero (option)
Environmental temperature: -25 to +85°C (120°C)
Max load: 1 000 g (depends on fixing)
Type: MSV__<channels>_<bandwidth>_<accuracy>_<temp>_<Mod>_F

2	1 kHz	0,02	85	PCM12
4		0,01	120	PCM16
		0,005		

MANNER® Sensortelemetrie

4/8 Channel Sensor Signal Amplifier Type 4



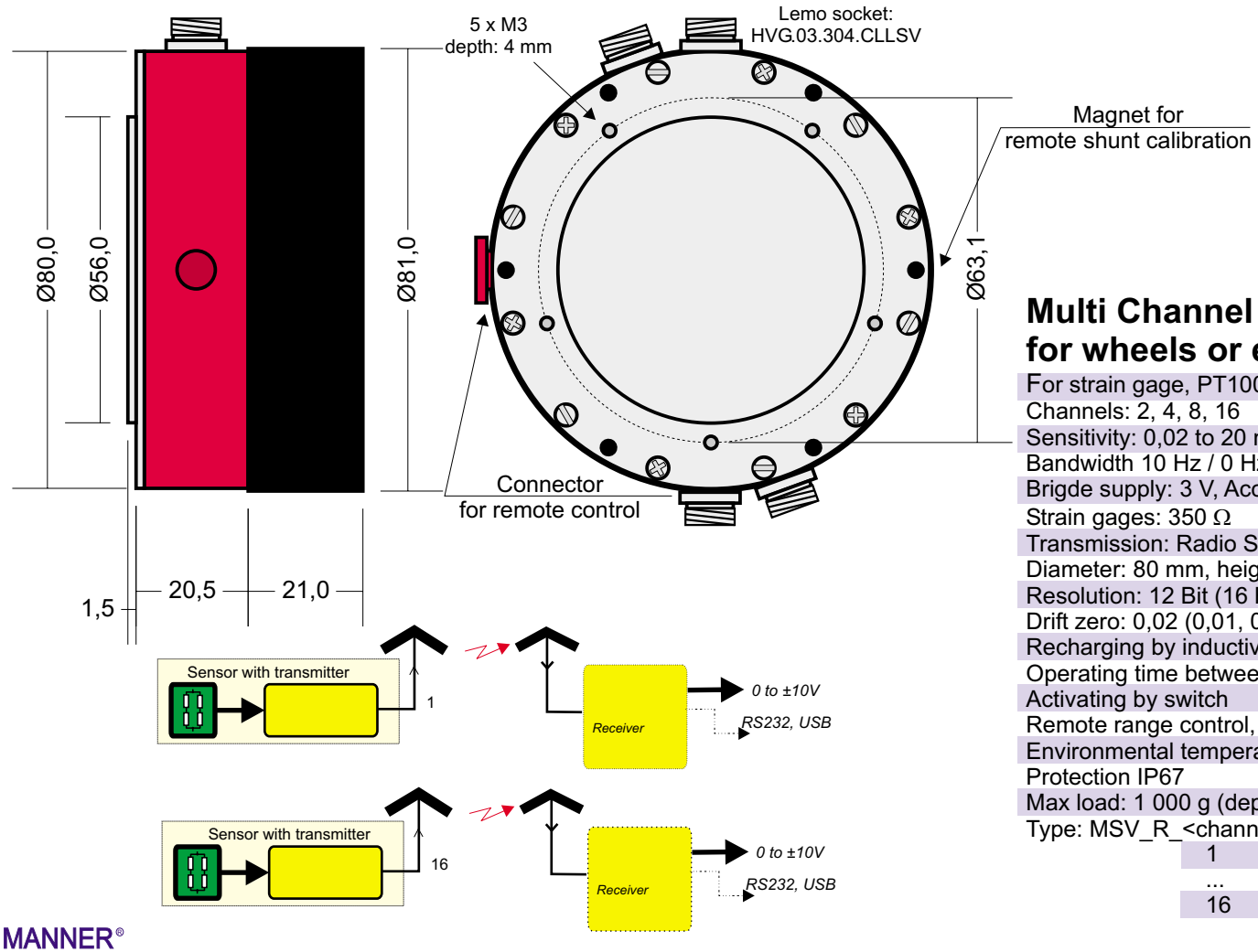
Supply voltage supervision
LED on --> supply voltage ≥3,6 V
LED off --> supply voltage <3,6 V

