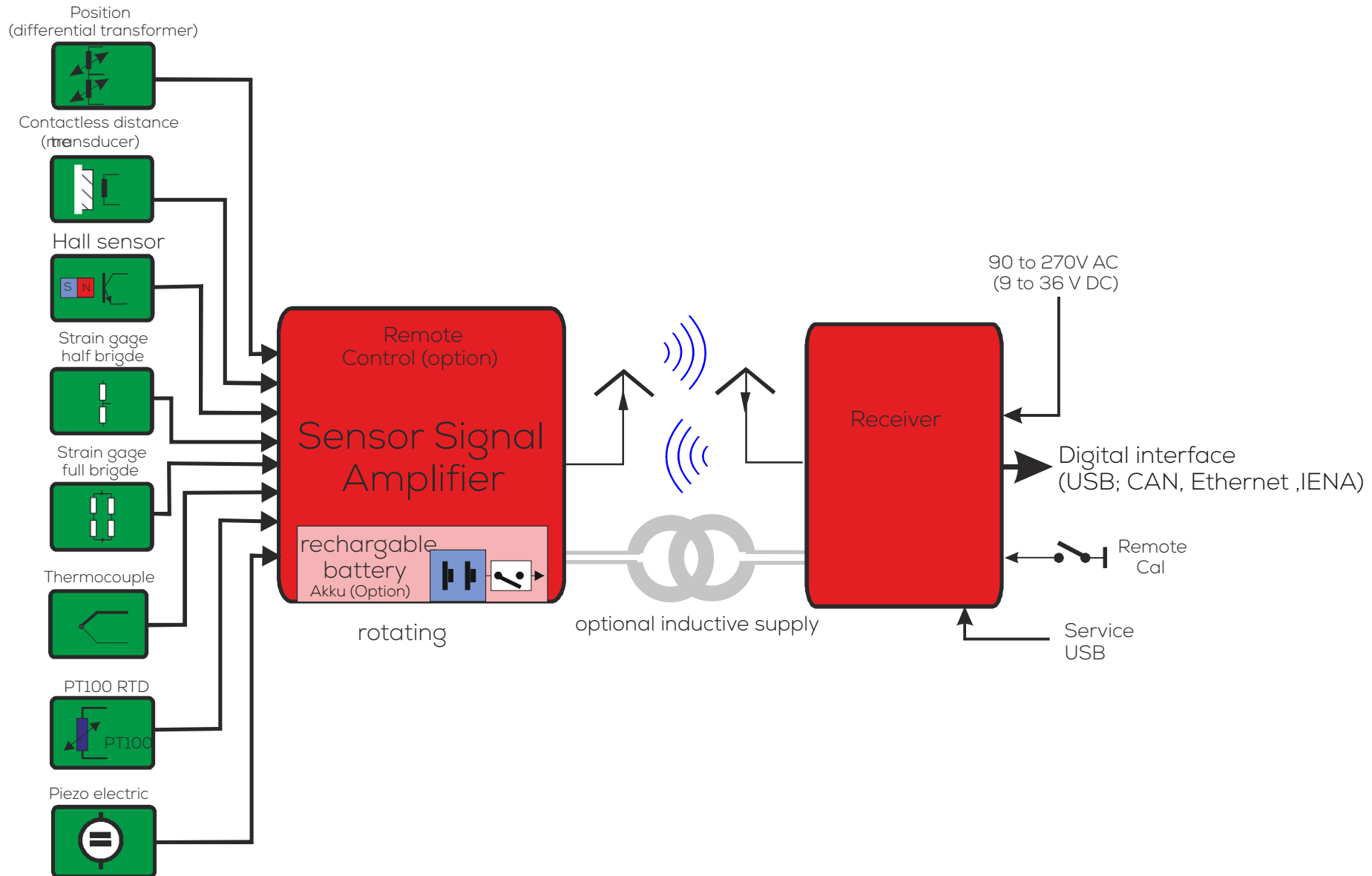
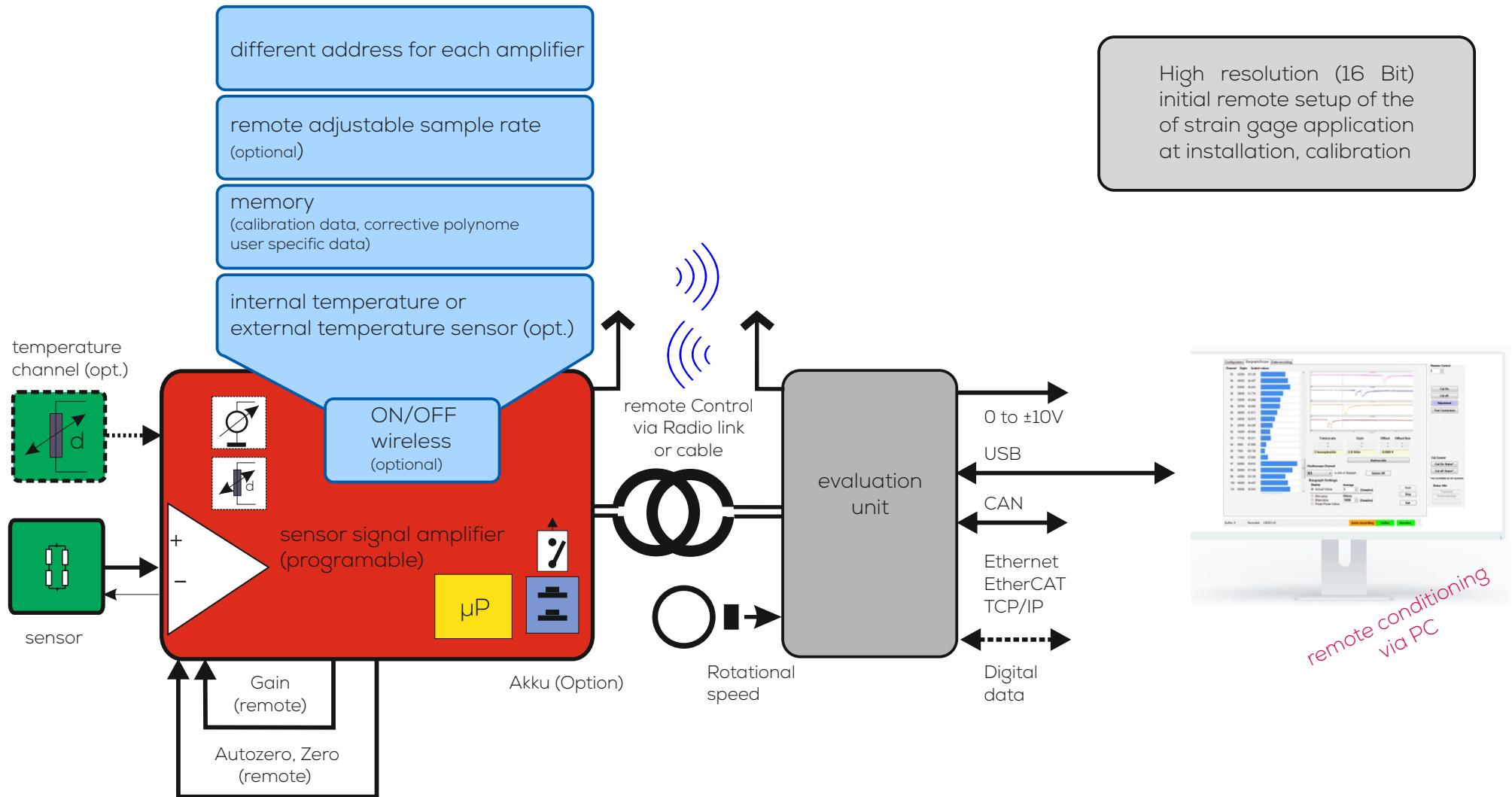


Configuration



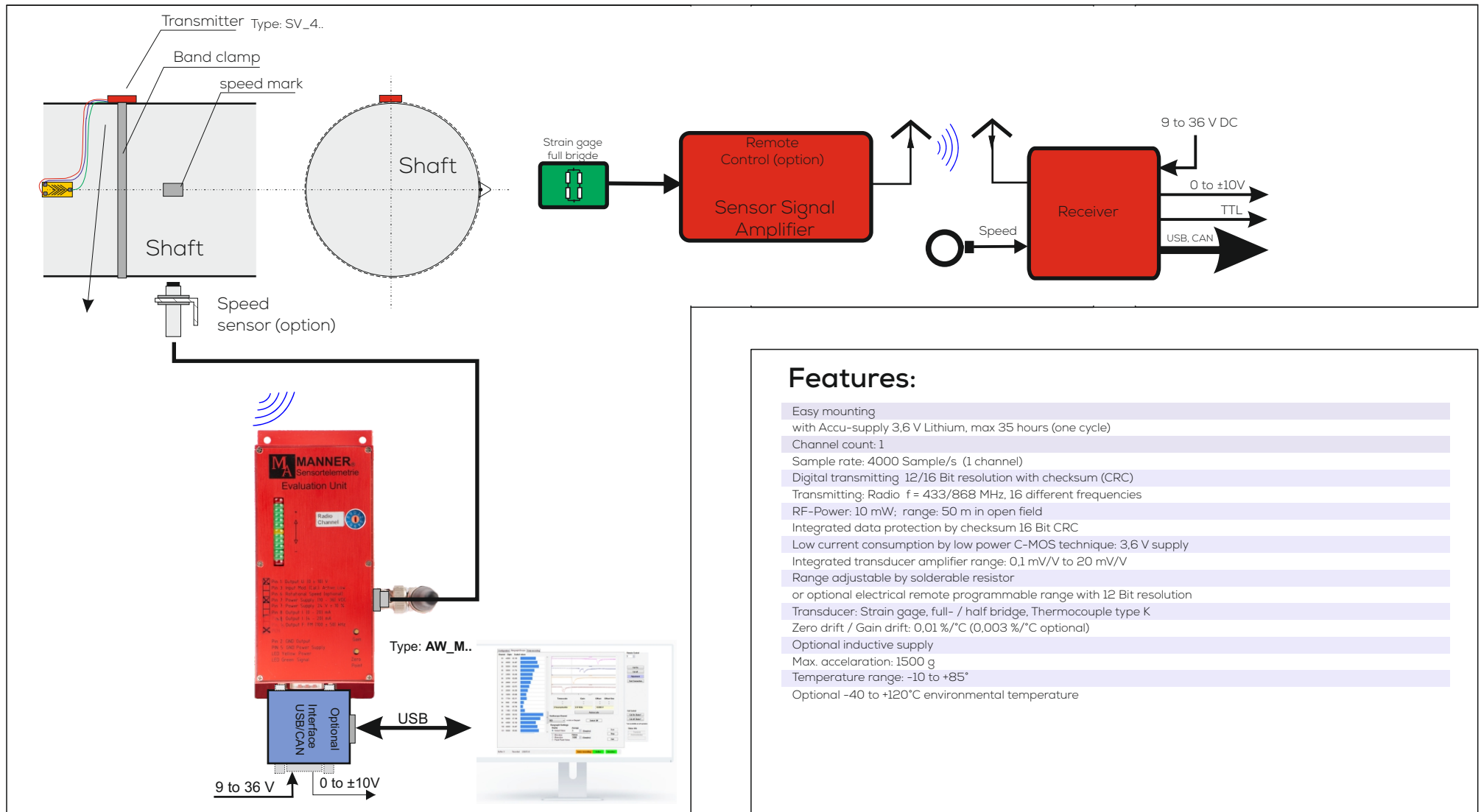
Short Description of Manner Wireless Sensor Telemetry



