

## User Manual

# CTP32-Rotate

**32 channel telemetry for rotating applications like wheels or rotors, high signal bandwidth, 16bit, software programmable**



### INSTRUCTIONS FOR QUALIFIED PERSONNEL ONLY!

- Inputs for STG, POT, TH-K, ICP, VOLT ..
- Simultaneous sampling
- 16 bit resolution
- Software programmable
- Signal bandwidth: 32 x 0-3000Hz
- Battery power up to 6h
- Radio telemetry transmission
- Output analog +/- 10V
- Digital data interface to PC (option)
- Waterproofed ENC housing (IP65)

## General functions:



The CTP32-Rotate is a 32-channel telemetry system for rotating applications with integrated signal conditioning for sensor signals, wireless digital transmission and analog reproduction.

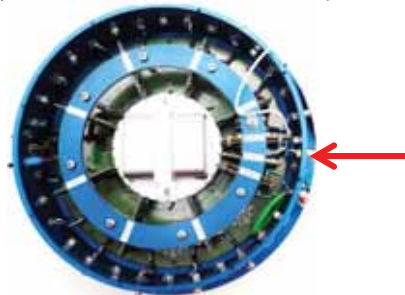
In the encoder/transmitter unit the sensor signals are conditioned, filtered (anti-aliasing) and digitized (16-bit). Simultaneous sampling is provided for all channels. Finally, the PCM encoded data is transmitted via radio frequencies to the receiver.

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!

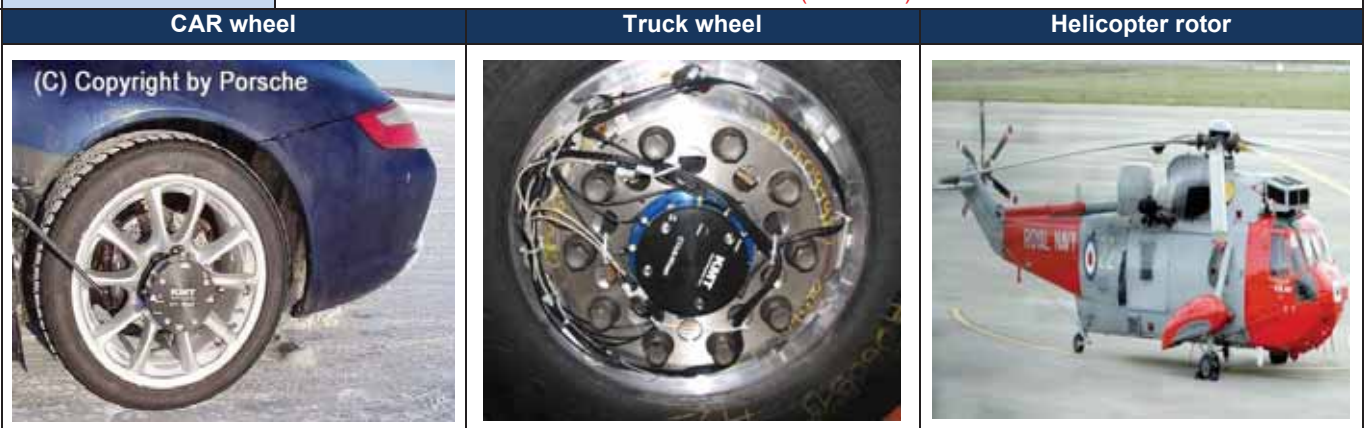
The stationary receiver provides 32 +/-10V analog outputs via Sub-D male socket (option: digital PC interface).

The analog signal bandwidth is 0-190 Hz (320kbit) and up to 0-3000Hz (5000kbit) for 32 channels. The measurement accuracy is  $\leq \pm 0.2\%$  (without sensor). The CTP32-Rotate is specified for operational temperatures from  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ . The maximum distance between transmitter and receiving antenna is approx. 10-20 m (30-60 feet) – depending on the application! Mixed configuration available (2-CH-steps).



Specify CTP-acquisition modules at order!!

Frequency table	Cut off frequency from anti-aliasing filter (-3dB) and sampling rate (see red)
Bit rate	32 CH.
5000kbit	3000 Hz (7812.50Hz)
2500kbit	1500 Hz (3906.25 Hz)
1250kbit	750 Hz (1953.125 Hz)
625kbit	375 Hz (976.56 Hz)
312.5kbit	190 Hz (488.28 Hz)



## CTP32-Rotate Transmitting Unit Technical Data (Encoder)

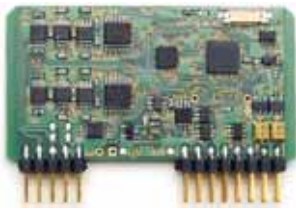


Encoder in IP65 Aluminum housing



Encoder inside

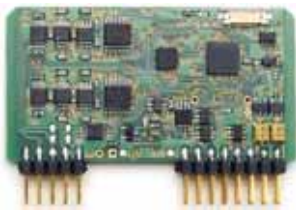
### CTP acquisition modules (rotor side)



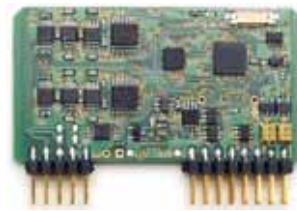
**CTP-STG V3**  
 Acquisition module for 2 strain gages  
 Full, half and quarter bridge ( $\geq 350\Omega$ )  
 Fixed excitation 4V DC  
 Offset calibration by auto zero  
 Gain: 125-250-500-1000-2000  
 Signal bandwidth 0Hz to 3000Hz\*  
 Resolution 16bit  
 Accuracy <0.2%  
 Current consumption with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



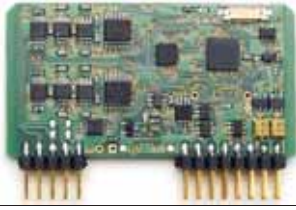
**CTP-VOLT V3**  
 Acquisition module for 2x high level inputs  
 Range:  $\pm 0.625V$ ,  $\pm 1.25V$ ,  $\pm 2.5V$ ,  $\pm 5V$ ,  $\pm 10V$   
 Signal bandwidth 0Hz to 3000Hz\*  
 (\*see table of cut-off-frequency)  
 Resolution 16bit  
 Accuracy <0.2%  
 Current consumption 60mA



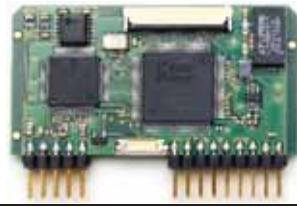
**CTP-ICP V3**  
 Acquisition module for 2 ICP sensors  
 Current EXC. 4mA  
 Gain: 1-2-4-8-16-32  
 Signal bandwidth 3 Hz to 3000Hz\*  
 (\*see table of cut-off-frequency)  
 Resolution 16bit  
 Accuracy <0.2%  
 Current consumption 100mA



**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-POT V3**  
 Acquisition module for 2 poti-sensors  
 with  $\geq 350\Omega$  ... 10k $\Omega$  (typical 1k $\Omega$ )  
 Fixed excitation 4V DC  
 Signal bandwidth 0Hz to 3000Hz\*  
 Resolution 16bit  
 Accuracy <0.2%  
 Current consumption about 70mA