4/8 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple
Sensitivity: 0,02 to 20 mV/V
Bandwidth 10 Hz / 0 Hz to 1 kHz
Brigde supply: 3 V
Strain gages: 350 Ω
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Drift zero: 0,02 (0,01, 0,005 option)
Supply: 3,3 to 12 V, 50 mA
Remote range control, auto zero (option)
Environmental temperature: -25 to +85°C (120°C)
Max load: 1 000 g (depends on fixing)
Type: MSV__<channels>_<bandwidth>_<accuracy>_<temp>_<Mod>_F

2	1000 Hz	0,02	85	PCM12
4	500 Hz	0,01	120	PCM16
8	300 Hz	0,005		

Sensor Signal Amplifier Type MSV_R



Multi Channel Radio Sensortelemetry transmitter for wheels or end shaft applications

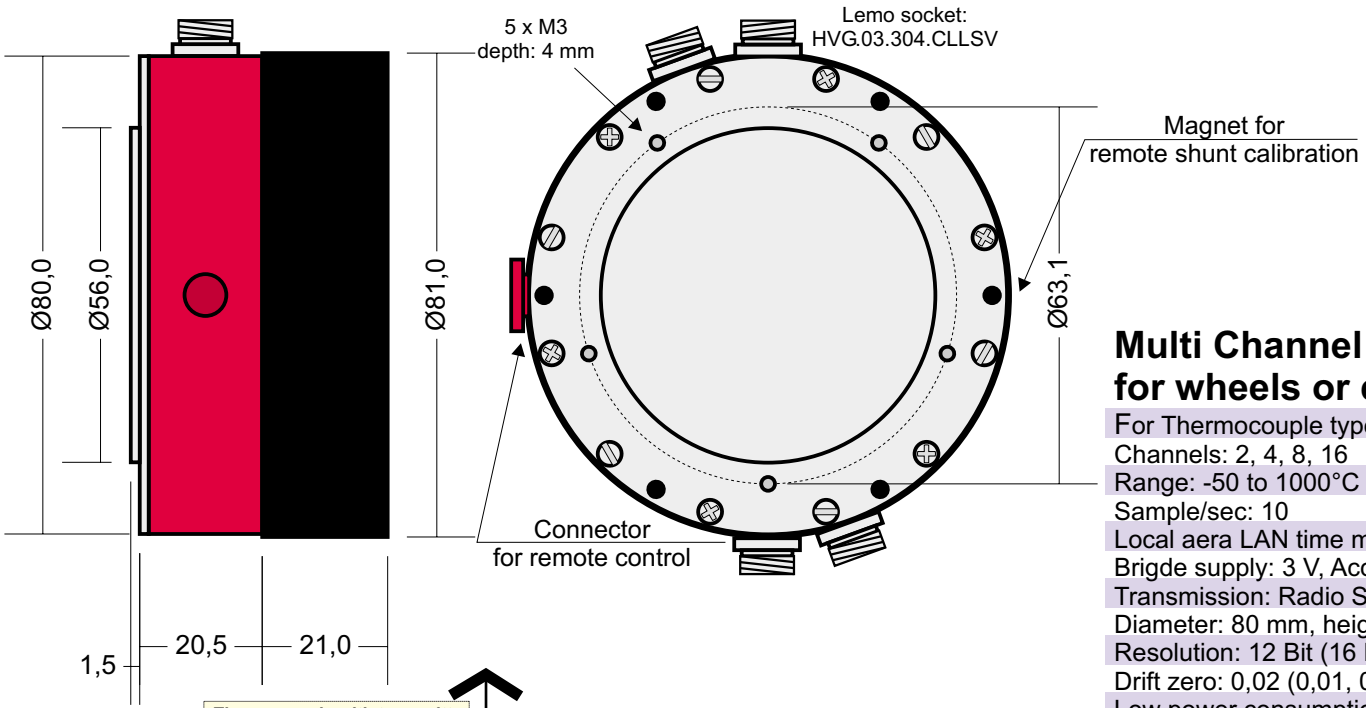
For strain gage, PT100, Thermocouple
Channels: 2, 4, 8, 16
Sensitivity: 0,02 to 20 mV/V
Bandwidth 10 Hz / 0 Hz to 1 kHz
Brigde supply: 3 V, Accu rechargeable
Strain gages: 350 Ω
Transmission: Radio Sensortelemetry PCM
Diameter: 80 mm, height: 43 mm
Resolution: 12 Bit (16 Bit)
Drift zero: 0,02 (0,01, 0,005 option)
Recharging by inductive recharging cap (contactless)
Operating time between recharging. 30 hours
Activating by switch
Remote range control, auto zero (option)
Environmental temperature: -25 to +85°C (120°C)
Protection IP67
Max load: 1 000 g (depends on fixing)
Type: MSV_R_<channels>_<bandwidth>_<accuracy>_<temp>_<mod>_F

