

CTP4/8/16

4/8/16-channel sensor telemetry system with different sensor inputs. High transmitting rate up to 5Mbit



- Inputs for STG, TH-K, ICP or VOLT
- Simultaneous sampling
- 16 bit resolution
- Software programmable
- Signal bandwidth up to 24kHz (4-CH)
- Powering 10-30V
- Radio telemetry transmission
- Output analog +/- 10V (Decoder)
- Digital data interface to PC (option)
- Waterproofed ENC housing (IP65)

General functions:



Picture show a 16 CH telemetry system (CTP16-ENC and CTP-DEC16 with accessories)

The CTP4/8/16 is a multi-channel sensor telemetry system for moving or point to point applications. The 2-channel plug-in acquisition modules from the encoder are easy to change and include signal condition, anti-aliasing-filter, A/D converter. All channels will simultaneous sampling. All acquisition modules are manage at CTP-Controller and encoded PCM output to the radio transmitter. Finally PCM data is transmitted via radio frequencies to the receiver.

Various configurations of different sensor modules are available incl. signal conditioning for strain gages (STG), thermocouples type K (TH-K), ICP sensors, potentiometer sensors (POT) and also voltage inputs. Mixed configuration available (2-CH-steps). All sensor modules are software programmable via LAN-Adapter. The LAN-Adapter has an integrated web interface and enables easy access!

The stationary receiver (Decoder) provides 4, 8 or 16 +/-10V analog outputs via Sub-D male socket (option: digital PC interface). The analog signal bandwidth can reach up to 24kHz with 5Mbit transmitter in 4-channel mode. The measurement accuracy is $\leq \pm 0.2\%$ (without sensor). The CTP4/8/16 is specified for operational temperatures from -20°C to $+70^{\circ}\text{C}$. The maximum distance between transmitter and receiving antenna is approx. 150 m – depending on the application!



Cut off frequency from anti-aliasing filter (-3dB) and sampling rate (red)

Bit rate	4 Channels	8 Channels	16 Channels
5000 kbit/s*	24000 Hz max. (62500 Hz)	12000 Hz (31250 Hz)	6000 Hz (15625 Hz)
2500 kbit/s	12000 Hz (31250 Hz)	6000 Hz (15625 Hz)	3000 Hz (7812.5 Hz)
1250 kbit/s	6000 Hz (15625 Hz)	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)
625 kbit/s	3000 Hz (7812.5 Hz)	1500 Hz (3906.25 Hz)	750 Hz (1953.125 Hz)
312,5 kbit/s	1500 Hz (3906.25 Hz)	750 Hz (1953.125 Hz)	375 Hz (976.56 Hz)

CTP4/8/16 Encoder for 4-8 or 16 channels

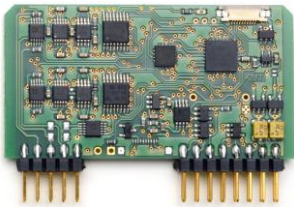


4,8 and 16-CH encoder in IP65 Aluminum housing

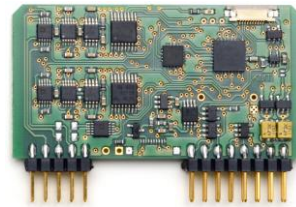


Encoder inside (e.g. 4-CH)

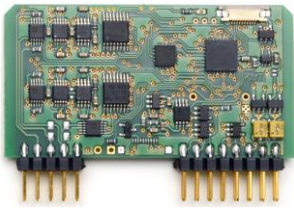
CTP acquisition modules



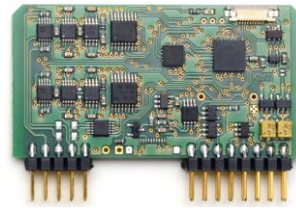
CTP-STG-V3
 Acquisition module for 2 strain gages
 Full, half and quarter bridge ($\geq 350\Omega$)
 Fixed excitation 4V DC
 Offset calibration by auto zero
 Manual offset shifting after auto zero
 Gain: 125-250-500-1000-2000
 Test shunt-cal step
 Signal bandwidth 0Hz to 3000Hz*
 Resolution 16bit
 Accuracy <0.2%
 Current consumption with full bridge 350 ohm 75mA



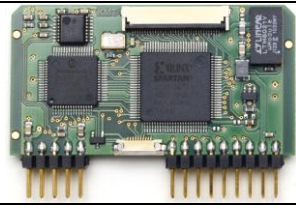
CTP-VOLT-V3
 Acquisition module for 2x high level inputs
 Range: $\pm 0,625V, \pm 1,25V, \pm 2,5V, \pm 5V, \pm 10V$
 Signal bandwidth 0Hz to 3000Hz*
 (*see table of cut-off-frequency)
 Resolution 16bit
 Accuracy <0.2%
 Current consumption 60mA