**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:	32
Resolution:	16 bit A/D converter with anti-aliasing filter, simultaneous sampling of all channels
Line-of-sight distance:	up to 20m (depends of application and bit rate)
Powering:	Li Ion Accumulator 7.2V, 7800mA capacity up to 6 hours
Power consumption:	about 1300mA using 32x STG full bridge sensors 350 Ohms
Analog signal bandwidth:	See table
Transmission:	Digital PCM Miller format - FSK
Transmission Power:	10mW
Dimensions:	Diameter 250mm, bottom plate diameter 280mm, height 80mm (without antenna), 160 with antenna!
Weight:	3.60 kg without sensor cables and antenna
Operating temperature:	- 20 ... +70°C
Housing:	Aluminum anodized, waterproofed (IP65)
Humidity:	20 ... 80% no condensing
Vibration:	5g Mil Standard 810C, Curve C
Static acceleration:	100g in all directions, <b>1000 RPM</b>
Shock:	200g in all directions

*Technical specifications are subject to change without notice!*

# CTP-DEC32 Receiver unit for max 32 Channels output via 37 pol. Sub D (radio transmission version via quad receiver 1250 and 5000kbit)

## Front side view

Female 37 pole Sub-D for analog signal output, CH 1 to 32



## Rear side view

Low Pwr LED ON = BATT empty!

Power ON LED

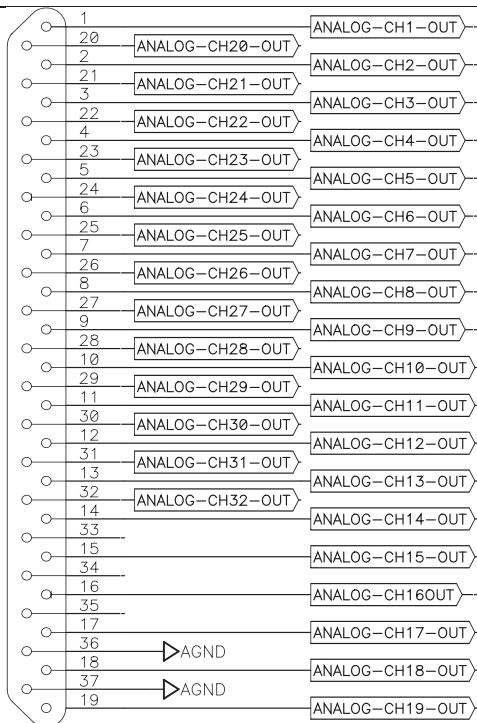
Power Switch

Transmission error LED  
Fuse of powering defect LED

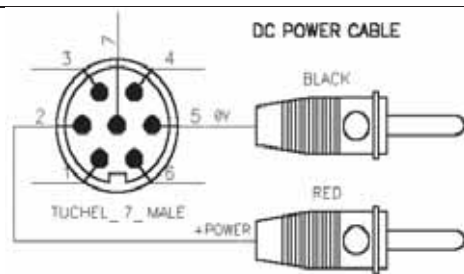
7-pole female TUCHEL connector for power supply input (10-30V DC)



PCM IN coming from HF-BOX



Plug-side

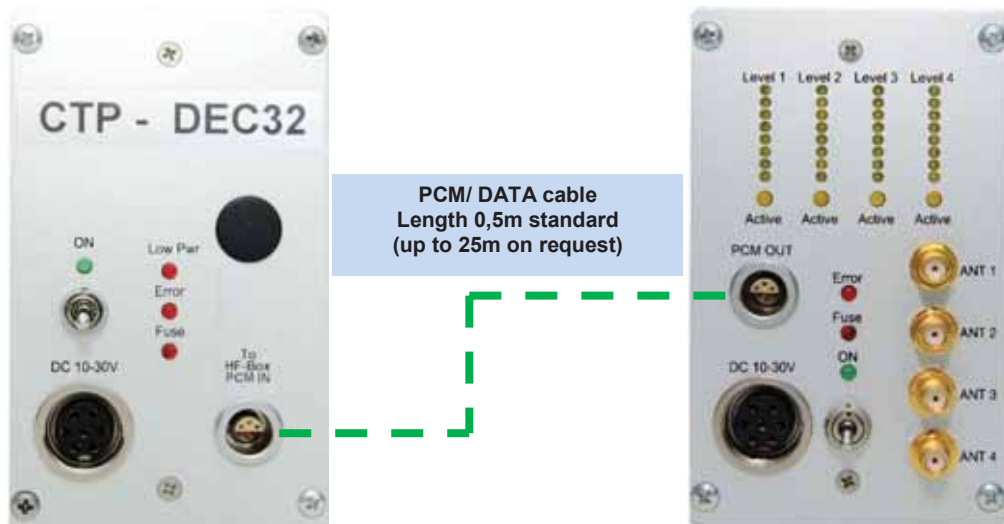
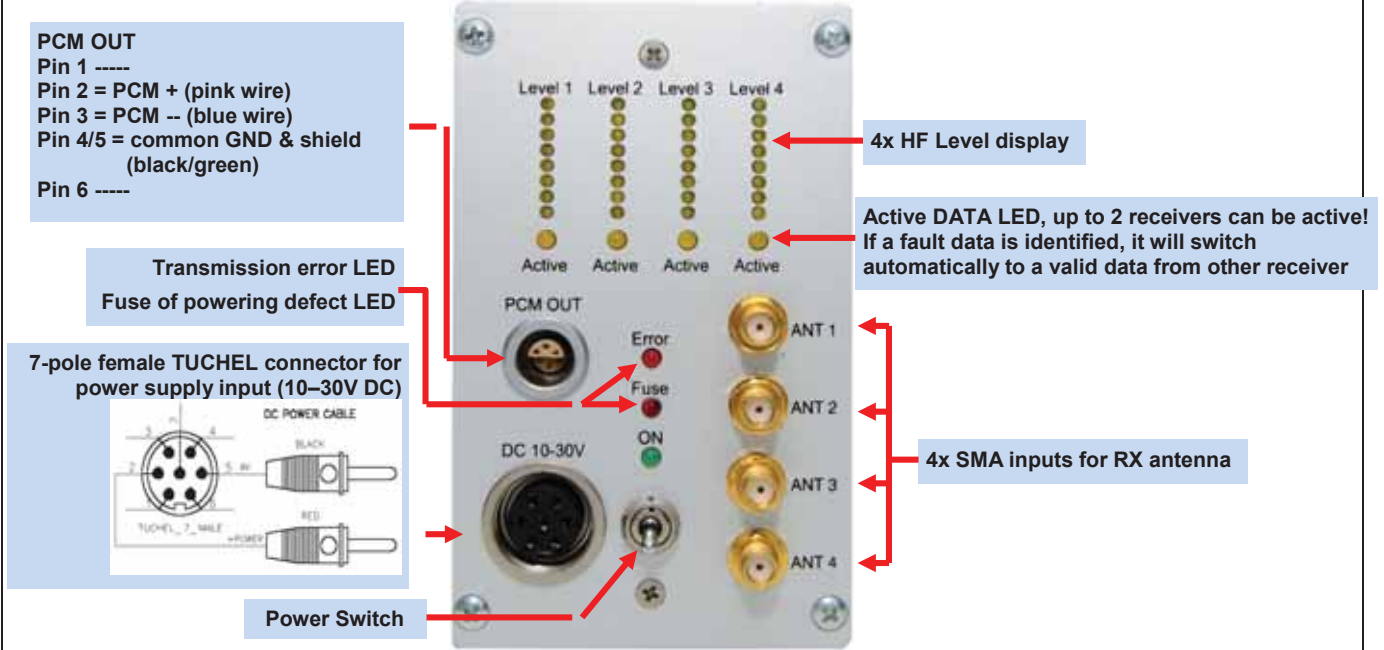