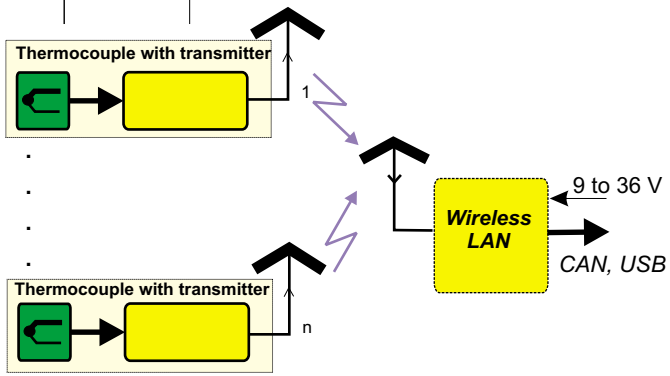
1	10 Hz	0,02	85	PCM12
...	...	0,01	120	PCM16
16	1kHz	0,005		

MANNER® Sensortelemetrie

Sensor Signal Amplifier Type MSV_R

special for temperature aquisition at wheels





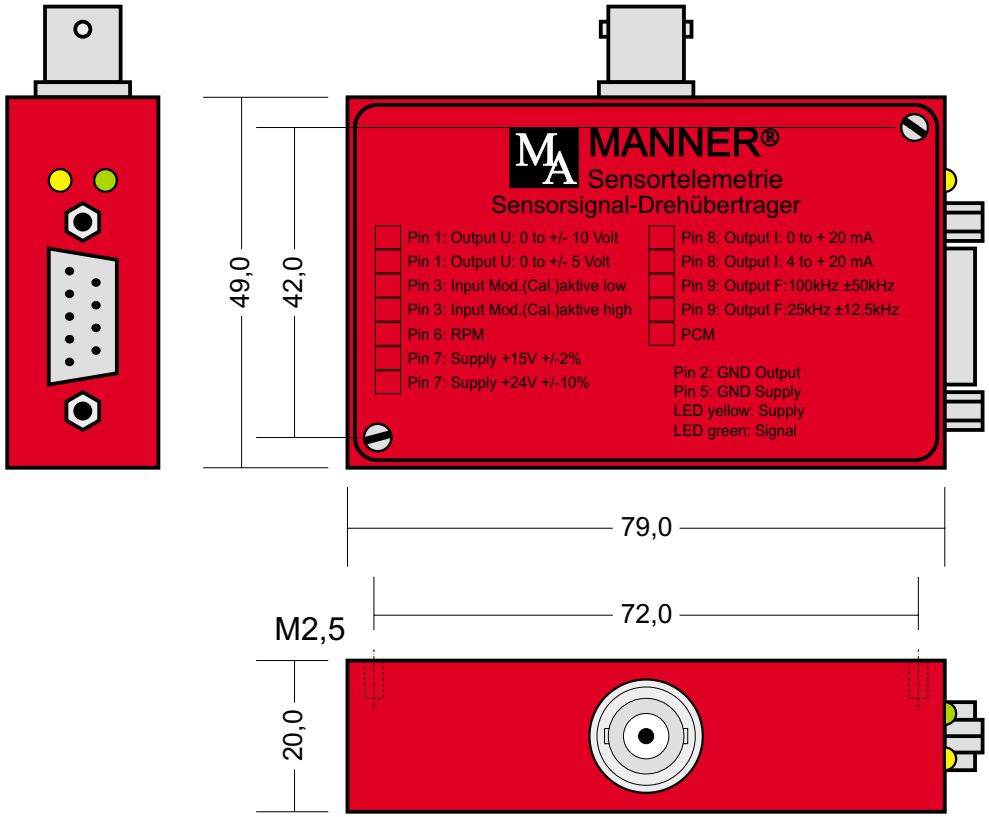
Multi Channel Radio Sensortelemetry transmitter for wheels or end shaft applications