CTP-ICP[®]-V3
 Acquisition module for 2 ICP sensors
 Current EXC. 4mA
 Gain: 1-2-4-8-16-32
 Signal bandwidth 3 Hz to 3000Hz*
 (*see table of cut-off-frequency)
 Resolution 16bit
 Accuracy <0.2%
 Current consumption 100mA



CTP-TH-K-V3
 Acquisition module for 2x TH-K
Inputs galvanic isolated
 Range -50 to 1000°C, -50 to 500°C
 or -50 to 250°C
 Cut-off filter 30Hz (more on request)
 Resolution 16bit
 Accuracy: 0.2% at 1000°C range
 Current consumption 110mA



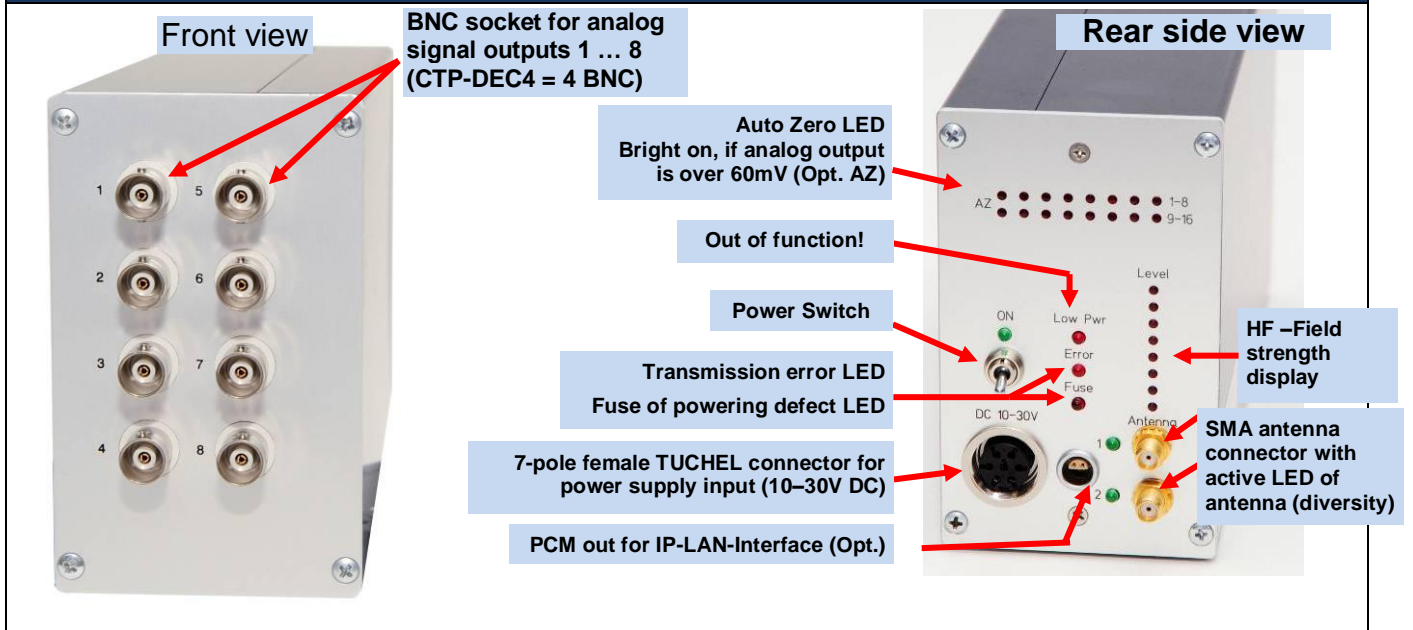
CTP-CONTROL-V3
 Controller 1- 32 acquisition modules
 Output: PCM
 Programmable via LAN adapter
 Current consumption 40mA, with LAN-adapter 140mA

System Parameters ENCODER:

Channels:	4,8 or 16
Resolution:	16 bit A/D converter with anti-aliasing filter, simultaneous sampling of all channels
Line-of-sight distance:	up to 150m (depends of application and bit rate) More range with special antennas on request!
Powering:	10-30V DC
Analog signal bandwidth:	See table
Transmission:	Digital PCM format
Transmission Power:	10mW!
Dimensions:	CT4= 90x90x52mm, CT8=90x125x52mm, CT16=90x185x52mm (L x W x H)
Weight:	CT4=450g, CT8=580g, CT16=820g
Operating temperature:	- 20 ... +80°C
Housing:	Aluminum anodized, waterproofed (IP65)
Humidity:	20 ... 80% no condensing
Vibration:	5g
Static acceleration:	100g in all directions
Shock:	200g in all directions

Technical specifications are subject to change without notice!

