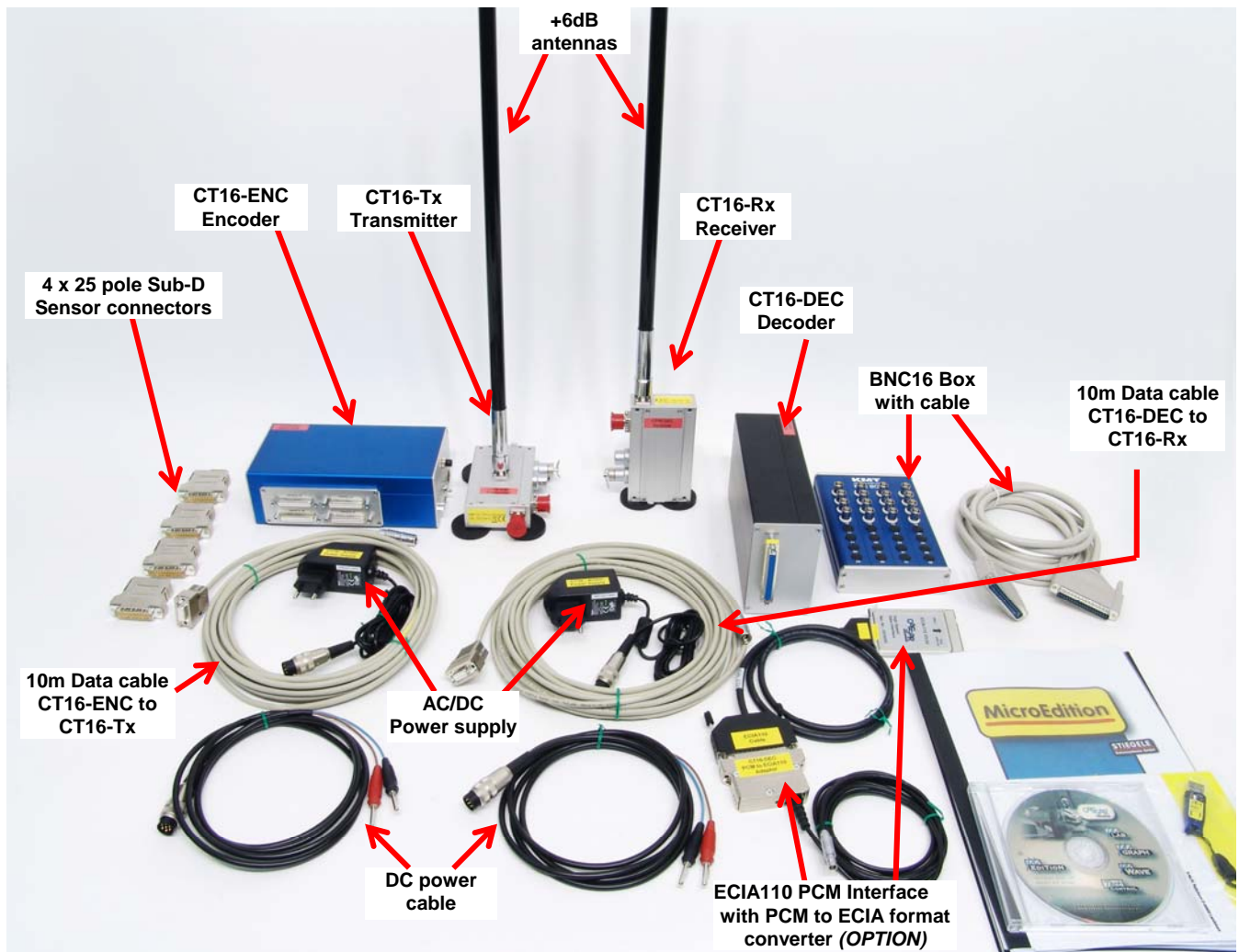


CT16-WLAN

User Manual



General functions:



CT16-WLAN is a 16channel telemetry system with integrated signal conditioning for sensors, wireless digital transmission with error correction and analog reproduction.