Remote controlled range (online via telemetry channel)

MANNER Radio Sensortelemetry

(flexible power meter)

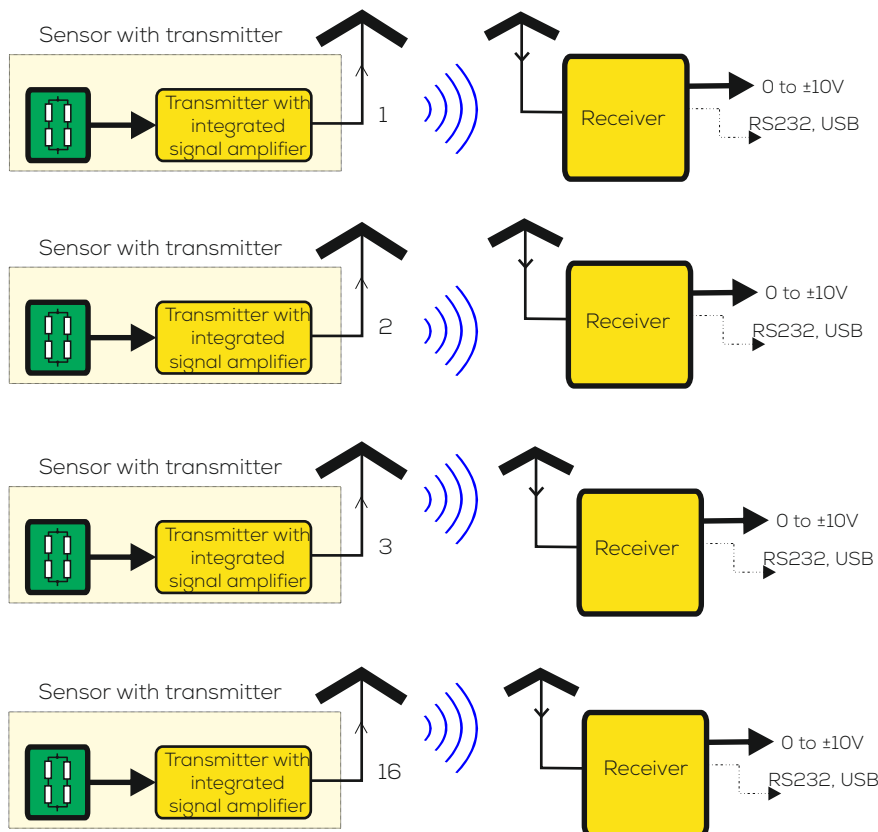


Features:

- Easy mounting
with Accu-supply 3,6 V Lithium, max 35 hours (one cycle)
- Channel count: 1
- Sample rate: 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
- Zero drift / Gain drift: 0,01 %/°C (0,003 %/°C optional)
- Optional inductive supply
- Max. acceleration: 1500 g
- Temperature range: -10 to +85°
- Optional -40 to +120°C environmental temperature

Multi Channel Radio Sensortelemetry

(separate frequencies, high bandwidth, point to point)



or



Type: SV_8_...

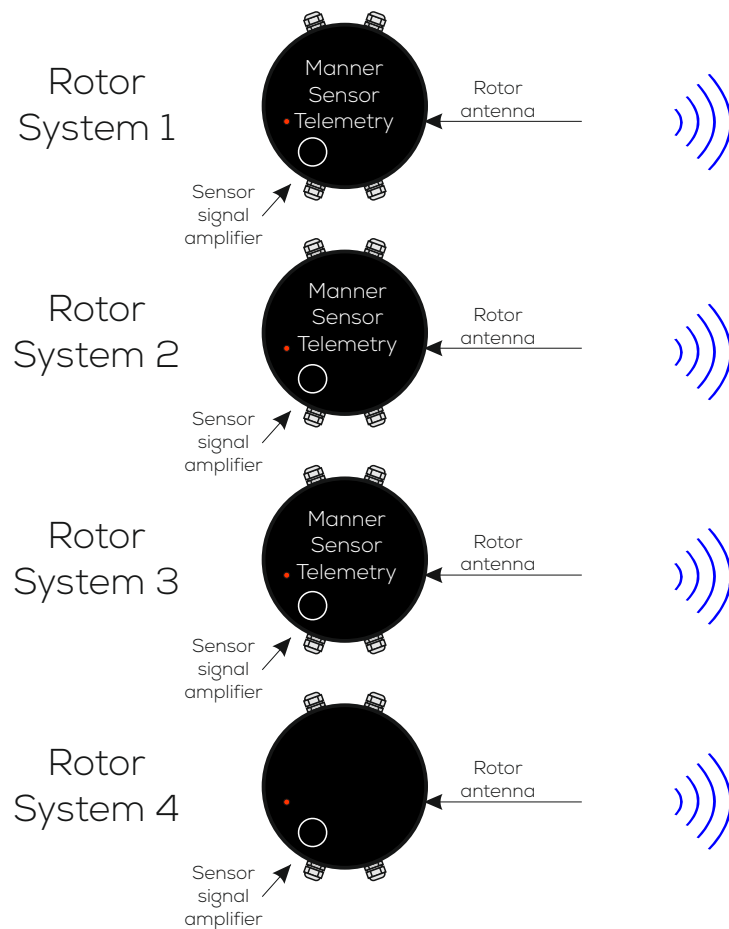


type: AW_M_...

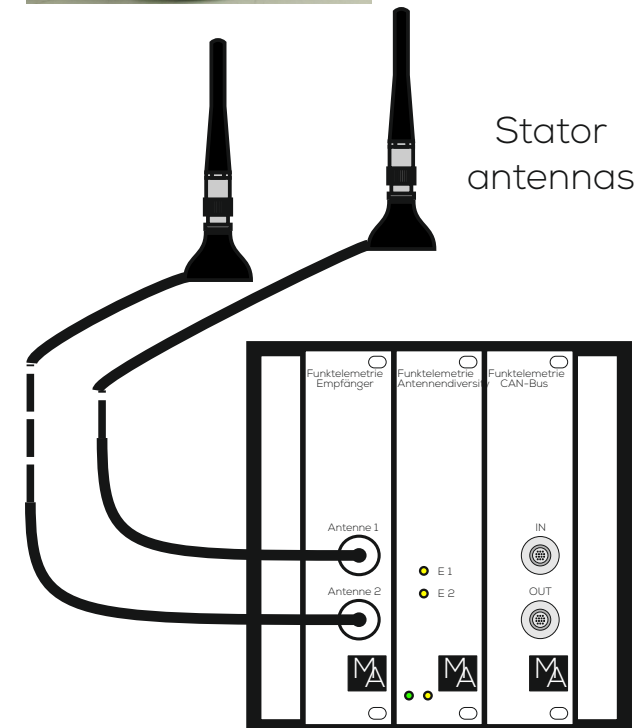
Features:

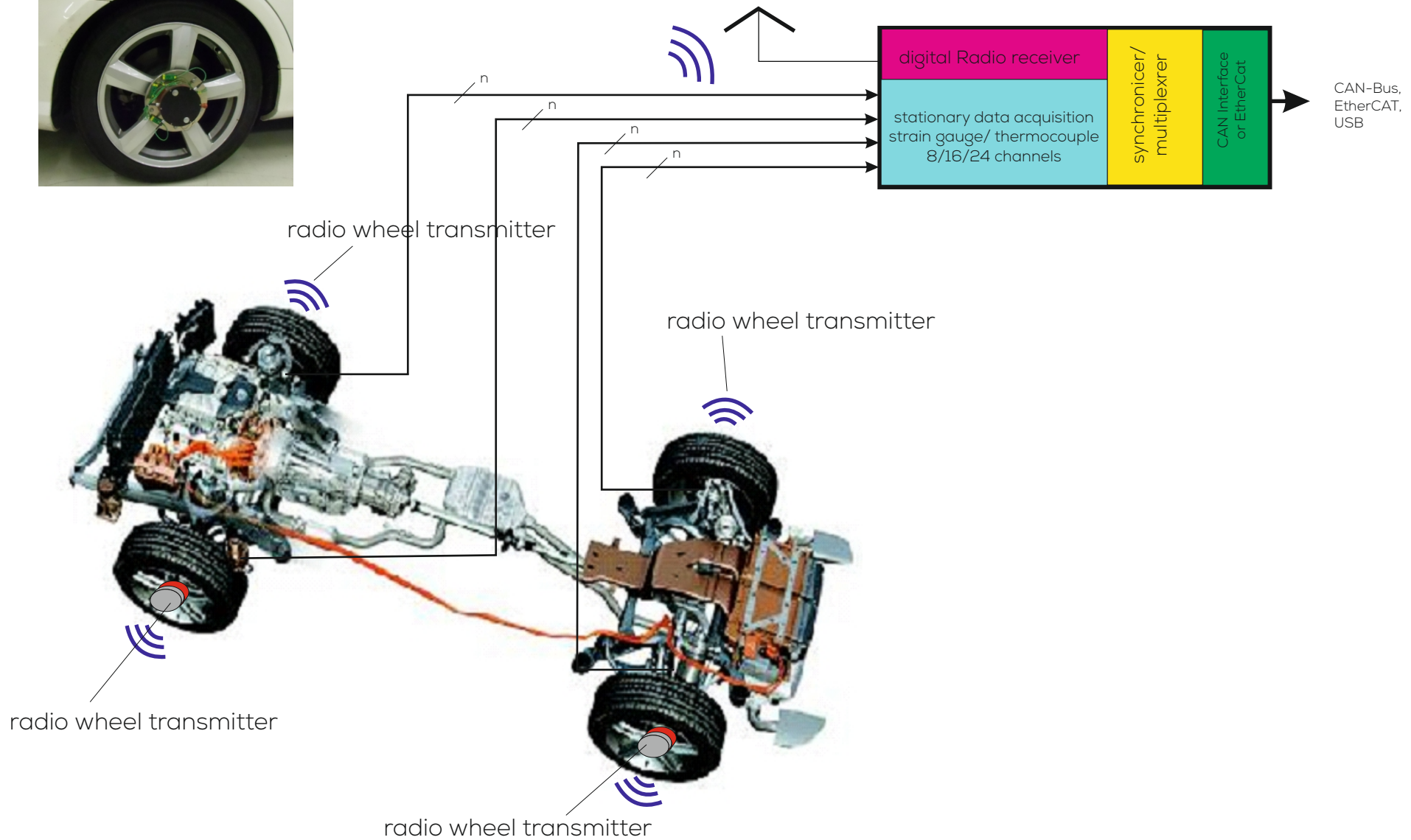
- Easy handling
- Channel count: 1
- (16 different frequencies)
- Sample rate: 4000 Sample/s (1 channel)
- Digital transmitting 12/16 Bit resolution with checksum (CRC)
- Transmitting: Radio $f = 433/868$ MHz, 16 different frequencies
- RF-Power: 10 mW; range: 50 m in open field
- Integrated data protection 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
- Zero drift / Gain drift: 0,01 %/°C (0,003 %/°C optional)
- Max. acceleration: 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)