- For Thermocouple type K
- Channels: 2, 4, 8, 16
- Range: -50 to 1000°C
- Sample/sec: 10
- Local aera LAN time multiplex (one frequency
- Brigde supply: 3 V, Accu rechargeable
- Transmission: Radio Sensortelemetry PCM
- Diameter: 80 mm, height: 43 mm
- Resolution: 12 Bit (16 Bit)
- Drift zero: 0,02 (0,01, 0,005 option)
- Low power consumption, operating time between recharging. 150 hours
- Recharging by inductive recharging cap (contactless)
- Activating by switch
- Environmental temperature: -25 to +85°C (120°C)
- Protection IP68
- Max load: 1 000 g (depends on fixing)
- Type: MSV_R_<channels>_<sample>_<range>_<temp>_<mod>_F

1	0,1/s	0,02	85	PCM12
...	1/s	0,01	120	PCM16
16	10/s	0,005		

MANNER® Sensortelemetrie

Receiver (AW_D)



Pin Assignment

of the D-Sub connector

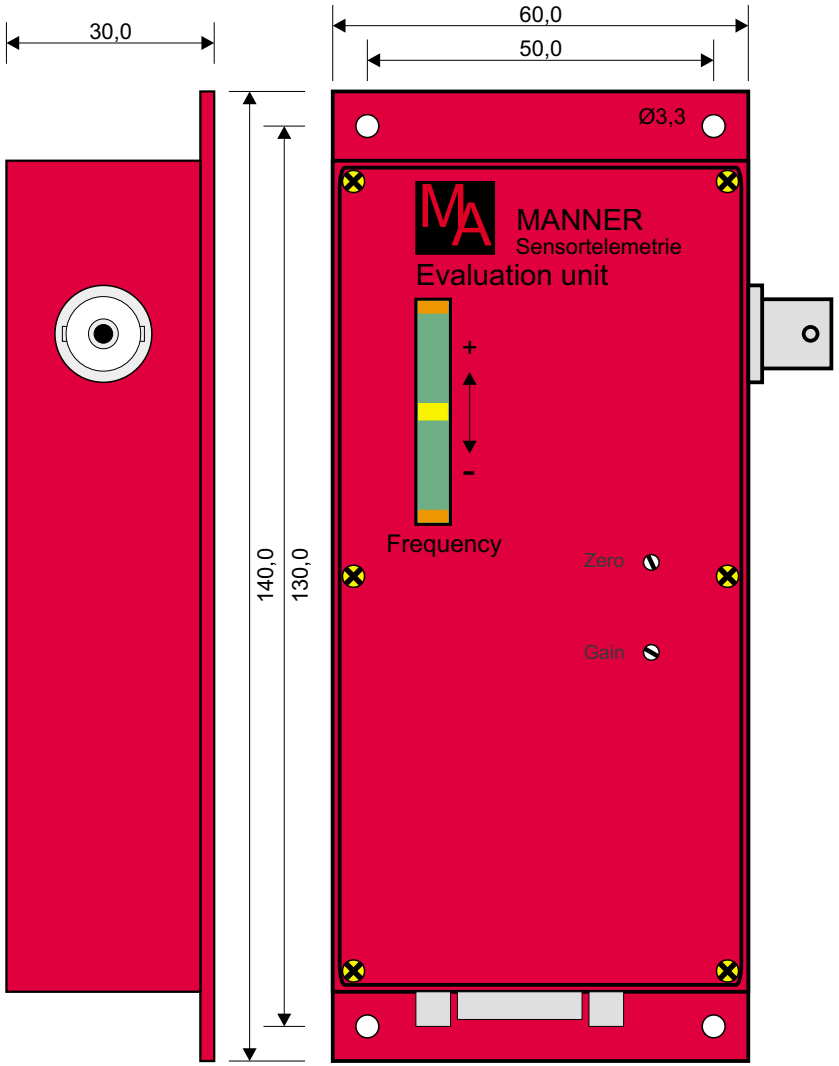
Pin 1	Output -10V to +10V
Pin 2	GND Output
Pin 3	do not connect
Pin 4	do not connect
Pin 5	GND Power Supply
Pin 6	do not connect
Pin 7	Power Supply 24 VDC ±10%
Pin 8	do not connect
Pin 9	do not connect

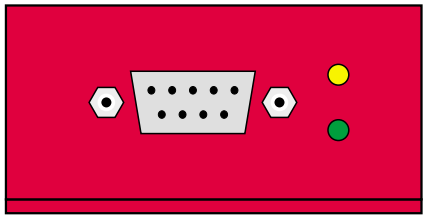
1 Channel Radio Sensortelemetry Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V (0(4) to 20 mA, frequency, binary, USB)
RF frequency: 433 MHz
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 12 Bit (16 Bit)
Environmental temperature: -25 to +85°C (-45 to +85°C)
Supply: 24 V (±5%), 15 V (±2%), 9 to 36 V (board supply)
Type: AW_D_<bandwidth>_<supply>_<output>_<RF-power>_<mod>_F