The conditioned measured values are routed via anti-aliasing filter to a 12-bit A/D converter, simulate sampling of all channels, encoded in PCM format and transferred to the HF transmitter as modulation variables. Dynamic range is 72dB with a signal-to-noise ratio of approximately 70dB. In the carrier frequency of 2.45GHz can work up to 4 telemetry system at the same time. Analog bandwidth of 16 x 0-1250 Hz. (scanning rate 6122Hz/Channel)

The following sensors can be connected to the system: (STG) Strain gages sensors in full-, half- and quarter-bridge configuration (350 ohm or greater), Type K (J) Thermocouples to 0-1000°C, ICP and capacitive sensors. Voltage inputs of +/-5V and +/-10V are available.

The measured values are processed and output as +/-5V analog signals at the 37 pole Sub-D sockets or via adaptor BNC16 Box. A optional digital PCM interface (ECIA110) is available to transfer the digital data into a PC with software pack MLab.

CT16-Encoder with mobile WLAN transceiver

CT16-Decoder with WLAN transceiver



with 10m cable between ENC16 and WLAN transceiver, incl. magnetic foot for car roof mounting and 6dB antennas

with 10m cable between DEC16 and WLAN transceiver and 6dB antennas



Cable connection

CT16-ENC (Encoder)



Front side with the Sensor inputs

SC Module STG:

Sensor:	strain gage, > 350 Ohms
Bridge completion:	full, half and quarter-bridge
Excitation:	4 VDC (fixed)
Gain:	200 or 1000 - selectable by solder jumpers (5mV/V or 1mV/V)
Offset	Zero adjustment by potentiometer or <u>optional</u> Auto-zero function (which is not lost by power-off), offset range up to 80% of full scale.

SC Module ICP:

Constant current:	1, 4, or 10mA
Gain:	2x, 4x, 8x, 16x or 32x

SC Module POT:

Sensor:	Potentiometer Sensor >350 Ohms
Excitation:	4 VDC (fixed)

SC Module TH-K:

Sensor:	thermo-couple, type K (with cold junction compensation)
Temperature measuring range:	0°C to +1000°C (other on request), accuracy 1%

SC Module VOLT:

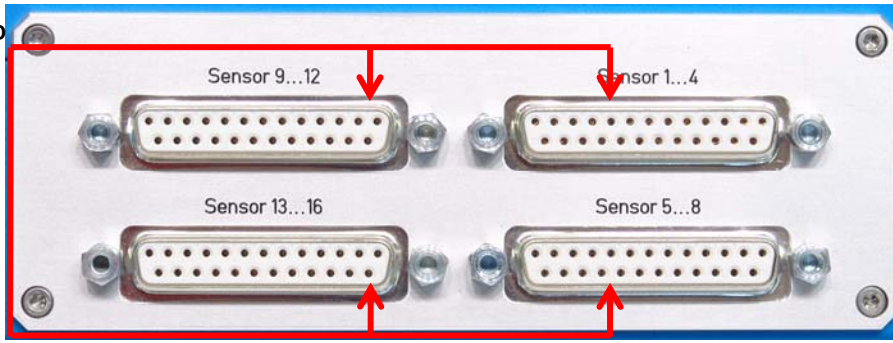
High-level inputs:	+/- 5 Volt or +/- 10 Volt
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Common data's:

Channels:	16
Resolution:	12 bit A/D converter with anti aliasing filter
Sampling	simultaneous of all channels
Line of sight distance:	300 m with 10mW transmitting power and 6dB antennas 2000 m with 12dB booster and 6dB antennas
Power input:	10 ... 30 DC
Power consumption:	1000 mA (at 12V) using STG 16 sensors at 350 Ohms.
Analog signal bandwidth:	
Signal bandwidth:	16 x 0 ... 1250Hz - (3dB)
Transmitter carrier frequency:	2.45 GHz with 1200 kbit/s transmitter
Dimensions:	170x115x70 mm (without WLAN transceiver)
Weight:	1000 grams (without WLAN transceiver)
Operating temperature:	- 20 to +70 C
Static acceleration:	100 g in all directions
Shock:	200 g in all directions

CT16-ENC - Functions:

25-pole female Sub-D input for sensors



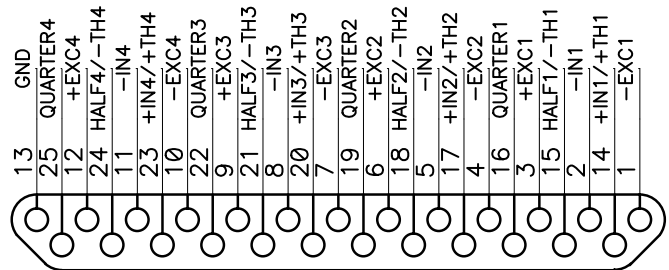
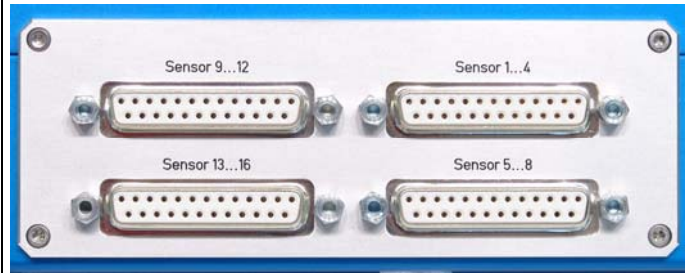
Offset Potentiometer

Gain 200 Gain 1000 - factory setting!



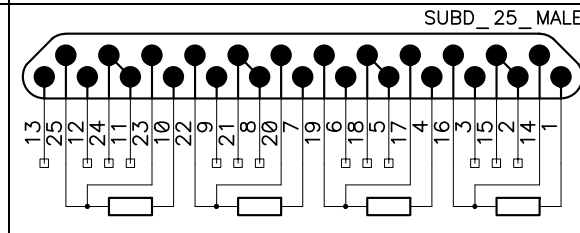
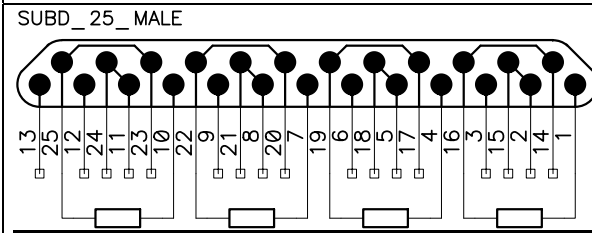