General Measurement Configuration for Wireless Telemetry used on vehicles (Multi Channel Systems)



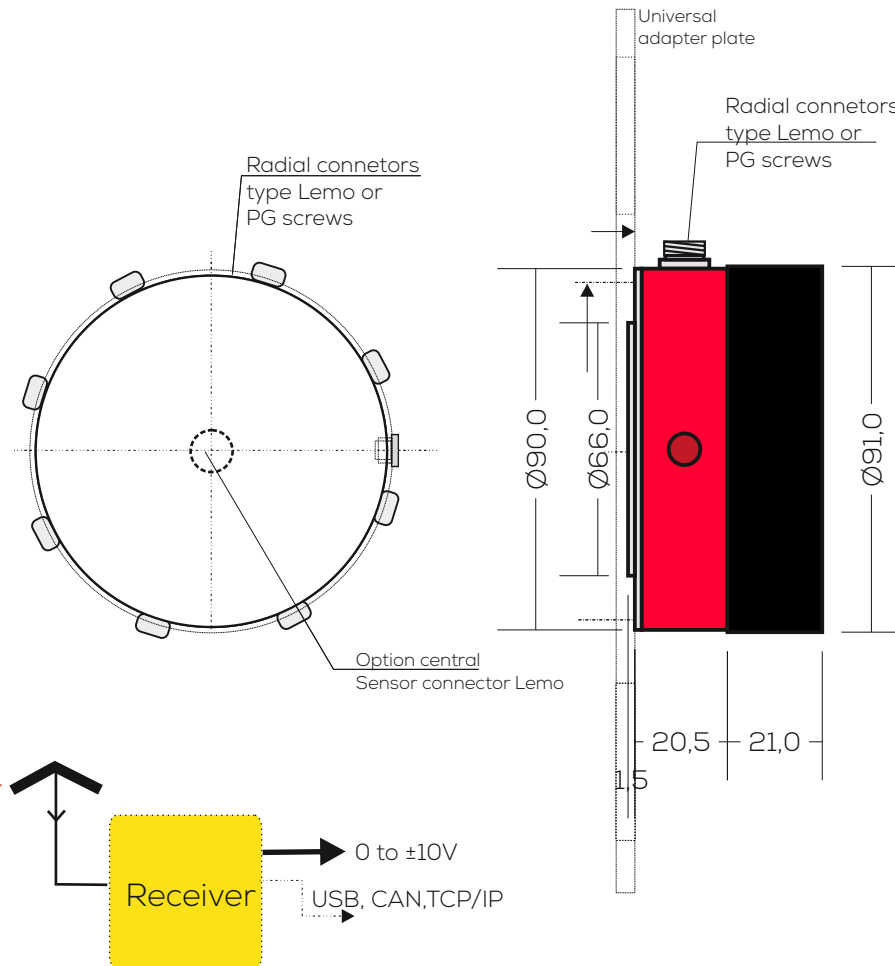
wheel transmitter





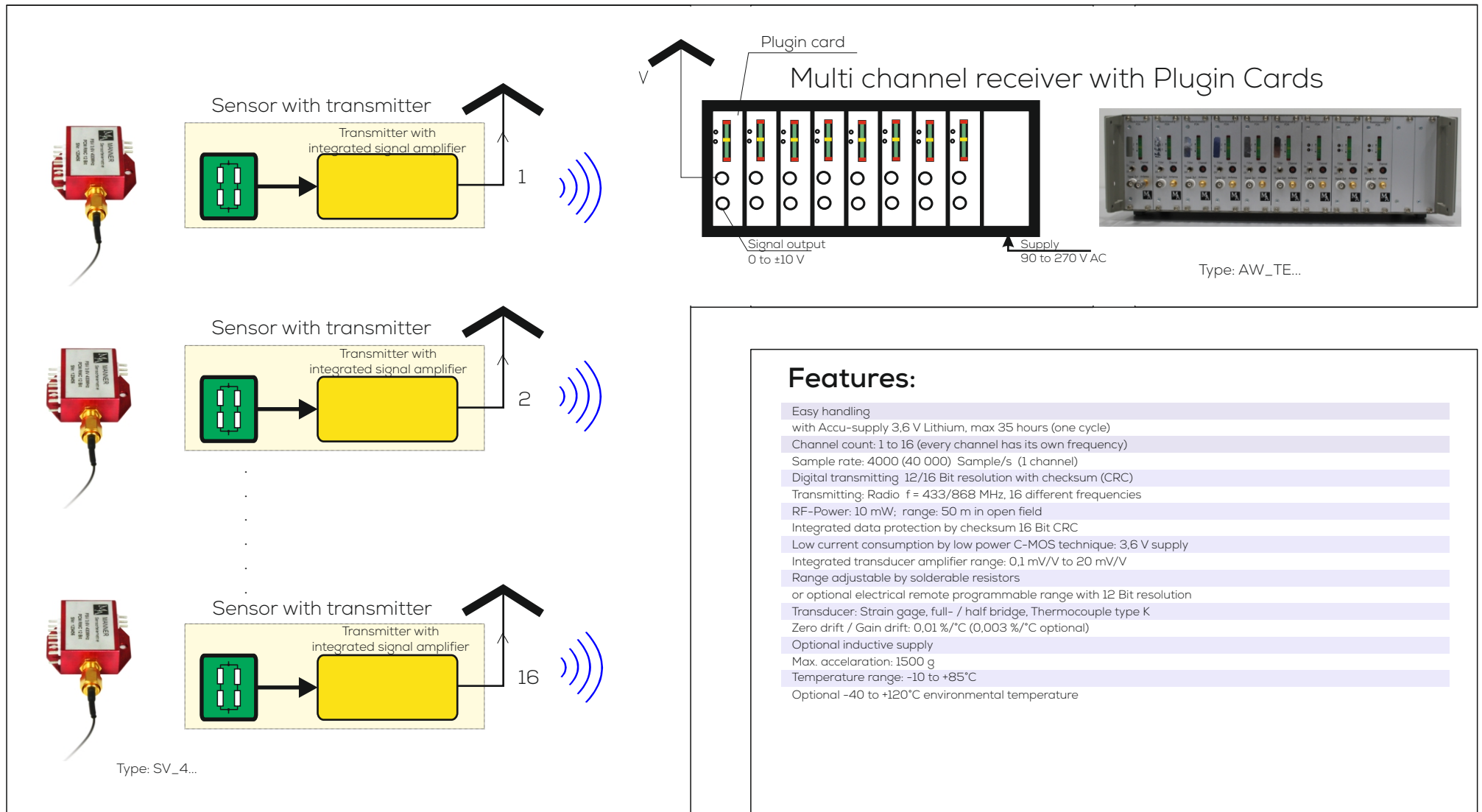
Dimensions (8 channel transmitter)

Wheel Transmitter



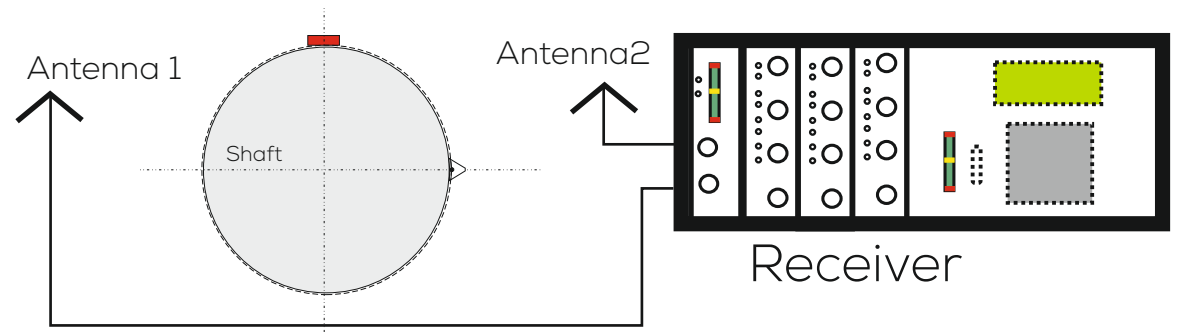
Multi Channel Radio Sensortelemetry

(separate frequencies, high bandwidth for each channel)



Option Radio Sensortelemetry with Antenna Diversity

(Security improvement of data transmission by use of 2 antennas)