1 kHz	15	U	1W	PCM
	24	I	3W	
	24V			
		B		
		USB		

Evaluation Unit (AW_M)





Pin Assignment

of the D-Sub connector

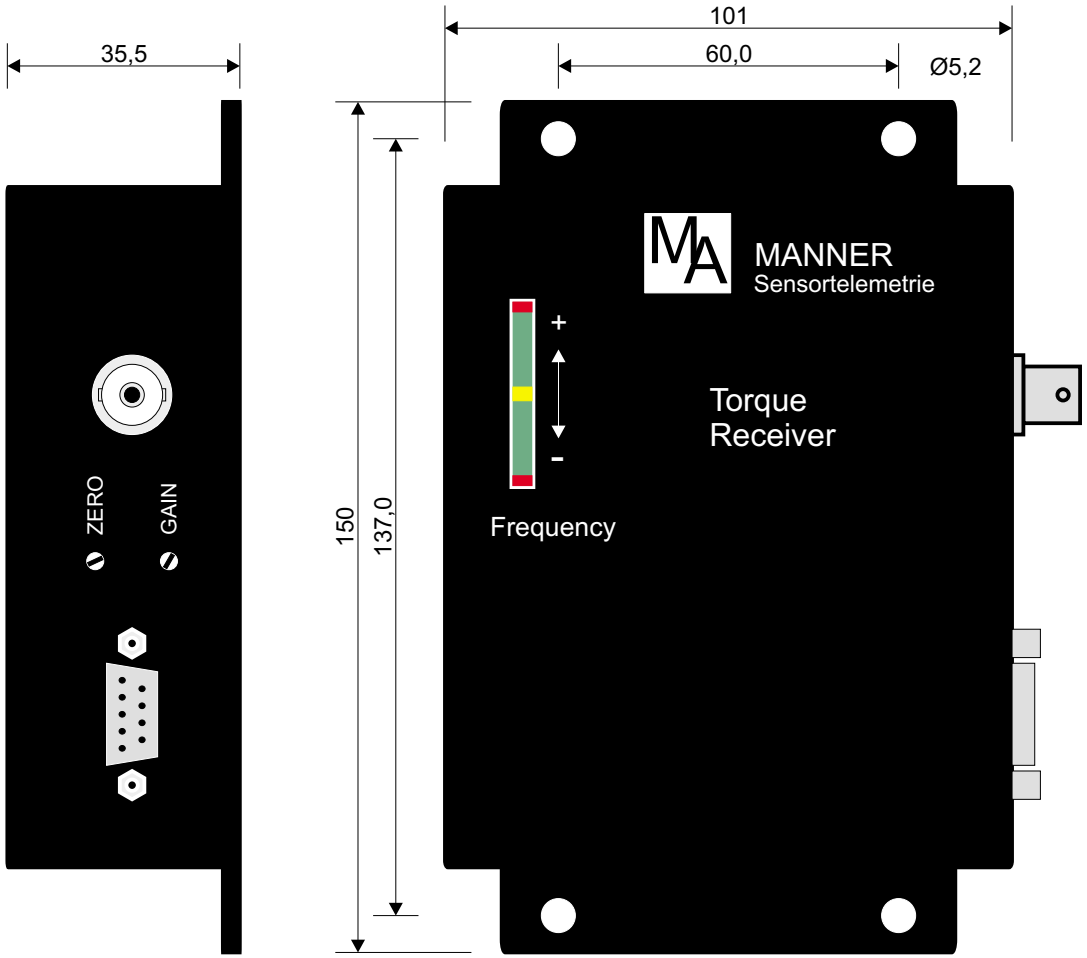
Pin 1	Output -10V to +10V
Pin 2	GND Output
Pin 3	do not connect
Pin 4	do not connect
Pin 5	GND Power Supply
Pin 6	do not connect
Pin 7	Power Supply 24 VDC ±10%
Pin 8	do not connect
Pin 9	do not connect

1 Channel Radio Sensortelemetry Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V (0(4) to 20 mA, frequency, binary, USB)
RF frequency: 433 MHz
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 12 Bit (16 Bit)
Environmental temperature: -25 to +85°C (-45 to +85°C)
Supply: 24 V (±5%), 15 V (±2%), 9 to 36 V (board supply)
Type: AW_M_<bandwidth>_<supply>_<output>_<mod>_F