Optional BNC32Box. Connect on 37pol Sub-D

## CTP-DEC32 System Parameters:

Channels:	32 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:	1.00kg without cables and antenna
Overall system accuracy between encoder input and decoder output:	+/-0.2% without sensor influences
<b>Environmental</b>	
Operating:	-20 ... +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g
Static acceleration:	10g in all directions
Shock:	100g in all directions

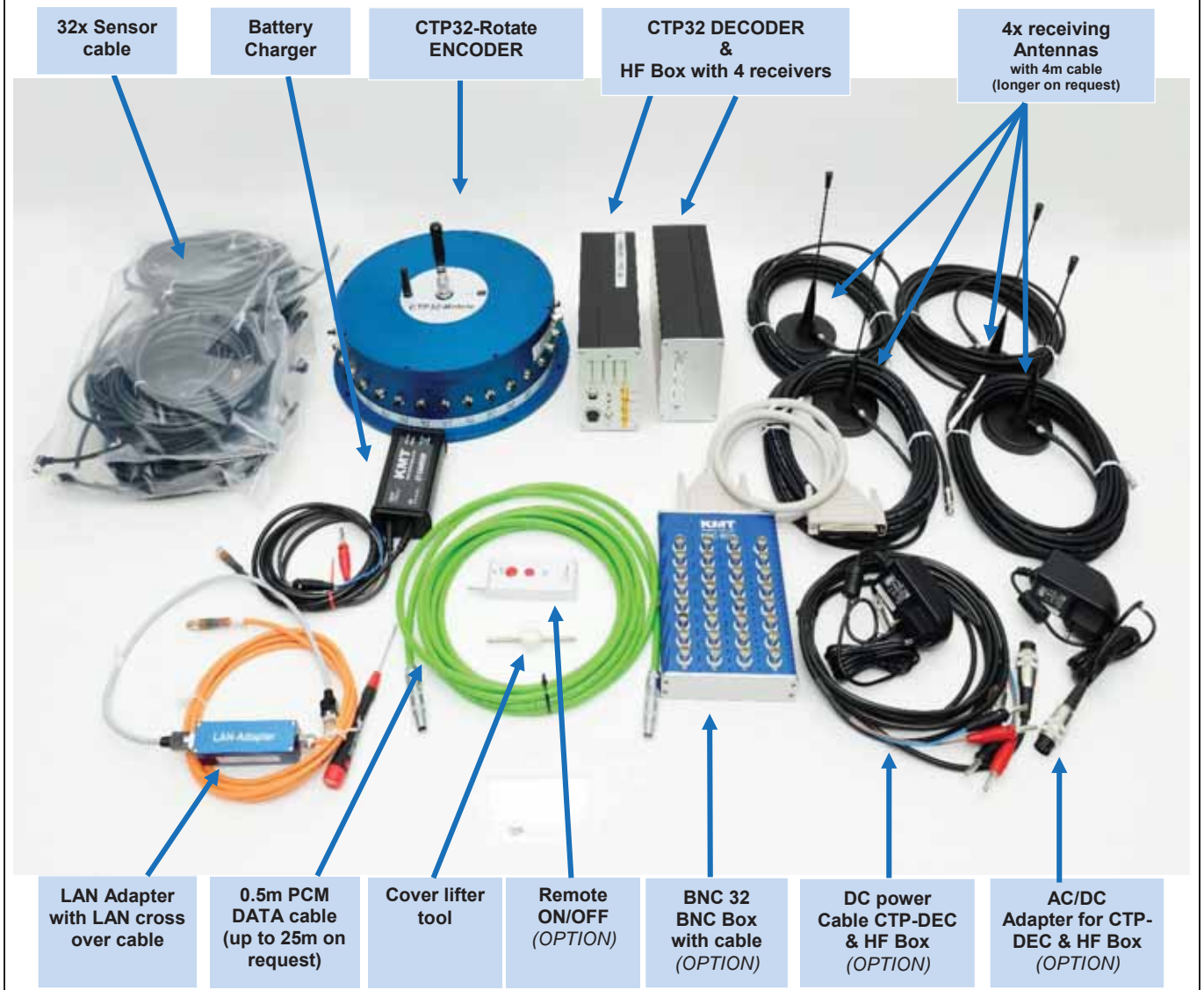
**CTP-DEC32 Receiver unit for max 32 Channels output via 37 pol. Sub D  
(radio transmission version with HF BOX Quad with 4 receiver 1250-5000kbit)**