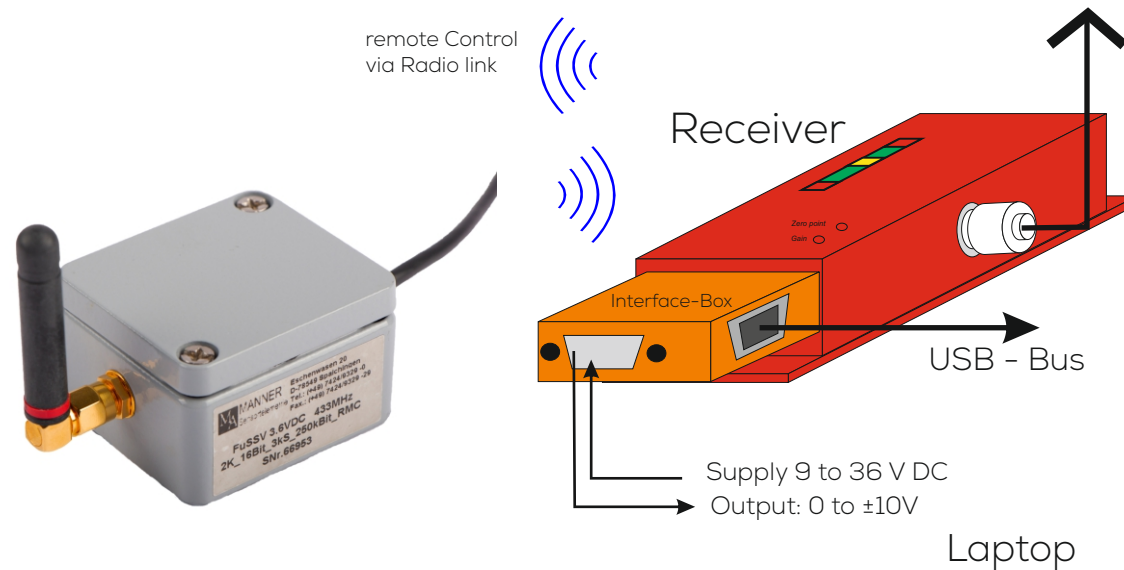


Features:

- Up to thousandfold improvement of reception in case of interferences
- 2 receiver systems with 2 separate antennas
- Diversity combiner selects 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 $f = 433..2,4$ GHz
- RF-Power: 10 mW; range: 50 m in open terrain
- Integrated data protection by checksum 16 Bit CRC
- Special for large shafts
- Special for train application
- Special for hard reception conditions
- Div_<channels>_<receivers>
- 1..128 2..6

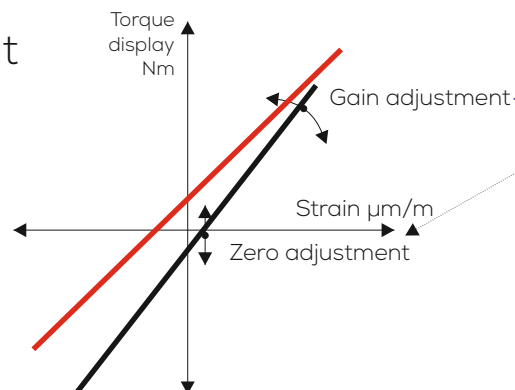
Option RMC Sensor Telemetry (Wireless)

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

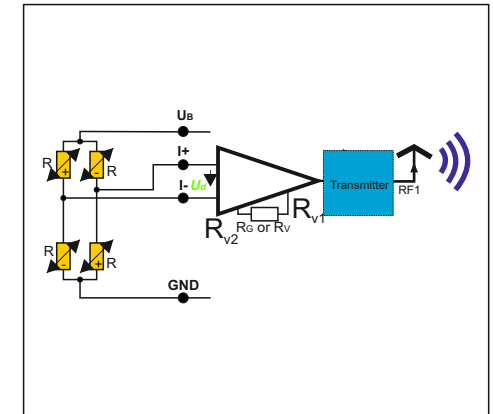
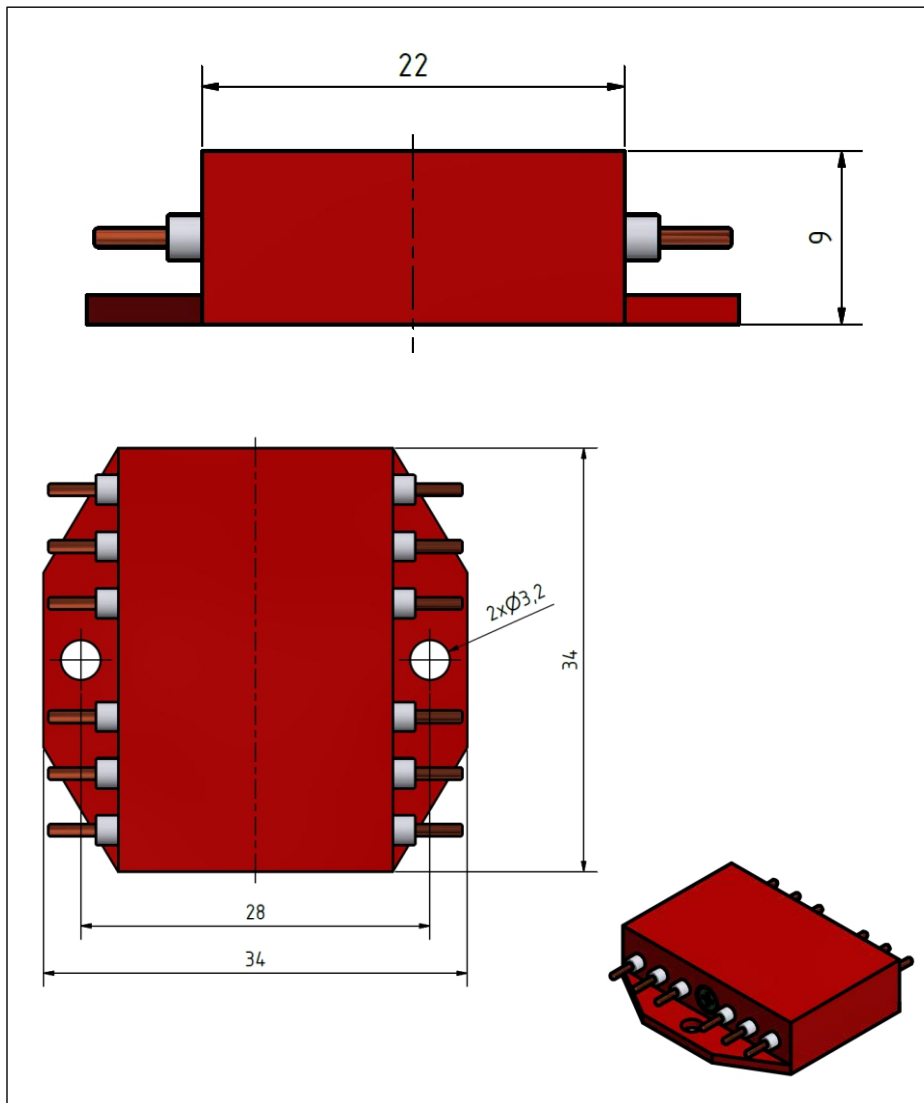


- * Auto zero,
- * Adjusting tolerances in zero point
- * Adjusting tolerances in gain
- * Remote On/Off Transmitter

Remote online re-conditioning
without opening of the
amplifier



Sensor Signal Amplifier Type 4a



1/2 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple

Sensitivity: 0,02 to 20 mV/V

Bandwidth 10 Hz / 0 Hz to 1 kHz

Bridge 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)

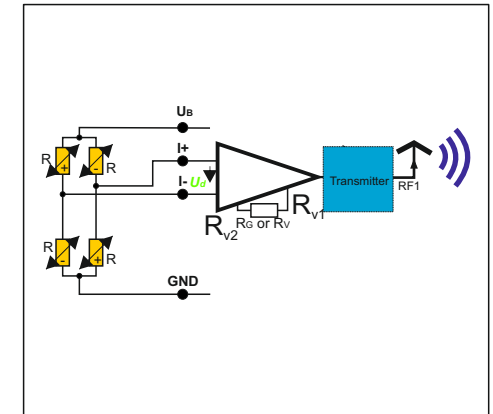
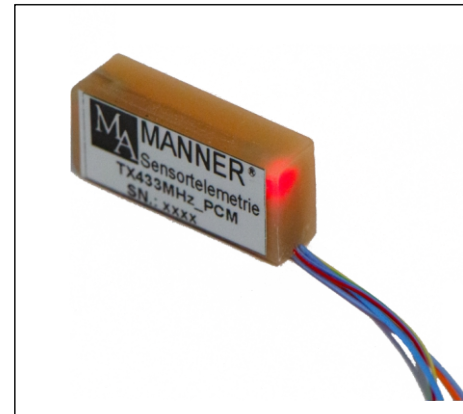
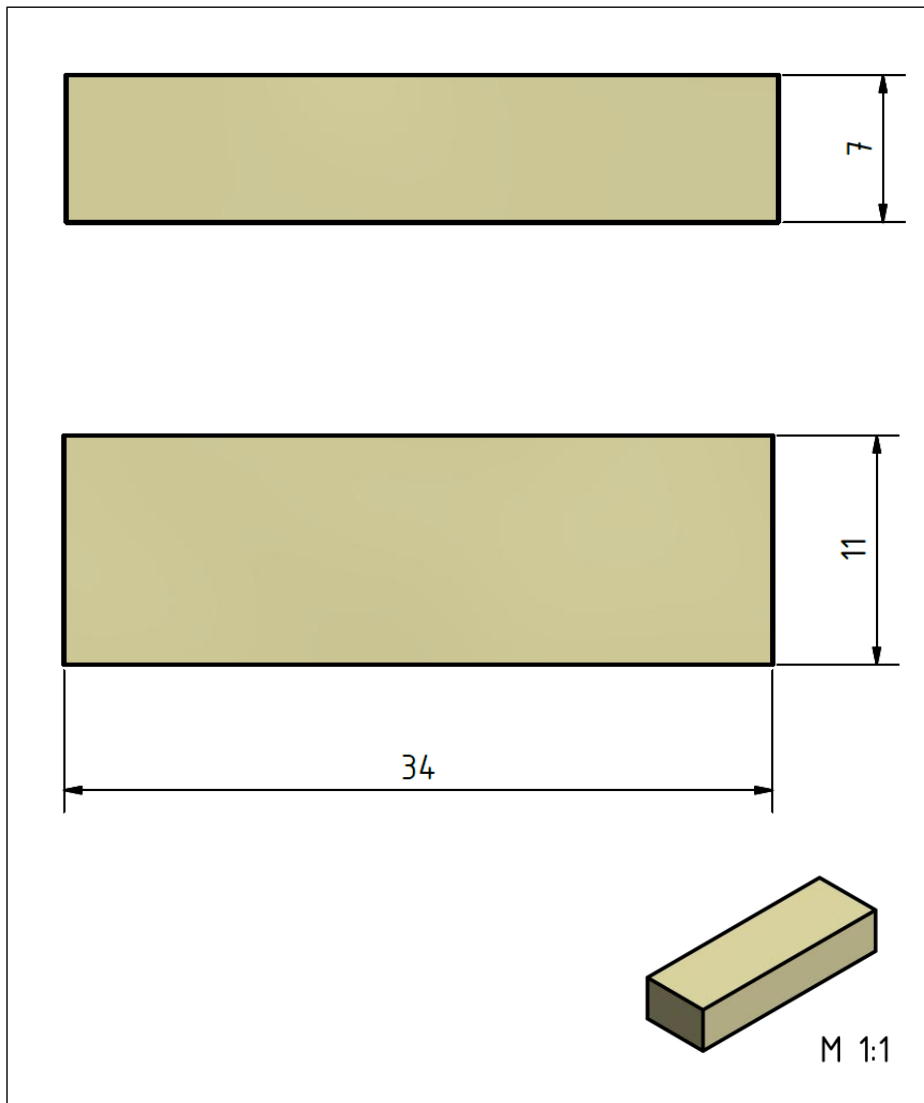
Environmental temperature: -25 to +85°C (120°C)