1 kHz	15	U	PCM12
	24	I	PCM16
	24V		
		B	
		USB	

Evaluation Unit (AW_P)



Pin Assignment

of the D-Sub connector

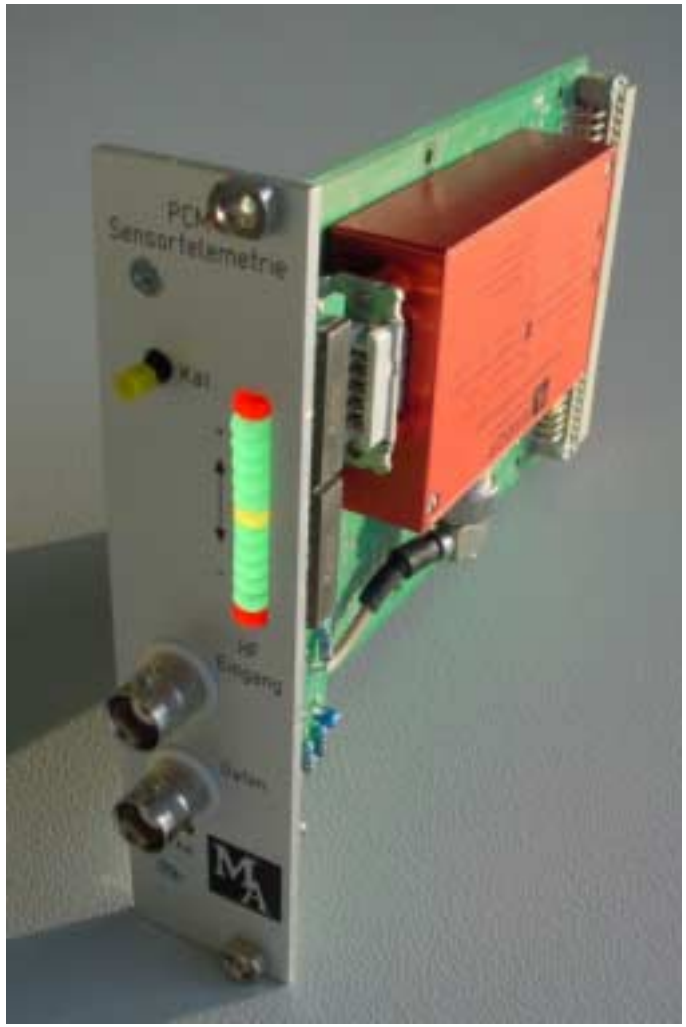
Pin 1	Output -10V to +10V
Pin 2	GND Output
Pin 3	do not connect
Pin 4	do not connect
Pin 5	GND Power Supply
Pin 6	do not connect
Pin 7	Power Supply 24 VDC ±10%
Pin 8	do not connect
Pin 9	do not connect

1/2 Channel Radio Sensortelemetry Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V (0(4) to 20 mA, frequency, binary, USB)
RF frequency: 433 MHz
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 12 Bit (16 Bit)
Environmental temperature: -25 to +85°C (-45 to +85°C)
Supply: 24 V (±5%), 15 V (±2%), 9 to 36 V (board supply)
Type: AW_P_<bandwidth>_<channels>_<supply>_<output>_<mod>_F

1 kHz	1	15	U	PCM12
	2	24	I	PCM16
		24V		
			B	
			USB	

Evaluation Unit (AW_ES)



1 Channel Radio Sensortelemetry Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V (0(4) to 20 mA, frequency, binary, USB)
RF frequency: 433 MHz
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 12 Bit (16 Bit)
Environmental temperature: -25 to +85°C (-45 to +85°C)
Supply: 24 V (±5%), 15 V (±2%), 9 to 36 V (board supply)
Type: AW_ES_<bandwidth>_<supply>_<output>_<mod>_F