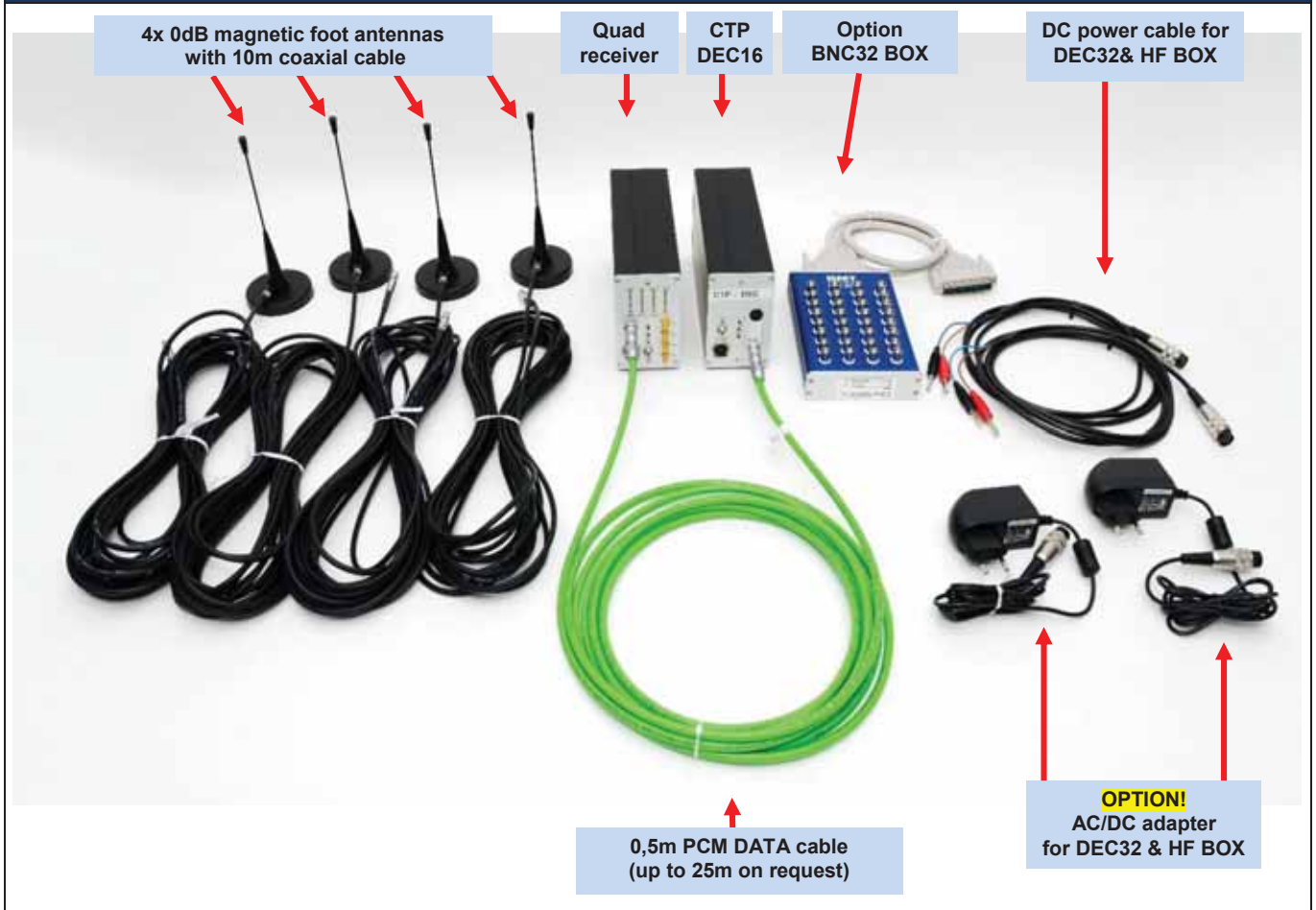
**HF BOX Quad System Parameters:**

HF receivers	4
Antenna connection	SMA
Output	PCM
Power supply input:	10-30 VDC, power consumption <24 Watt
Dimensions:	205 x 105 x 65mm
Weight:	1.050 kg without cables and antenna
Environmental	
Operating:	-20 ... +70°C
Humidity:	20 ... 80% not condensing
Vibration:	5g
Static acceleration:	10g in all directions
Shock:	100g in all directions

## SET of CTP32-Rotate 1250...5000kbit telemetry with quad receiver



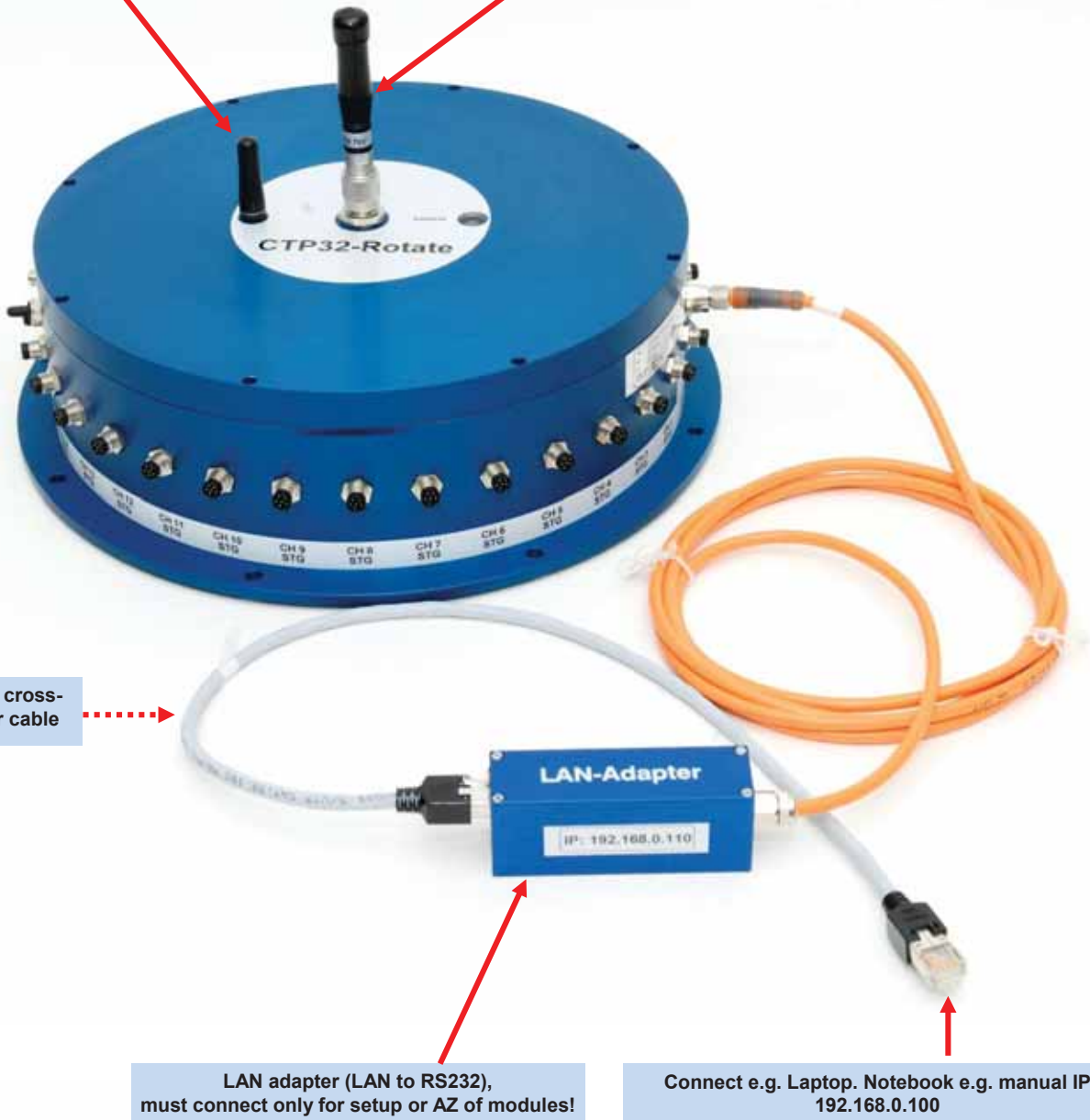
## Set of CTP-Decoder with external HF-Box (static part)



## CTP-ENCODER (rotating part)

Remote receiving antenna (Option)

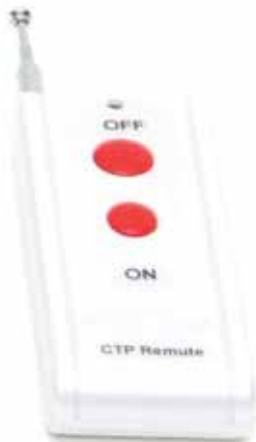
-3dB transmitting antenna



LAN cross-over cable

LAN adapter (LAN to RS232), must connect only for setup or AZ of modules!