Max load: 1 000 g (depends on fixing)

Type: SV_4a_<accuracy>_<temp>_Fu_<mod>_<bandwidth>_<rmc>_<TC>

0,02	85	PCM 16	1 kHz	-	-
0,01	120		2 kHz	RC	TC
0,005			10 kHz		

Miniature Sensor Signal Amplifier Type Epoxy



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

Bridge supply: 3 V

Strain gage: 350 Ω (1000 Ω)

Transmission: Radio Sensortelemetry PCM, 433 MHz

Integrated filter

Resolution: 16 Bit

Drift zero: 0,02 (0,01, 0,005 option)

Supply: 3,3 to 16 V, 50 mA

Remote range control, auto zero (option)

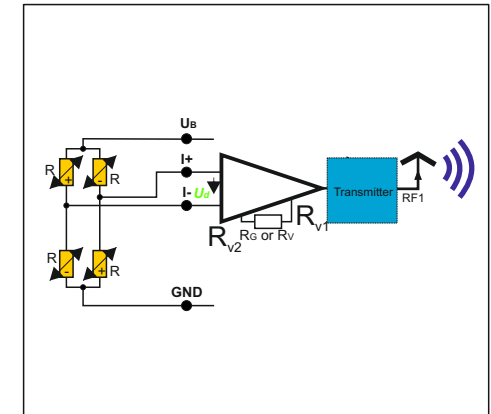
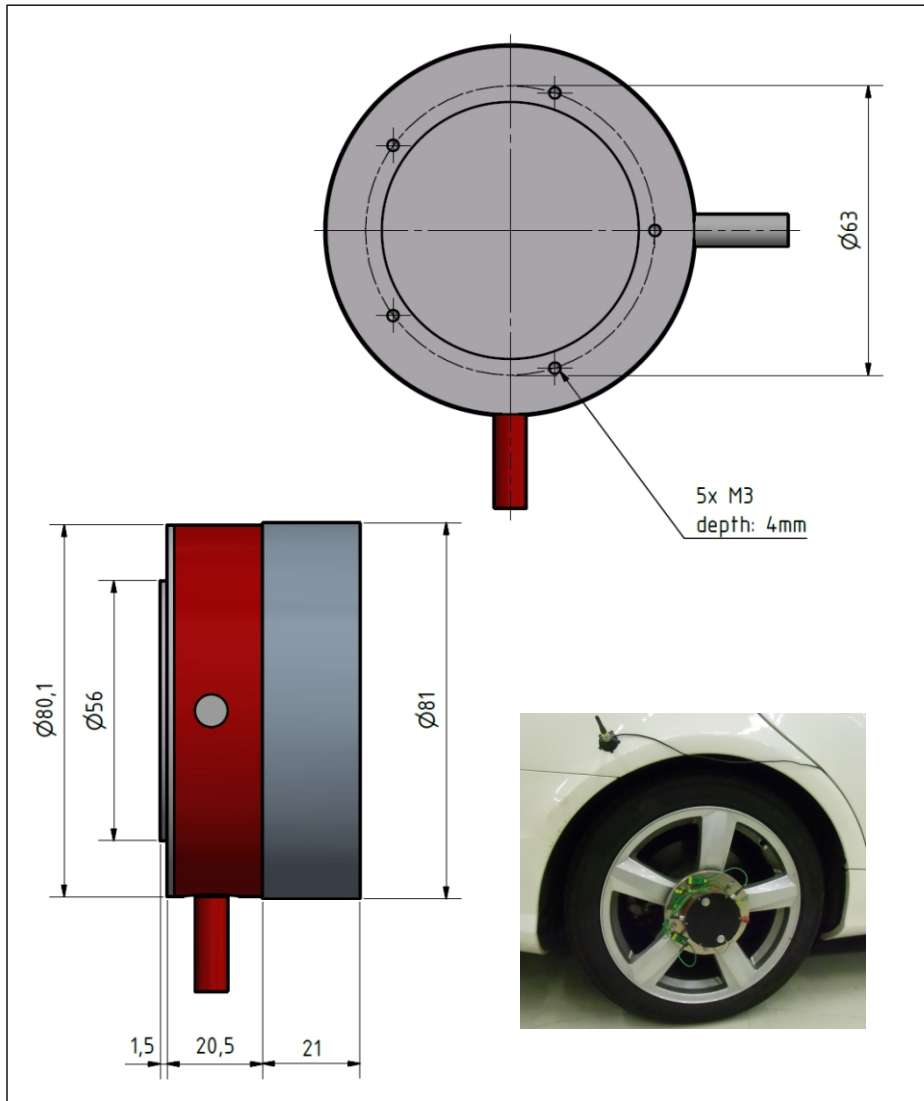
Environmental temperature: -25 to +85°C (120°C)

weight: 20 g, Max load: 3 000 g (depends on fixing)

Type: SV_7a_<accuracy>_<temp>_Fu_<mod>_<bandwidth>_<rmc>_<TC>

1 kHz	0,02	85	PCM16	-	-
	0,01	120		RC	TC
	0,005				

Sensor Signal Amplifier Type SV_Rad



1 Channel Radio Sensortelemetry transmitter for wheels or shaft end applications

For strain gage, PT100, Thermocouple

Sensitivity: 0,02 to 20 mV/V

Bandwidth 10 Hz / 0 Hz to 1 kHz

Bridge supply: 3 V, battery or accu (rechargeable)

Strain gage: 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)

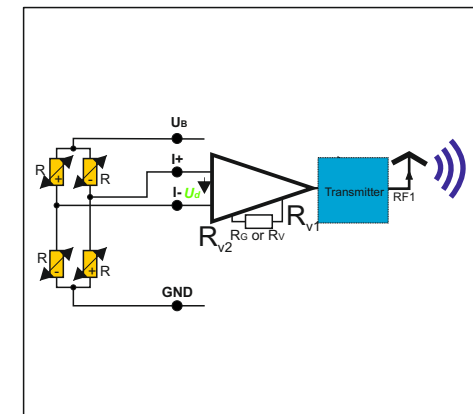
Environmental temperature: -25 to +85°C (120°C)

Protection: IP67

Max load: 1 000 g (depends on fixing)

Type: SV_Rad_<accuracy>_<temp>_Fu_<mod>_<bandwidth>_<rmc>_IP67_<TC>

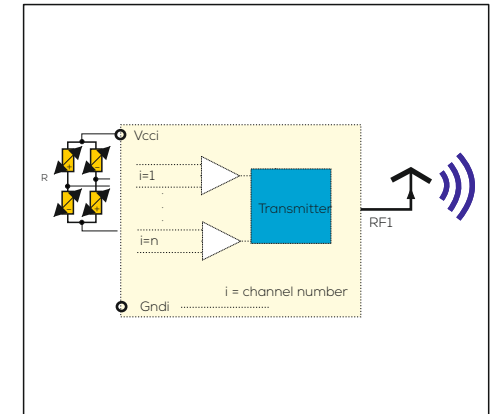
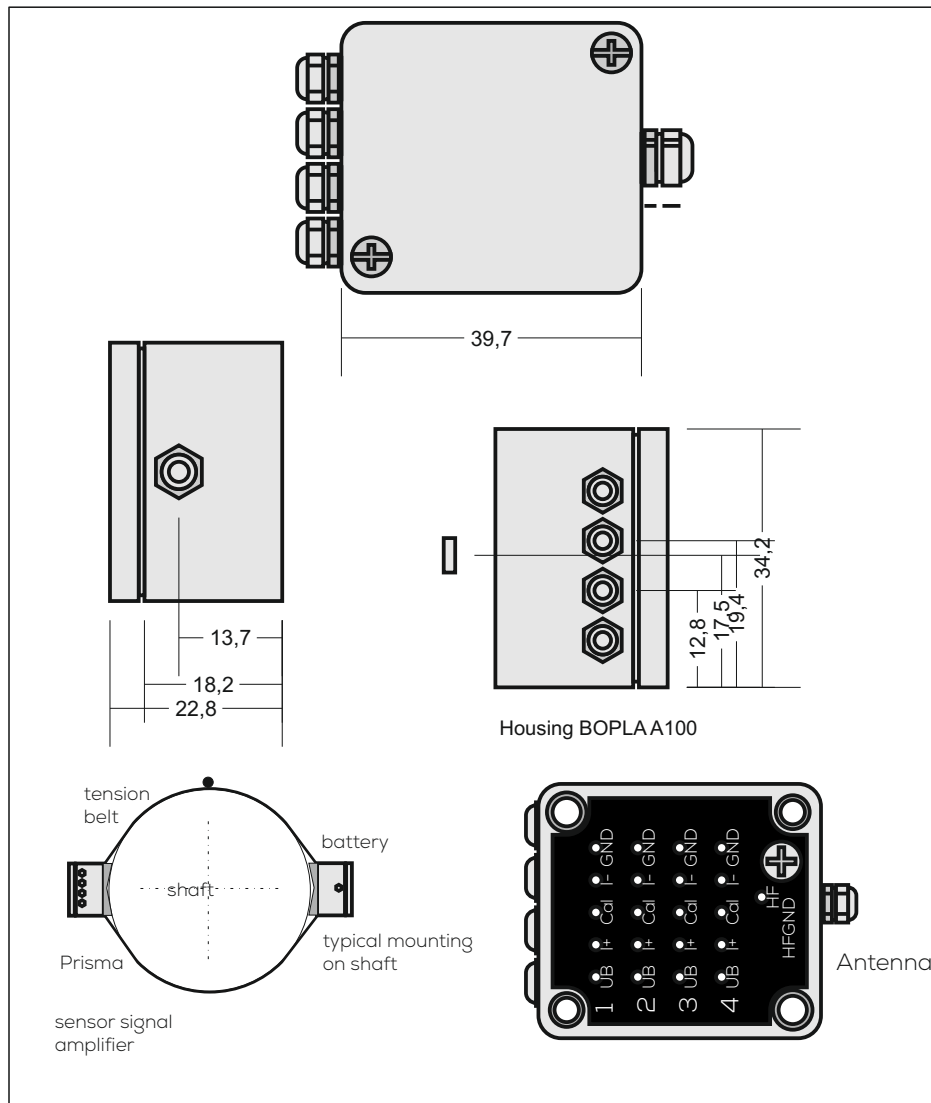
0,02	85	PCM16	1 kHz	-	-
0,01	120		2 kHz	RC	TC
0,005			10 kHz		