1 kHz	15	U	PCM12
		I	PCM16

Evaluation Unit (84TE)

for example

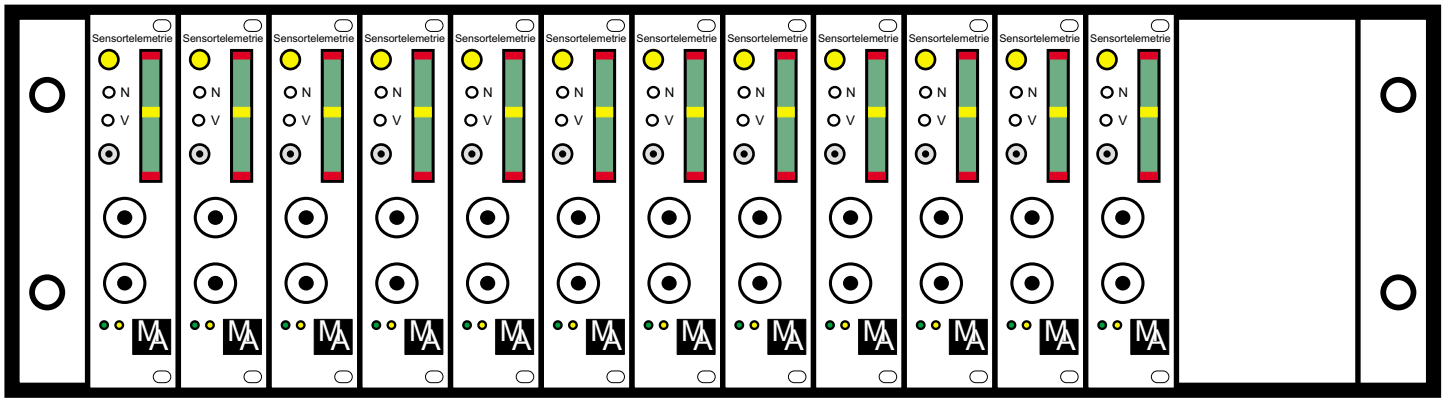
Front side

1/2/4/8/16/32 Channel FM/PCM Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V (0(4) to 20 mA, binary, USB)
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Remote shunt calibration
Environmental temperature: -25 to +65°C
Supply: 9 to 270 V AC, 9 to 36 V (board supply) DC
Type: AW_T_<bandwidth>_<channels>_<supply>_<output>_<mod>_F

1 kHz	1	230V	U	PCM12
	2	24V	I	PCM16
	4		B	
	8		USB	
	16			

Evaluation Unit (84TE)

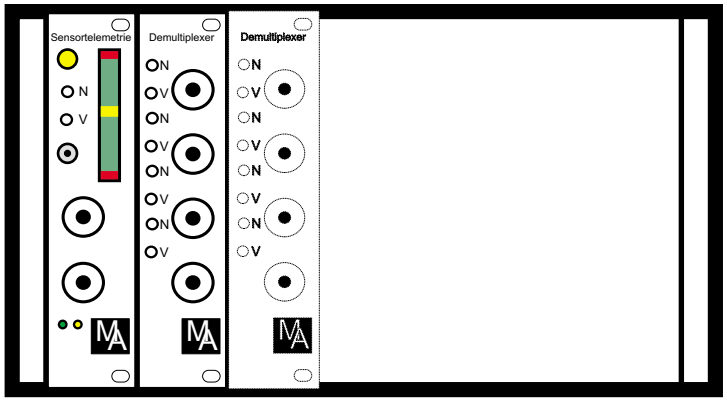


1/2/4/8 Channel PCM Receiver with Single Channels

Bandwidth: 0 to 1kHz
Output: ±10 V, (0(4) to 20 mA, binary, USB)
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 12 Bit (16 Bit)
Max. Plugin cards: 12 (single channels)
Environmental temperature: -25 to +65°C
Supply: 9 to 270 V AC, 9 to 36 V (board supply) DC
Type: AW_T_<bandwidth>_<channels>_<supply>_<output>_<mod>_F

1 kHz	1	230V	U	PCM12
	2	24V	I	PCM16
	4		B	
	8		USB	

Evaluation Unit (42TE)



for example

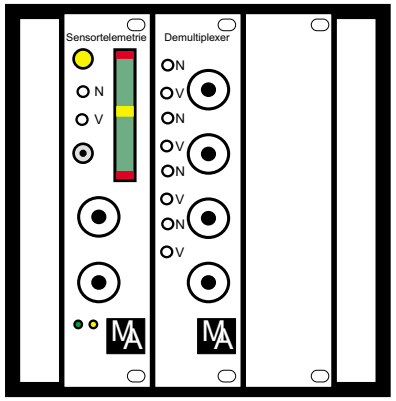
Front side

1/2/4/8 Channel PCM Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V, (0(4) to 20 mA, binary, USB)
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 12 Bit (16 Bit)
Remote shunt calibration
Environmental temperature: -25 to +65°C
Supply: 9 to 270 V AC, 9 to 36 V (board supply) DC
Type: AW_T_<bandwidth>_<channels>_<supply>_<output>_<mod>_F