Connect e.g. Laptop. Notebook e.g. manual IP 192.168.0.100



Optional Remote for BATT ON/OFF, range about 10m (free view)

Power switch must UP position :

UP = REMOTE (only remote receiver active with about 8-10mA current consumption!)

MIDDLE = OFF (total off without any current consumption)

DOWN = ON



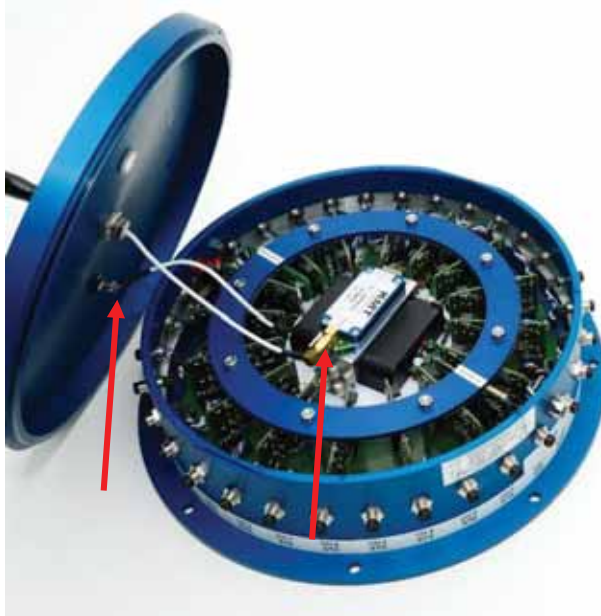
**CTP32-Rotate Encoder – How to open device – Normal not necessary, only if you must change modules!**



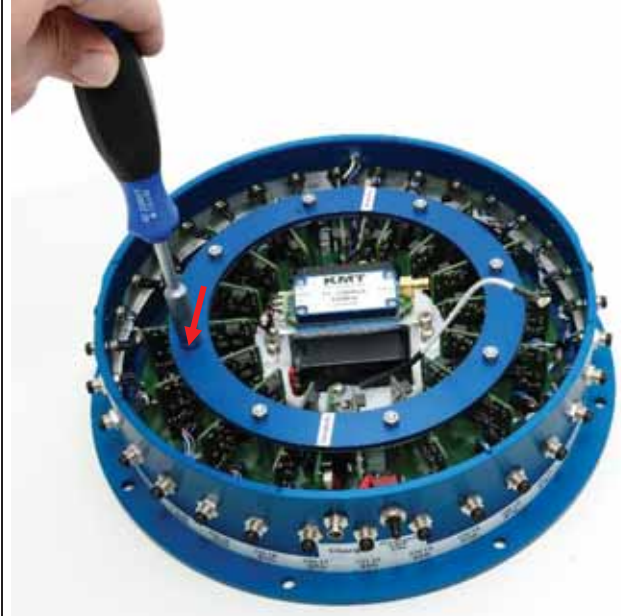
1. Open hexagon screw (2.5mm) with 2mm screw driver



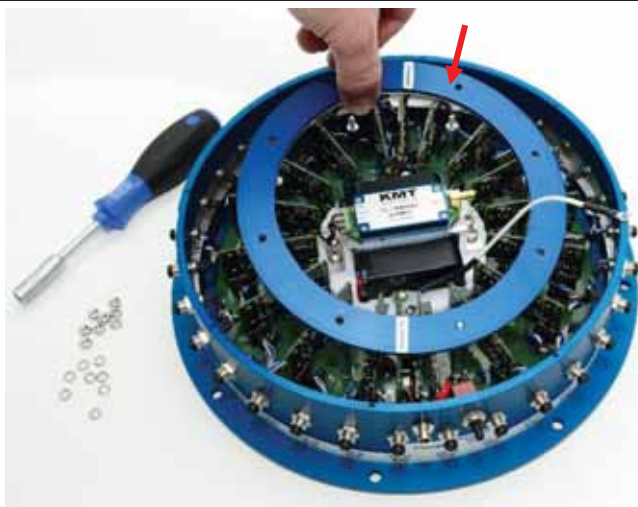
2. Use cover lifter to open the cover carefully



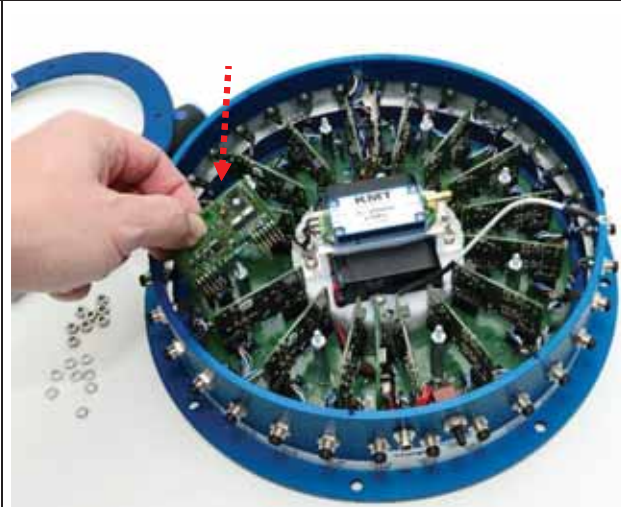
3. Disconnect remote and transmitting antenna carefully!