[illegible]

For strain gage, PT100, Thermocouple
Sensitivity: 0,02 mV/V to 20 mV/V
Bandwidth: 0 (10) Hz to 50 kHz
Strain gage bridge supply: 6 V (3,3 V)
Strain gage bridge resistance: 1000 Ω
Transmission: inductive sensortelemetry FM, PCM
Integrated filter
Resolution: 16 Bits, 0,01 Bits*
Zero point drift: 0,02, (0,01, 0,003* option)
Remote shunt calibration
Remote gain, zero, auto zero with 16 Bit resolution
additional temperature channel (option)
Environmental temperature range: -25 to +85°C (12
Max load: 5 000 g (depending on fixing)
Type: SV_Ba_<accuracy>_<temp>_Fu_<mod>_<ban

0,02	85	PCM16	1 kHz	-	-	-
0,01	125		10 kHz	RMC	IP52	TC
0,003	150		40 kHz		IP65	
					IP67	

Multi channel signal Amplifier Type M (waterproof)



2/4 Channel Radio Sensortelemetry transmitter

For strain gage, PT100, Thermocouple

Sensitivity: 0,02 to 20 mV/V

Bandwidth 10 Hz / 0 Hz to 10 kHz

Bridge supply: 3 V

Strain gages: 350 Ω

Transmission: Radio Sensortelemetry PCM

Integrated filter

Resolution: 12 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)

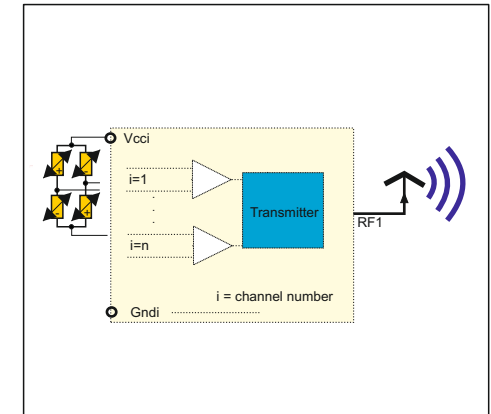
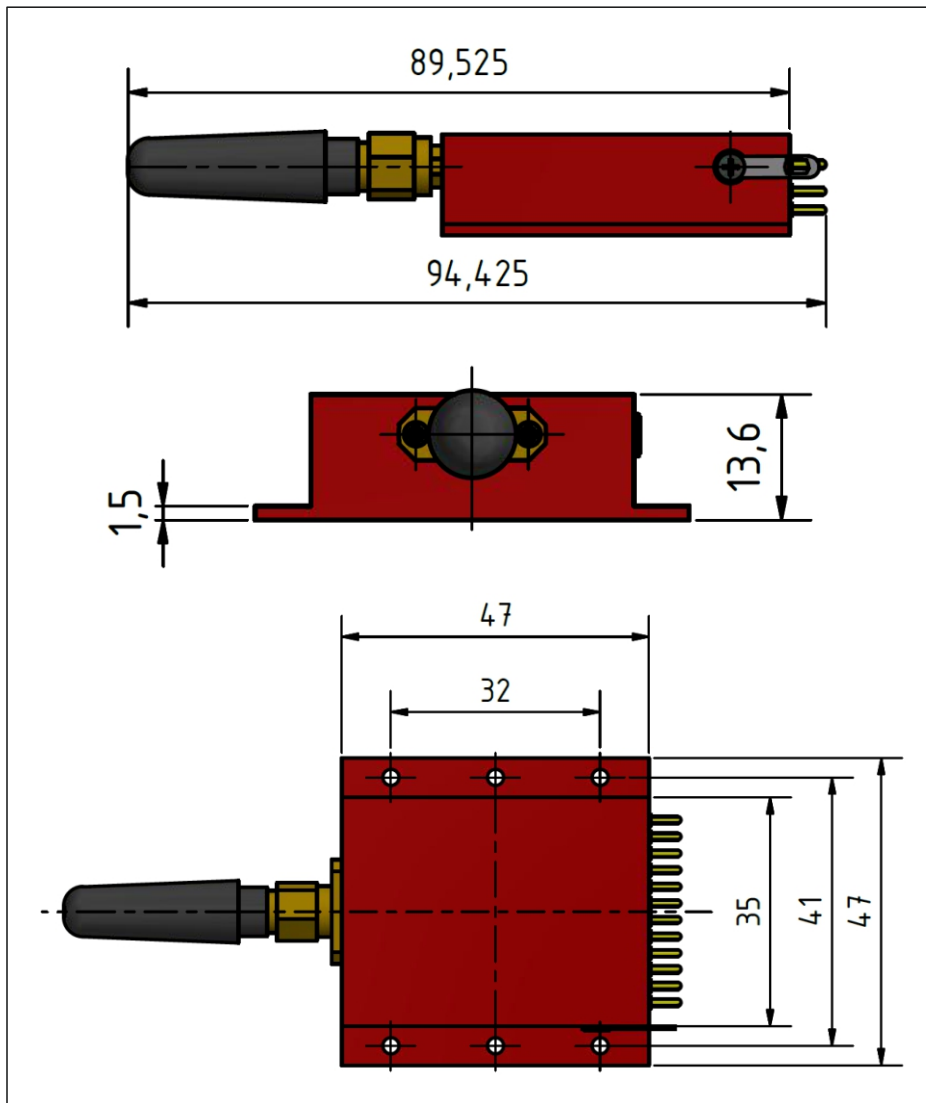
Environmental temperature: -25 to +85°C (120°C)

Max load: 1 000 g (depends on fixing)

Type: MSV_M_<channels>_<accuracy>_<temp>_Fu_<mod>_<sample>_<rmc>_wa_<TC>

2	0,02	85	PCM12	500	-	-
4	0,01	120	PCM16	4000	RMC	TC
8	0,005	150		8000		
16				40000		

4/8 Channel Sensor Signal Amplifier Type M



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

Bridge 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)

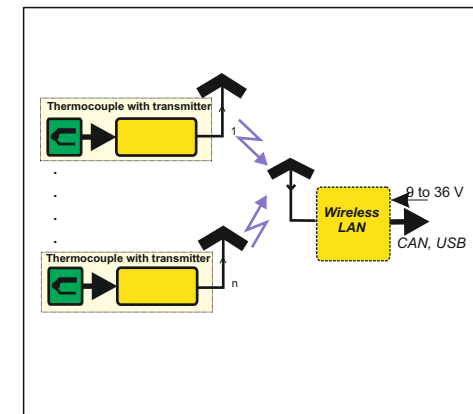
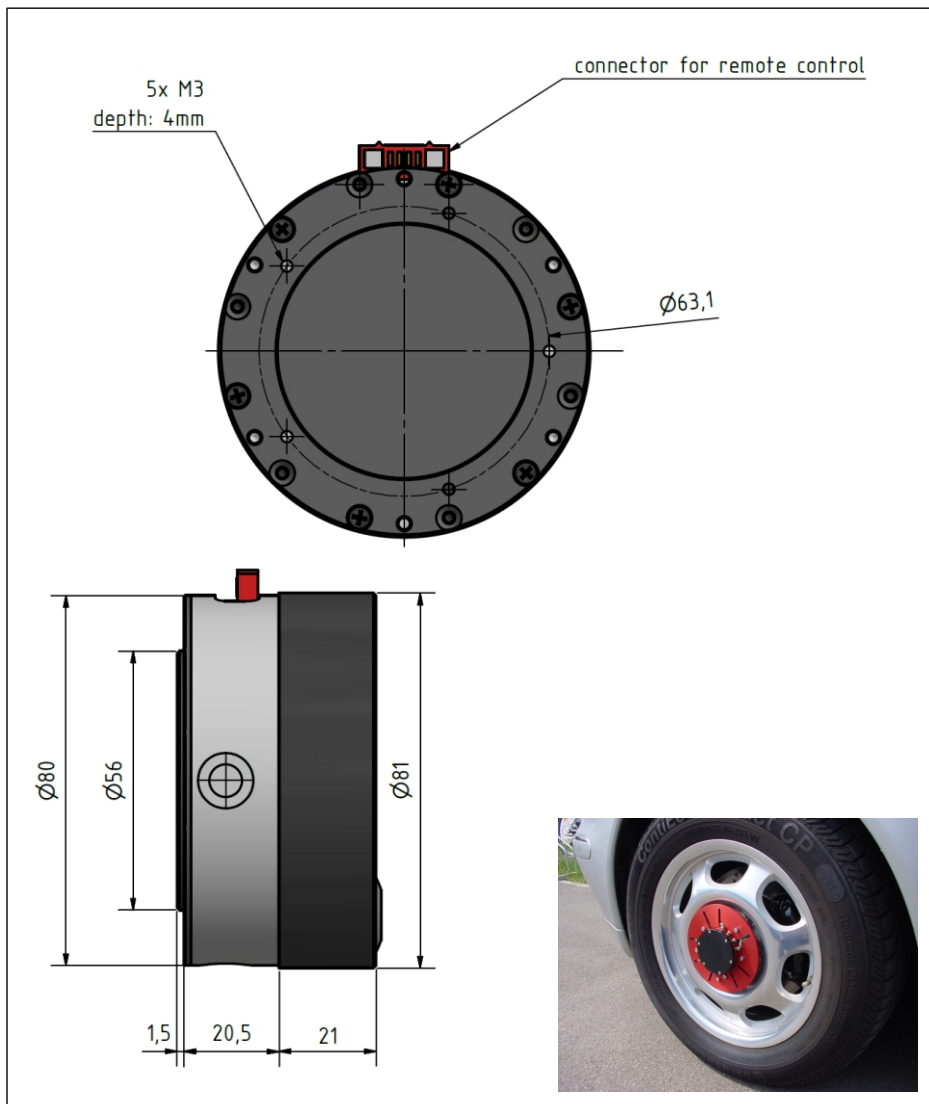
Max load: 1 000 g (depends on fixing)