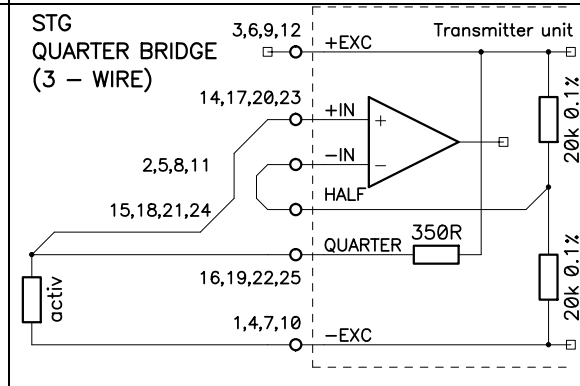
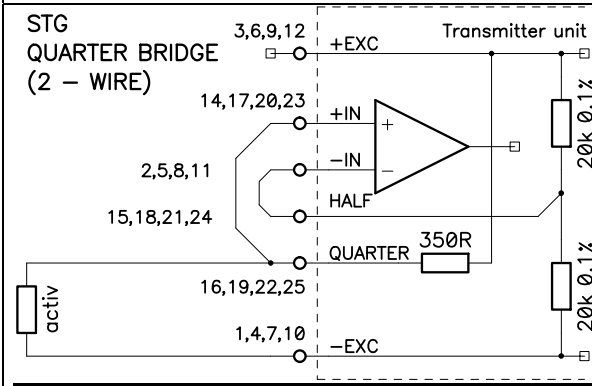
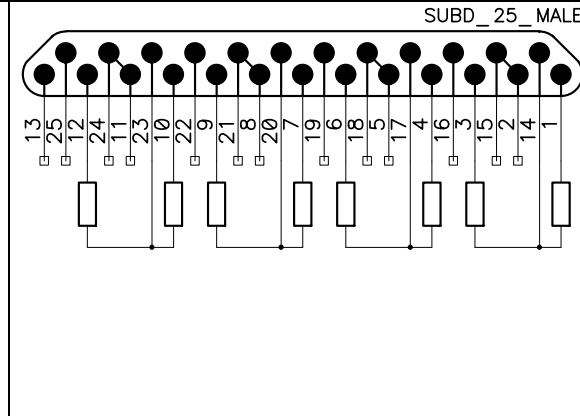
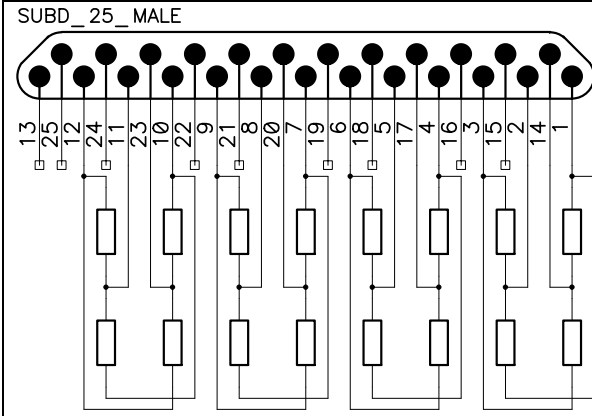
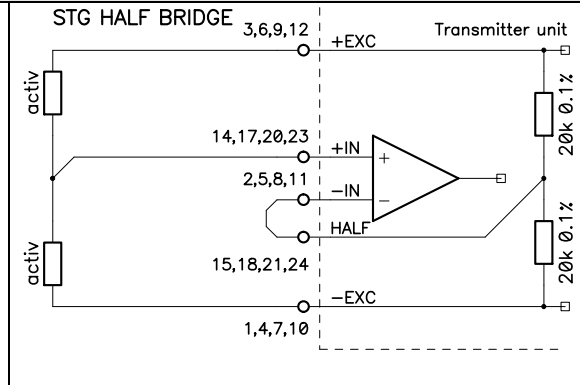
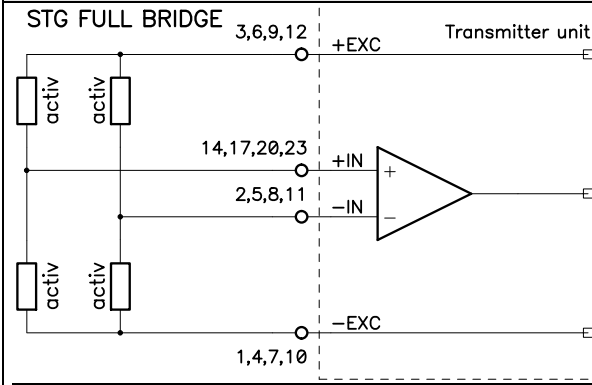
STG module