**CTP-DEC8 (4) Receiver unit for max 8 (4) Channels output via BNC
(radio transmission version with diversity receiver 312.5 ... 1250kbit)**



System Parameters:

Channels:	8 x +/-10V analog outputs via BNC or 4x BNC at CTP-DEC4
Resolution:	16 bit D/A converter, with smoothing filter
Power supply input:	10-30 VDC, power consumption <24 Watt
Analog signal bandwidth:	see frequency table
Transmission:	Digital PCM Format
Dimensions:	205 x 105 x 65mm
Weight:	1.25 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.2% without sensor influences
Environmental	
Operating:	-20 ... +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g
Static acceleration:	10g in all directions
Shock:	100g in all directions

CTP-DEC16 Receiver unit for max 16 Channels output via 37 pol. Sub D (radio transmission version with diversity receiver 312.5 ... 1250kbit)

Front side view

Female 37 pole Sub-D for analog signal output, CH 1 to 16



Rear side view

Auto Zero LED
Bright on, if analog output is over 60mV

No function

Power Switch

Transmission error LED
Fuse of powering defect LED

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

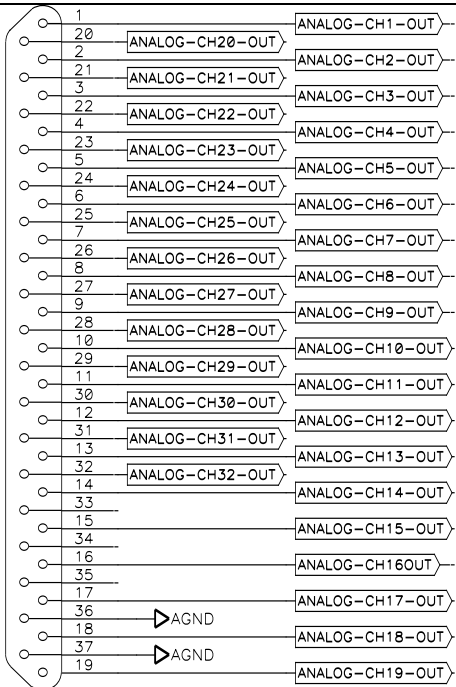
PCM out for IP-LAN-Interface (Opt.)



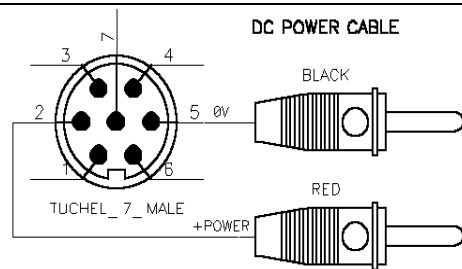
Level

HF-Field strength display

SMA antenna connector with active LED of antenna (diversity)



Plug-side



Optional BNC16Box. Connect on 37pol Sub-D

CTP-DEC16 System Parameters:

Channels:	16 x +/-10V analog outputs via Sub-D male socket
Resolution:	16 bit D/A converter, with smoothing filter
Power supply input:	10-30 VDC, power consumption <24 Watt
Analog signal bandwidth:	see frequency table
Transmission:	Digital PCM Format
Dimensions:	205 x 105 x 65mm
Weight:	1.25 kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.2% without sensor influences
Environmental	
Operating:	-20 ... +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g
Static acceleration:	10g in all directions
Shock:	100g in all directions

Settings CTP--ENC

Web interface address:
IP 192.168.0.110

Settings:

STG

Gain 125-250-500-1000-2000
Half- and full bridge
Make Auto Zero YES/NO

ICP

Gain 1-2-4-8-16

VOLT

Range $\pm 0,625V$, $\pm 1,25V$, $\pm 2,5V$,
 $\pm 5V$, $\pm 10V$

TH-K

Range -50 to 1000°C, -50 to 500°C
or -50 to 250°C

Selectable for each channel!

Programmable via web interface

Channel 1 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 1
Channel 2 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 2
Channel 3 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 3
Channel 4 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 4
Channel 5 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 5
Channel 6 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 6
Channel 7 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 7
Channel 8 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 8
Channel 9 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 9
Channel 10 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 10
Channel 11 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 11
Channel 12 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 12
Channel 13 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 13
Channel 14 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 14
Channel 15 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 15
Channel 16 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 16
Channel 17 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 17
Channel 18 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 18
Channel 19 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 19
Channel 20 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 20
Channel 21 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 21
Channel 22 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 22
Channel 23 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 23
Channel 24 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 24
Channel 25 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 25
Channel 26 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 26
Channel 27 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 27
Channel 28 Strain Gauge Type: FULL-BRIDGE Gain: 1000 Make Autozero: Channel 28
Channel 29 ICP Gain: 1 Channel 29
Channel 30 ICP Gain: 1 Channel 30
Channel 31 ICP Gain: 1 Channel 31
Channel 32 ICP Gain: 1 Channel 32

Upload Parameters to MT-PRO and perform Autozero

Download Parameters from MT-PRO

*** Download success ***

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