Type: MSV_M_<channels>_<accuracy>_<temp>_Fu_<mod>_<sample>_<rmc>_<TC>

2	0,02	85	PCM12	500	-	-
4	0,01	120	PCM16	4000	RMC	TC
8	0,005	150		8000		
				40000		

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)

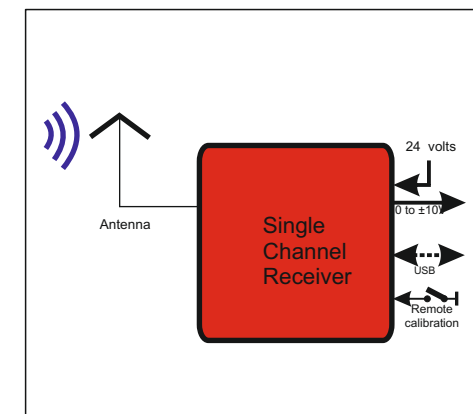
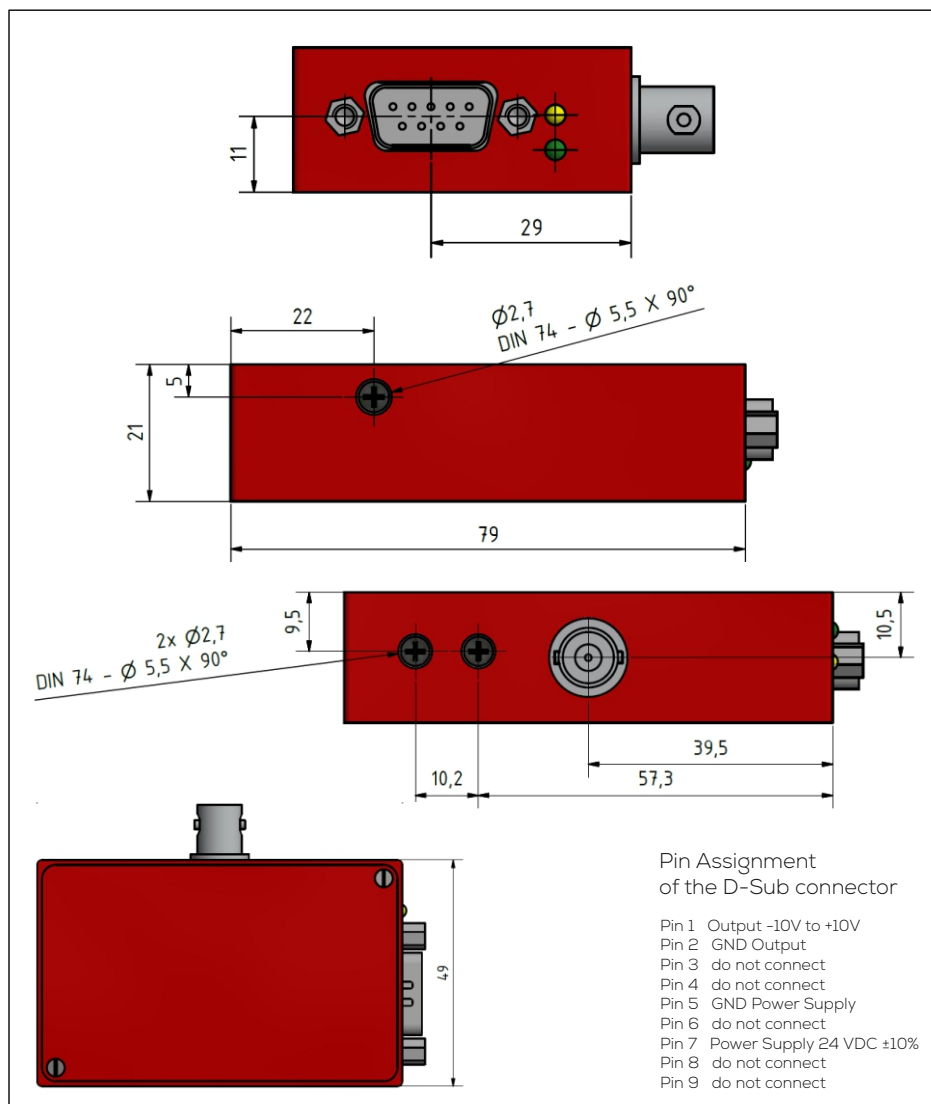
Protection IP68

Max load: 1 000 g (depends on fixing)

Type: MSV_Rad_<channels>_<accuracy>_<temp>_Fu_<mod>_<sample>_wa_<TC>

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

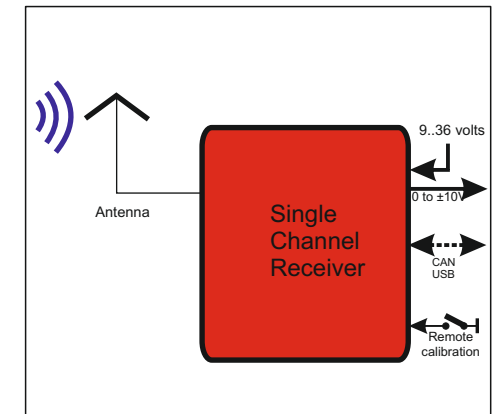
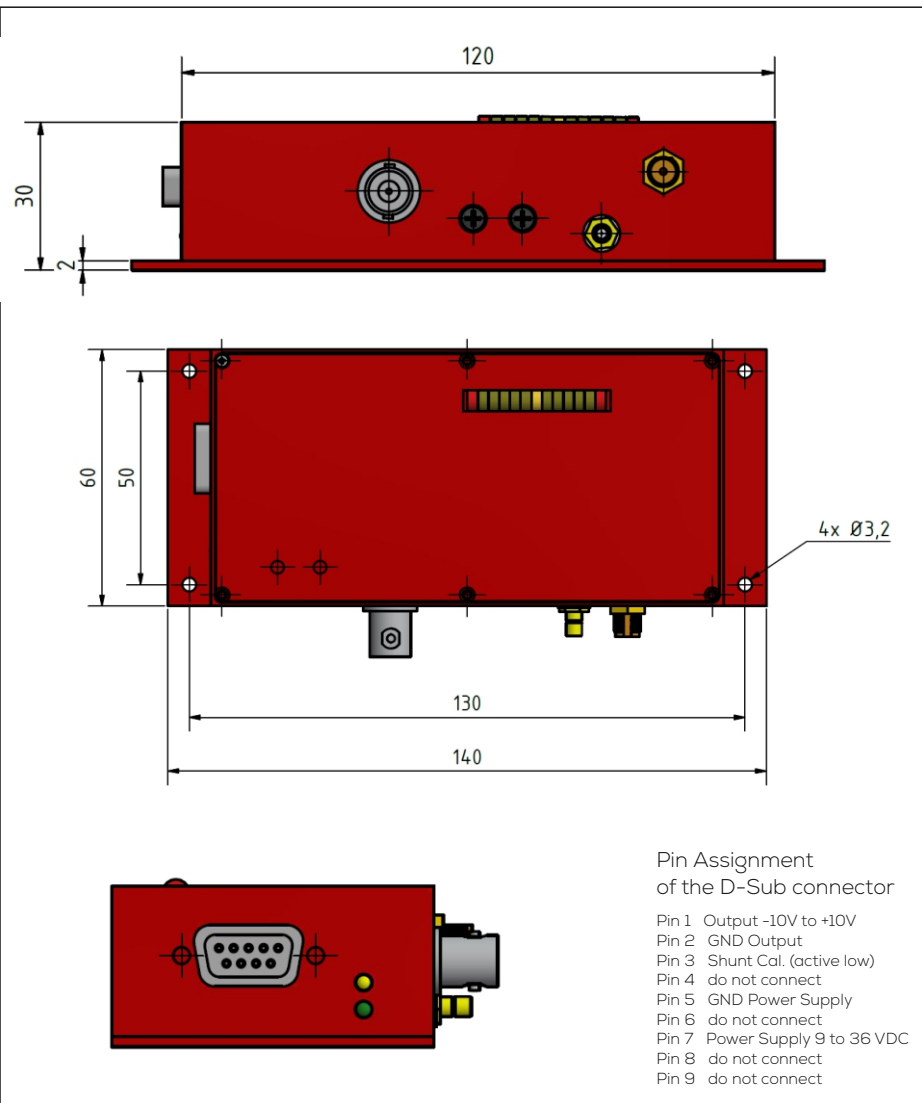
Receiver (AW_D)



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 ($\pm 5\%$), 15 V ($\pm 2\%$), 9 to 36 V (board supply)			
Type: AW_D_Fu_<mod>_<bandwidth>_<output>_<supply>			
PCM12	1 kHz	U	15V
PCM16		I	24V