Type: Strain gage >350 Ohms
 Excitation: 4 VDC (fixed), Gain: 200 or 1000

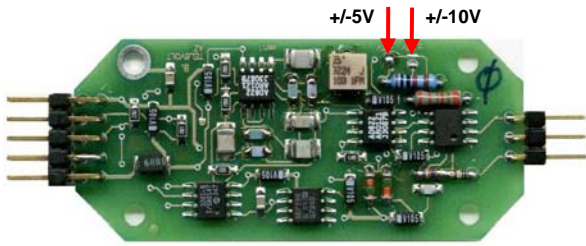


SUBD_25_FEMALE TRANSMITTER INPUT CONNECTORS

Connection STG - Bridge

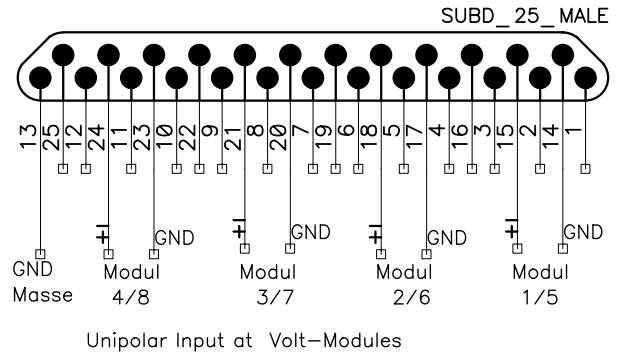


Connection Volt

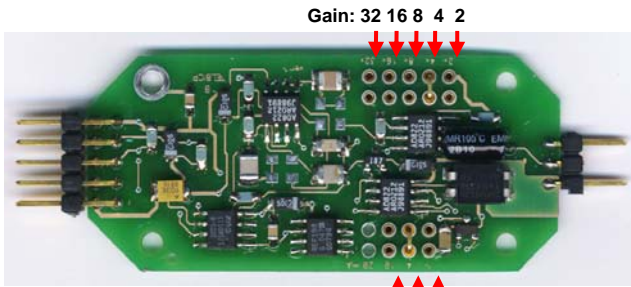


Volt module

Type: Volt
Range: +/-5 or +/-10V

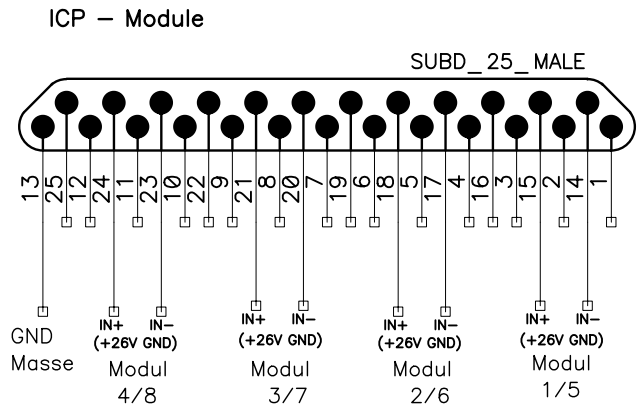


Connection ICP

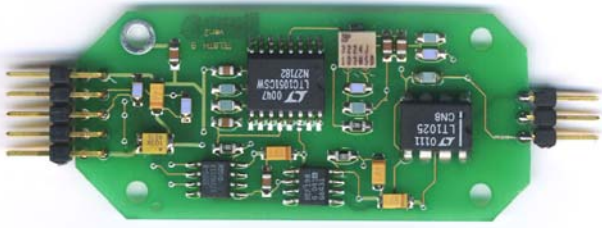


ICP module

Type: ICP
Gain: 2x, 4x, 8x, 16x or 32x
Constant current: 1, 4 or 10mA



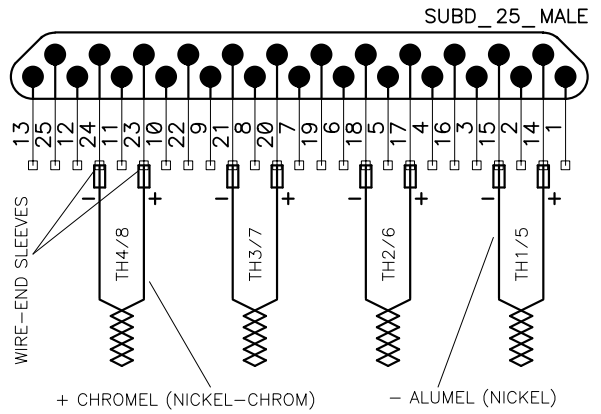
Connection Th K (without galvanic isolation!)



Thermo couple

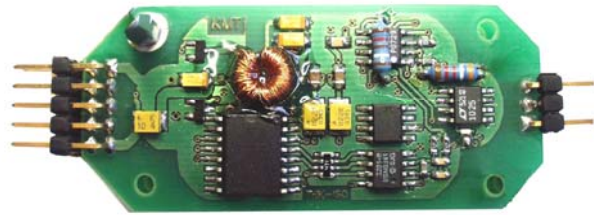
Type: K
 Range: 0 – 1000°C
 Bandwidth: 0-20Hz (more on request)
 Accuracy 1%
Not galvanic isolated!

THERMO COUPLE TYPE K



Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
0	-5,003	250	-2,546	500	0,002	750	2,558
50	-4,515	300	-2,044	550	0,515	800	3,061
100	-4,009	350	-1,538	600	1,031	850	3,550
150	-3,516	400	-1,029	650	1,542	900	4,035
200	-3,031	450	-0,515	700	2,052	1000	5,000

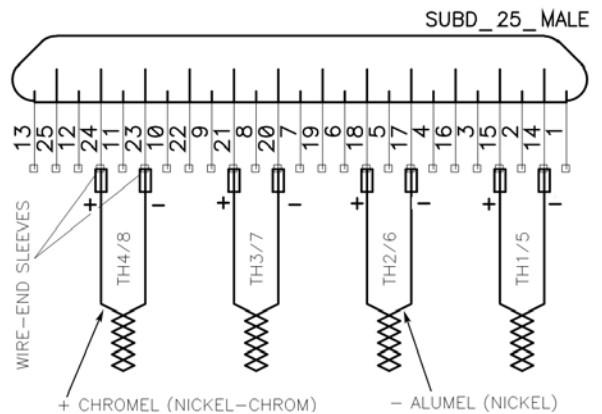
Connection Th K-ISO (with galvanic isolation!)