4. Open 8 nuts from modules holder ring (nut with spring washer!)



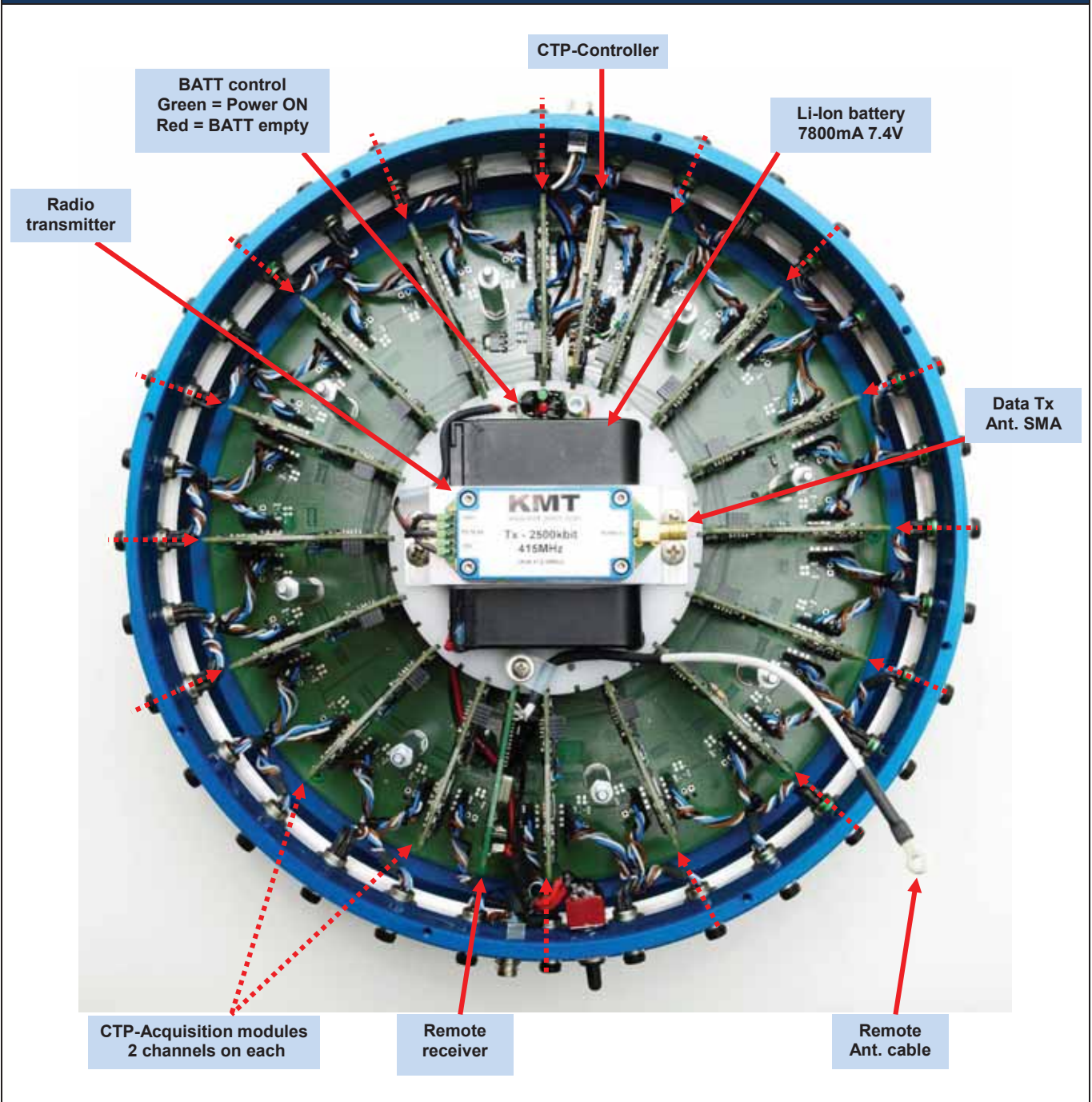
5. Remove holder ring



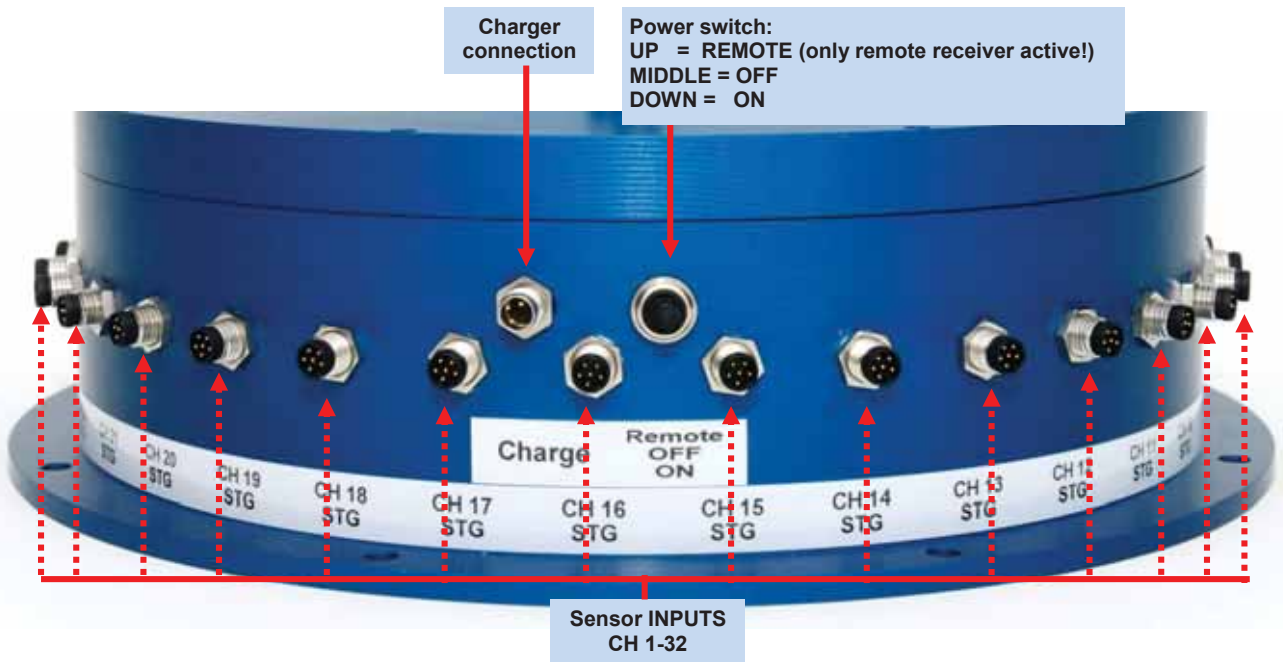
6. Now you can change CTP-Acquisition modules