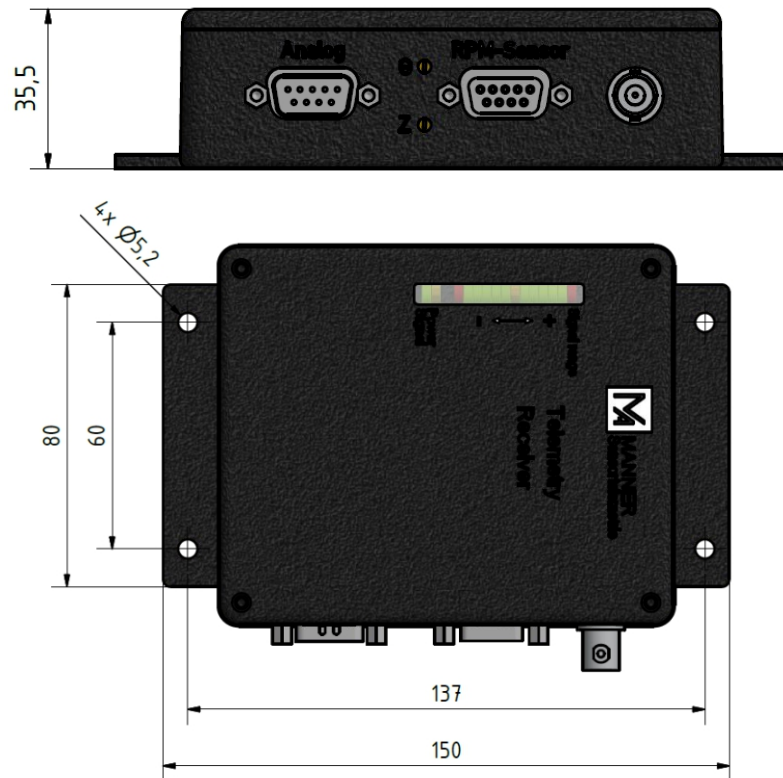
Evaluation Unit (AW_M)



1 Channel Radio Sensortelemetry Receiver

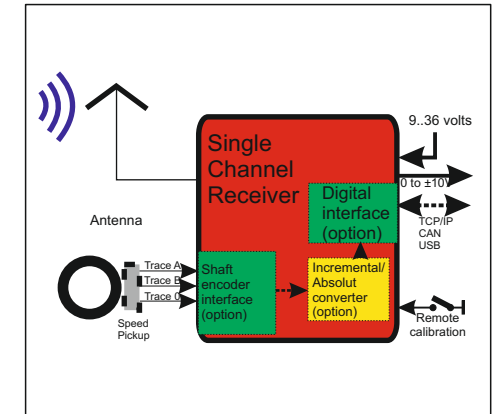
Bandwidth: 0 to 1kHz		
Output: ±10 V (0(4) to 20 mA, frequency, binary, USB)		
RF frequency: 433 MHz		
Transmission: Radio Sensortelemetry PCM		
Integrated filter		
Resolution: 12 Bit (16 Bit)		
Environmental temperature: -25 to +85°C (-45 to +85°C)		
Supply: 24 V (+5%), 9 to 36 V (board supply)		
Type: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

Evaluation Unit (AW_P)



Pin Assignment
of the D-Sub connector

- Pin 1 Output -10V to +10V
- Pin 2 GND Output
- Pin 3 Shunt Cal. (active low)
- Pin 4 do not connect
- Pin 5 GND Power Supply
- Pin 6 do not connect
- Pin 7 Power Supply 9 to 36 VDC
- Pin 8 do not connect
- Pin 9 do not connect



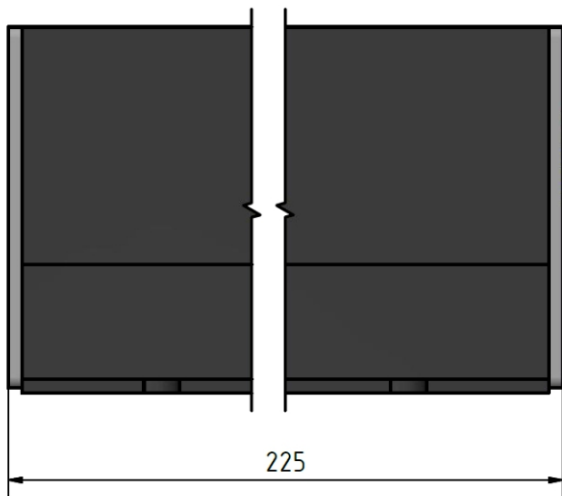
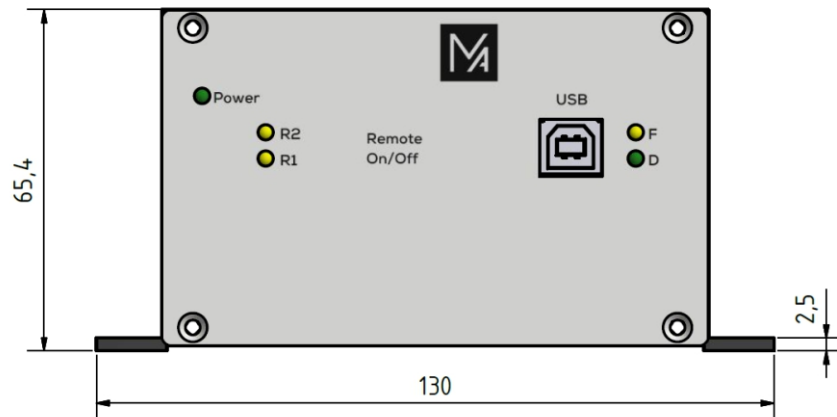
1/2 Channel Radio Sensortelemetry Receiver

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 ($\pm 5\%$), 9 to 36 V (board supply)
 Type: AW_P_Fu_<mod>_<bandwidth>_<output>_<supply>

1 kHz	U	15V
2 kHz	I	24V
10 kHz	B	24V
	USB	

Evaluation Unit (AW_F)

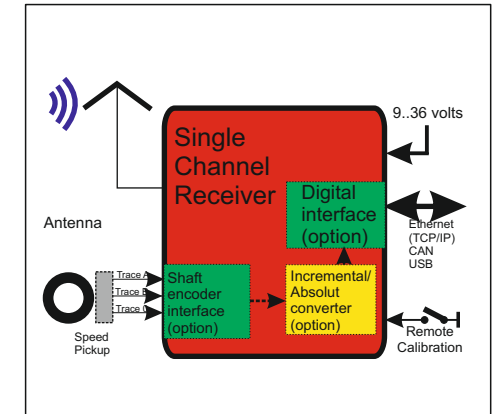
Digital Receiver



Pin Assignment of the D-Sub connector

- Pin 1 Data
- Pin 2 GND Output
- Pin 3 not connected
- Pin 4 Data
- Pin 5 GND Power Supply
- Pin 6 Trace 0 (option)
- Pin 7 Power Supply 9 to 36 VDC
- Pin 8 Data
- Pin 9 Data
- Pin 10 Trace A (option)
- Pin 11 Trace B (option)
- Pin 12 not connected
- Pin 13 not connected
- Pin 14 not connected
- Pin 15 not connected

*Option: current save mode for extrem long Battery lifetime

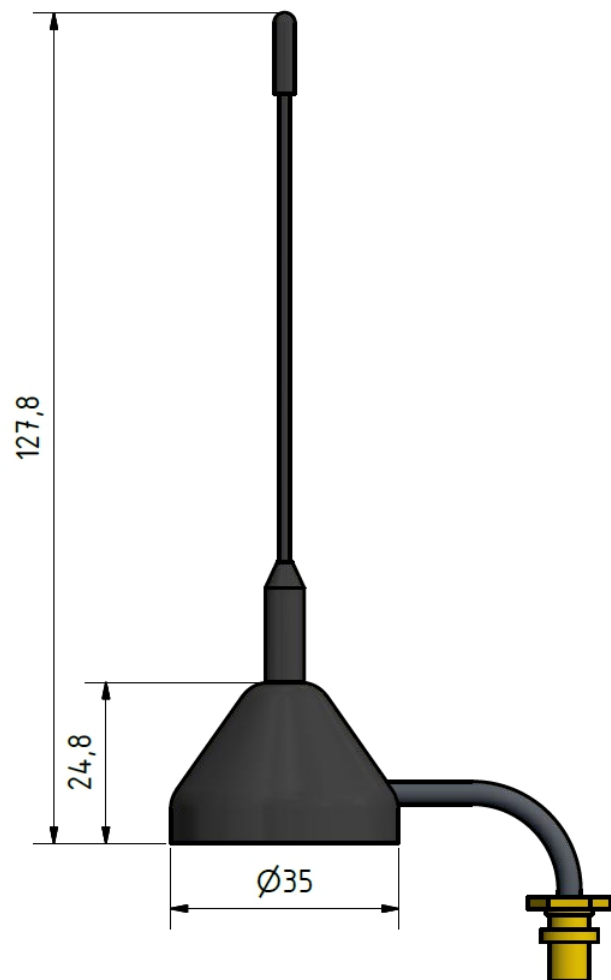


Multi Channel PCM Receiver

Bandwidth: 0 to 1kHz (10 kHz)
 Number of channels: 1..32
 Output: ± 10 V, 0(4) to 20 mA option)
 Digital interface (option): SPI, USB, CAN, Ethernet (TCP/IP)
 Frequency 433 Mhz, (750 MHz)
 Transmission: inductive sensortelemetry PCM
 Resolution: 12 Bits, (16 Bit*)
 Remote shunt calibration
 Enviromental temperature range: -25 to +85°C (-45 to +85°C)
 Supply: 24 V DC (+/-5%), 15 V DC (+/-2%), 9 to 36 V DC (board supply)
 Type: MAW_F_<channels>_Fu_<mod>_<samplerate>_<supply>_<output>

2	PCM12	40000	15	USB
4	PCM16	20000	24	CAN
8		8000	24B	TCP/IP
12		4000		HS
16		2000		
		1000		
		1*		

Receiving / Transmitting Antenna with magnetic Foot



Receiving Antenna

Frequency 433 MHz
Height: 87 mm
Magnetic foot
Coax cable power max. 50 W
Cable length: 5 m
Environmental temperature: -35 to +85°C
Type: AFu_<Temp>_PCM_<wa>_<St>
-10_+85 - BNC
-25_+125 wa TNC
-40_+160 SMA
Lemo
N

Transmitting Antenna

type wire	type rod
Frequency 433 MHz	Frequency 433 MHz
Height: 87 mm	Height: 87 mm
Environmental temperature: -10 to +85°C	Environmental temperature: -10 to +85°C
Type: Rot_FuD_SMA_<wa>_<Temp>_PCM	Type: Rot_FuS_<St>_<wa>_<Temp>_PCM
-10_+85	TNC - -10_+85
-25_+125	SMA wa -25_+125
-40_+160	N -40_+160