Thermo couple

Type: K
 Range: -50°C – 1000°C
 Bandwidth: 0-20Hz (more on request)
 Accuracy 1%
Galvanic isolated!

THERMO COUPLE TYPE K- ISO



Polarisation is different as K without galvanic isolation!!

Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]	Temperature [°C]	Output [V]
-50	-0.220	250	1.236	550	2.754	850	4.262
0	0.013	300	1.482	600	3.010	900	4.506
50	0.254	350	1.734	650	3.266	950	4.746
100	0.504	400	1.990	700	3.519	1000	4.980
150	0.752	450	2.242	750	3.700		
200	0.992	500	2.498	800	4.015		

With option "+/-10V output" you must multiply the table value with *2

Technical data:
Receiving Unit CT16- DEC with analoge and digital out (Decoder)



Front side view

37 pole Sub-D connector for analog signal output 1 to 16 channels

Receiver output (Power and Data for Rx)

Field strength display

Power LED

Power Switch

7-pole female TUCHEL connector for power supply input (10-30V DC)

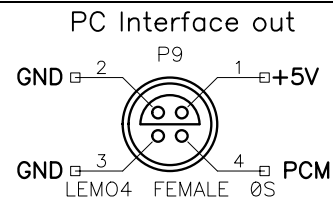
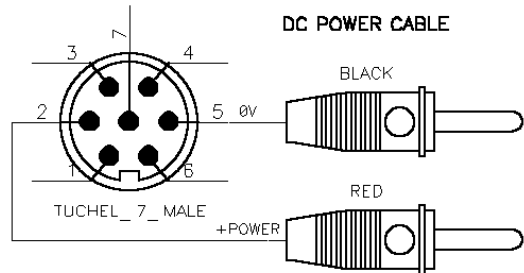
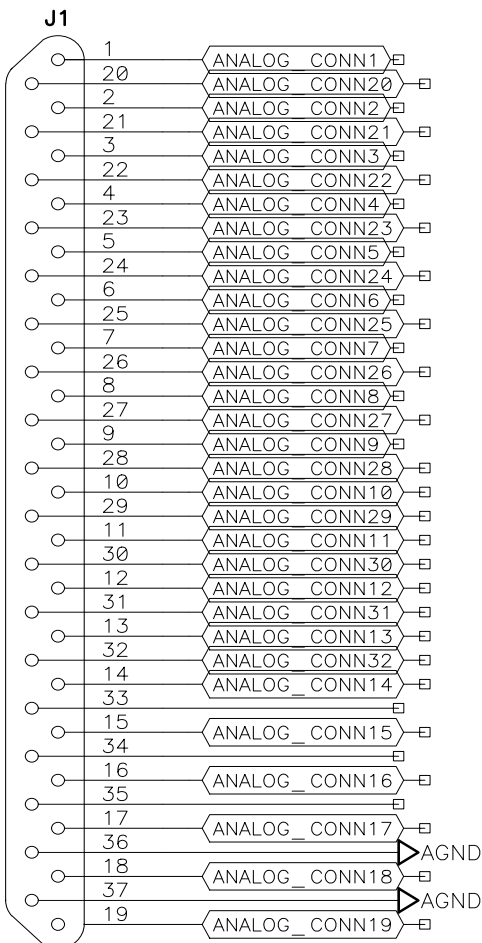
Syncross LED



Rear side view

PC Interface out
Auto Zero LED indicator

Pin connection 37pol Sub-D male



Optional BNC16 Box. Connect on 37pol Sub-D

Common data's:

Channels:	16 Analog with $\pm 5V$ output range via 37pol. Sub-D (optional digital PCM output for PCM interface ECIA110 for PC)
Resolution:	12 bit D/A converter with smoothing filter
Dynamic range:	72dB
Power input:	10-30 VDC
Power consumption:	1000mA at 12V
Receiver carrier frequency:	2.45 GHz
Dimensions:	205 x 105 x 65 mm. (without WLAN transceiver)
Weight:	1250 grams without receiving antenna (without WLAN transceiver)
<u>Time delay</u>	1 seconds between analog IN / OUT (through data buffers)
Operating Temperature:	-20 to +60C .
Shock:	20g in all directions.
System accuracy between encoder input and decoder output:	+/-0.25% without sensors



PCM interface ECIA110 with PCM to ECIA Adaptor