1 kHz	1	230V	U	PCM12
	2	24V	I	PCM16
	4		B	
	8		USB	

Evaluation Unit (22TE)



for example

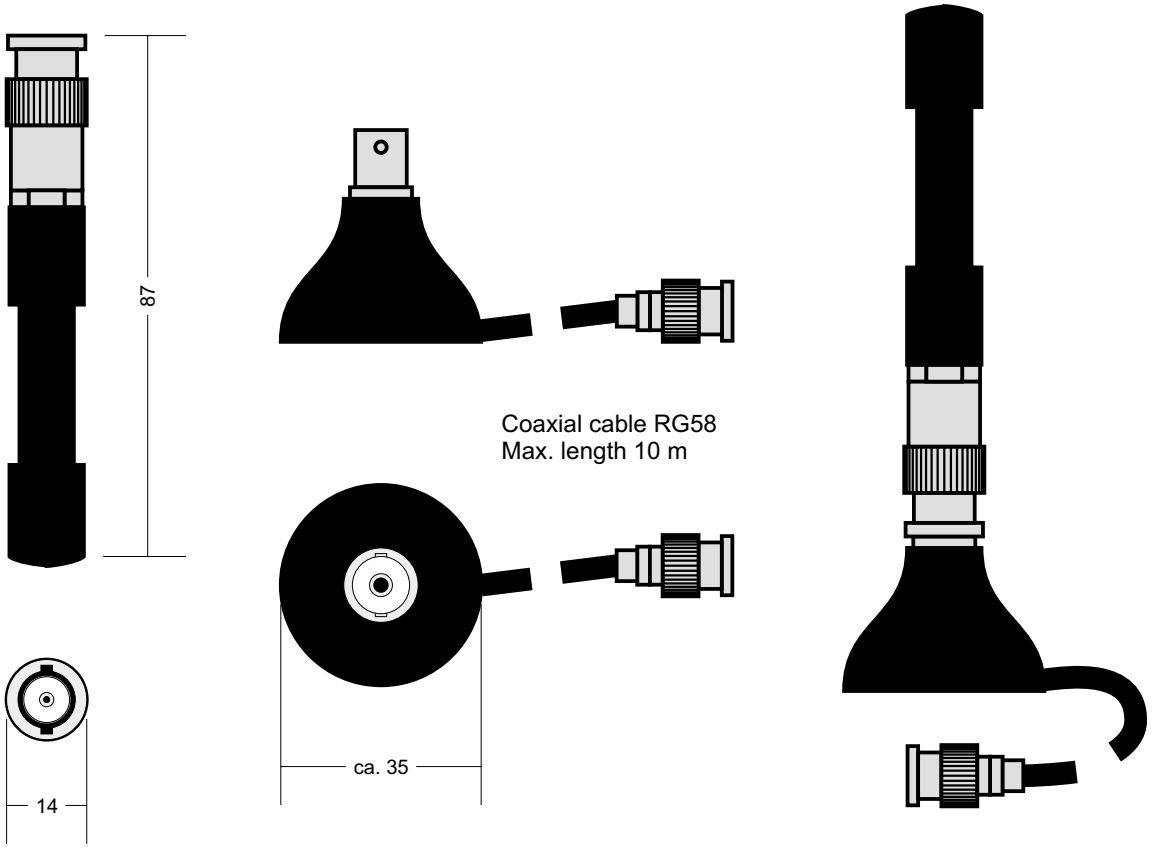
Front side

1/2/4 Channel FM/PCM Receiver

Bandwidth: 0 to 1kHz
Output: ±10 V, (0(4) to 20 mA, binary, USB)
Transmission: Radio Sensortelemetry PCM
Integrated filter
Resolution: 14 Bit (16 Bit)
Remote shunt calibration
Environmental temperature: -25 to +65°C
Supply: 9 to 270 V AC, 9 to 36 V (board supply) DC
Type: AW_T_<bandwidth>_<channels>_<supply>_<output>_<mod>_F

1 kHz	1	230V	U	PCM
	2	24V	I	
	4		B	
			USB	

Receiving / Transmitting Antenna with magnetic Foot



Feature

Frequency 433 MHz
Height: 87 mm
Magnic foot
Coax cable 50 W
Cable length: 5 m
Environmental temperature: -35 to +65°C
Type: Ant_<1>_F