**Take care with connectors of modules. Be sure that all pins are in right in the connection!**

# CTP32-Rotate Encoder – Modules

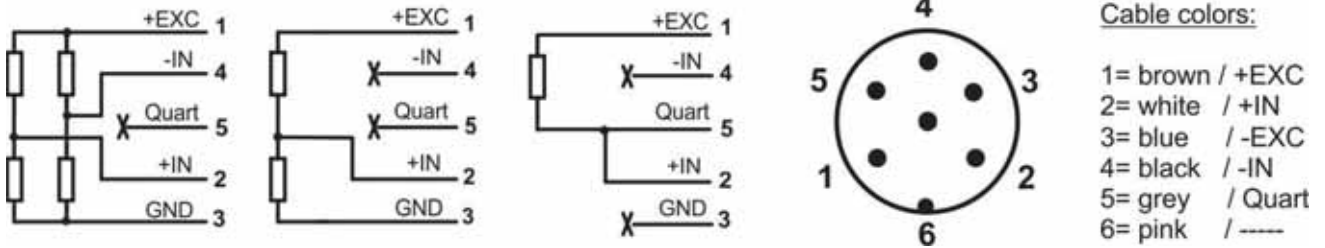


# CTP32-Rotate Encoder – Pin connection

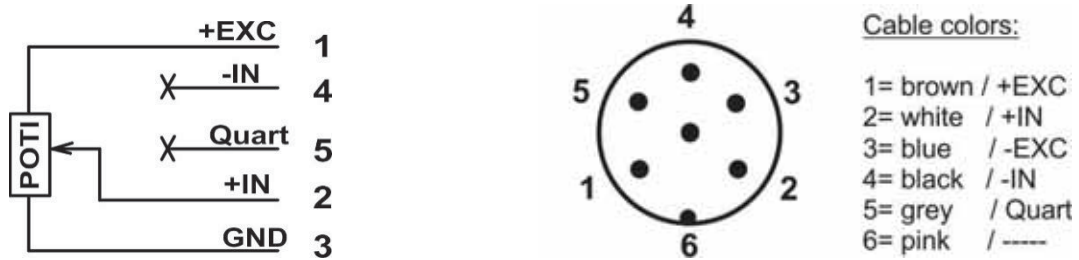


## CTP32-Rotate Encoder – Pin connection

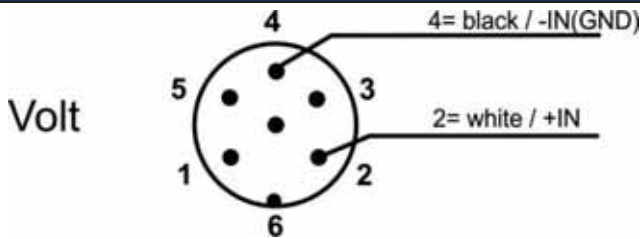
### Strain gage connection



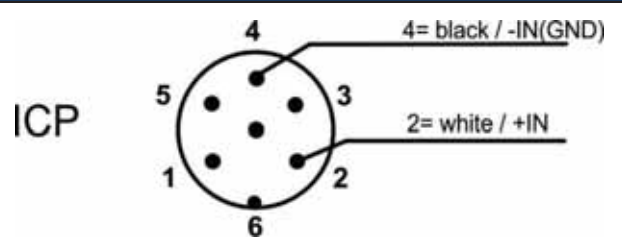
### Potentiometer



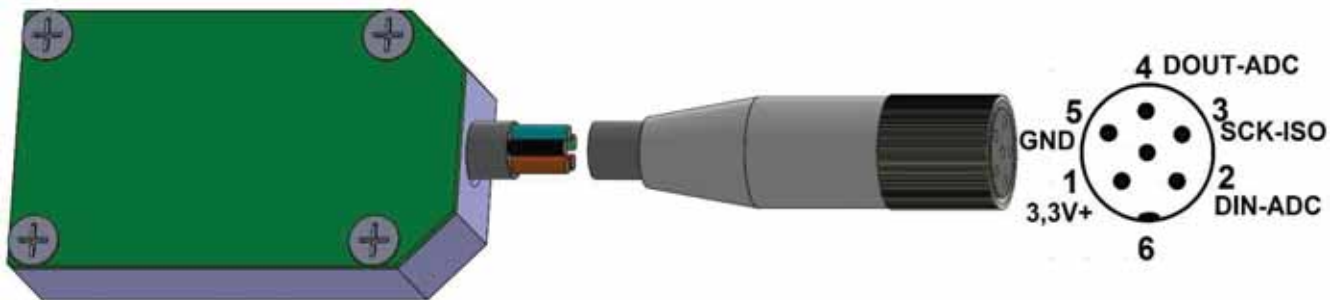
### VOLT connection



### ICP connection

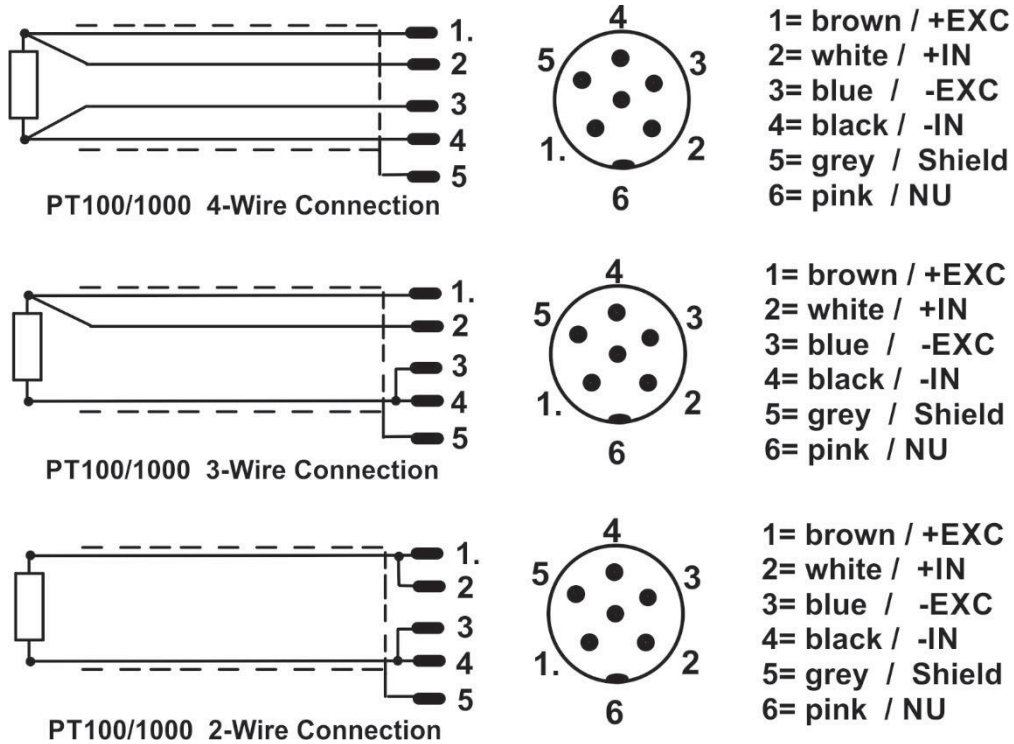


### Th-K connection

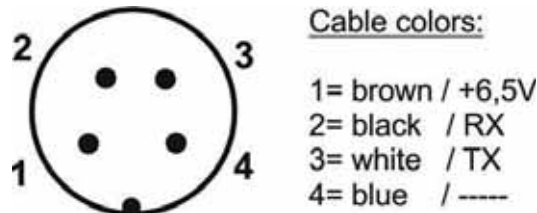


## CTP32-Rotate Encoder – Pin connection

### Pt100/1000



### Setup LAN connection



## Li Ion re-chargeable battery with charger unit for CTP32-Rotate



Charge plug at CTP16-Rotate ENC



Attention:

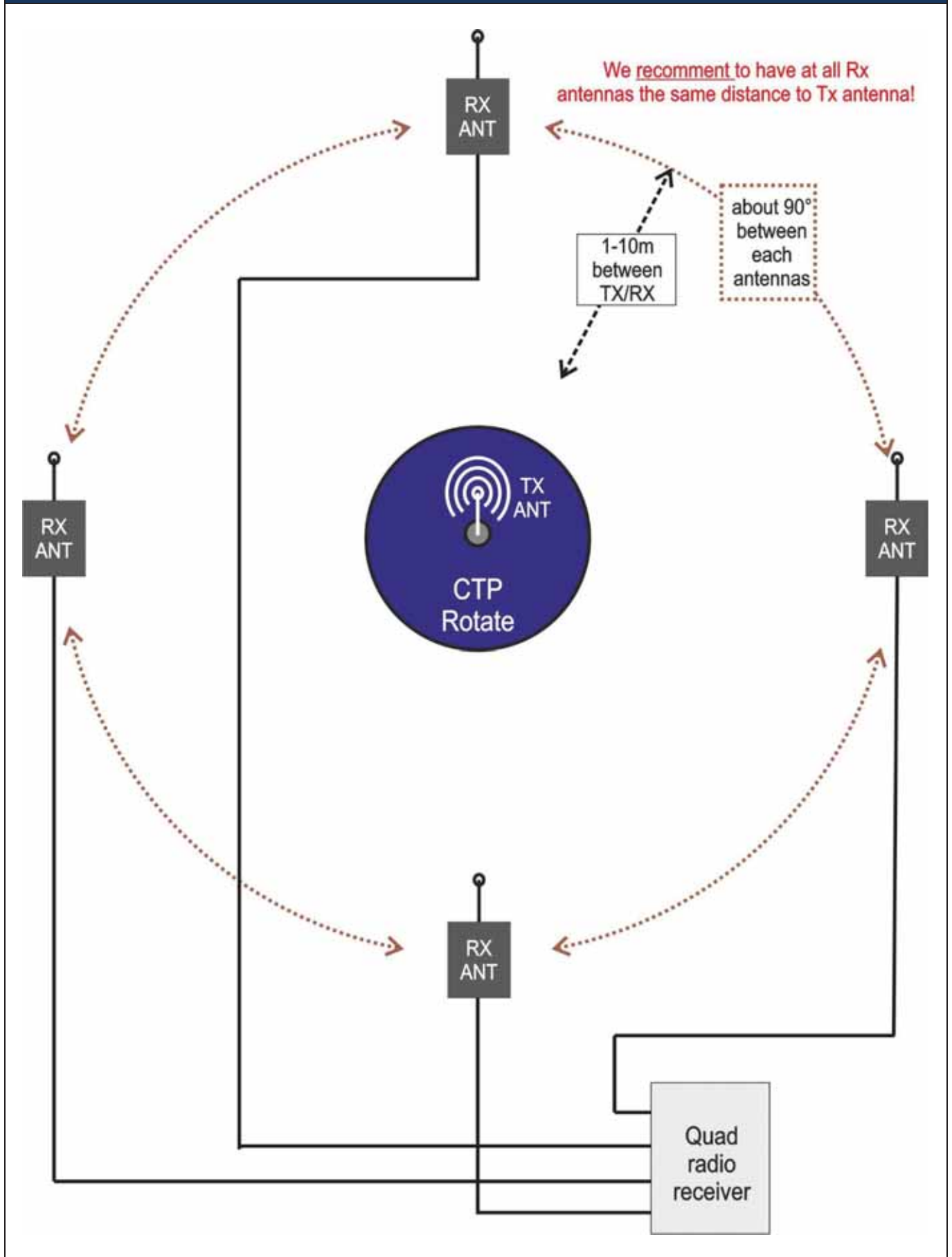
Li Ion Accumulator 7.2V 7600mAh has a capacity for about 5-6h.  
 If the green LED indicator is ON, system is power ON  
 If the red LED indicator is ON, battery is about 90% discharged and the device will switch off after 20-30 minutes!



CT-CHARGER XL for CTP-Rotate

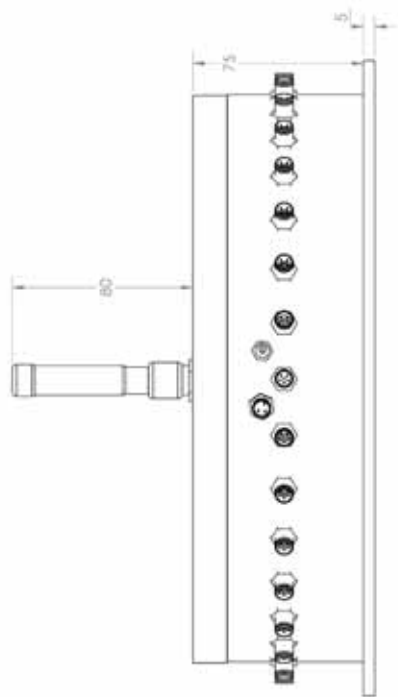
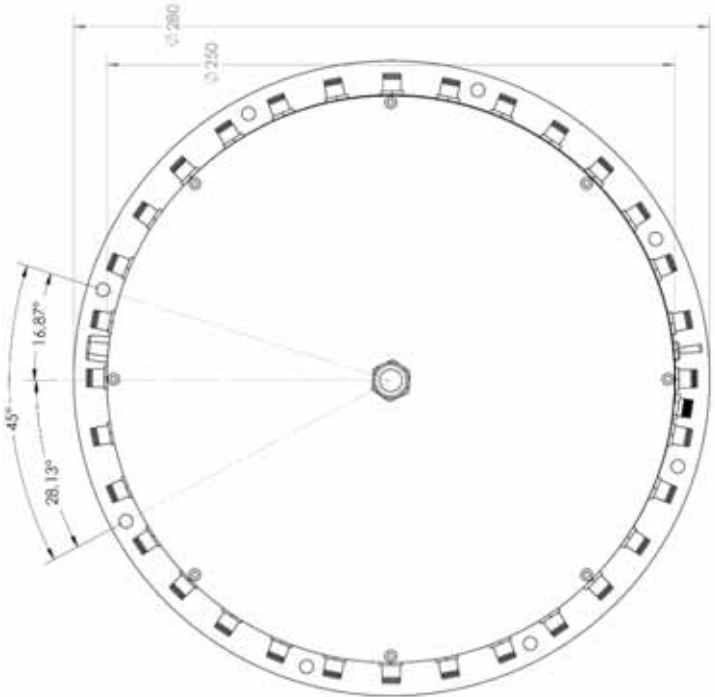
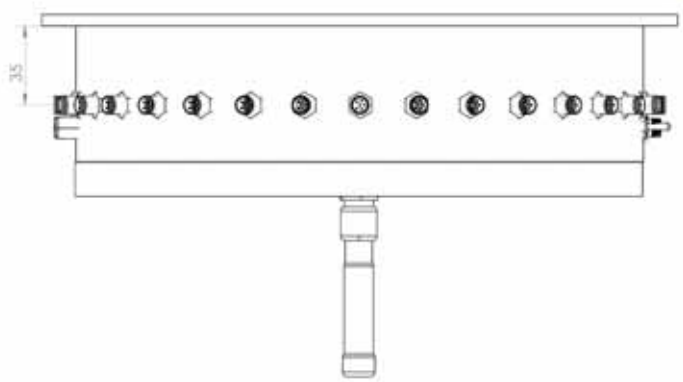
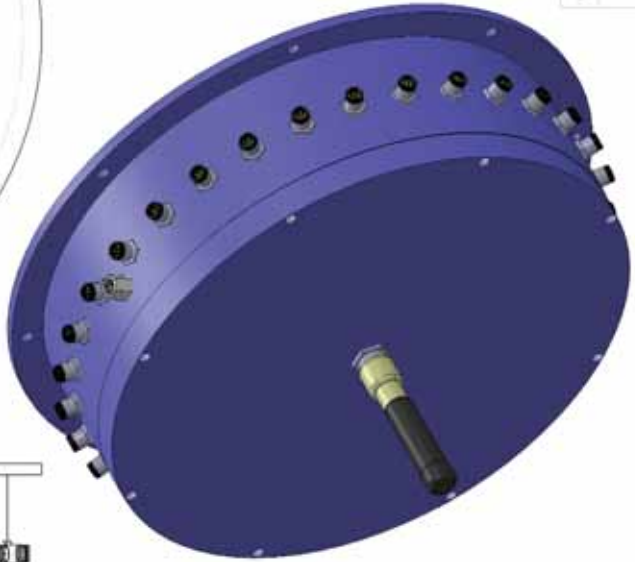
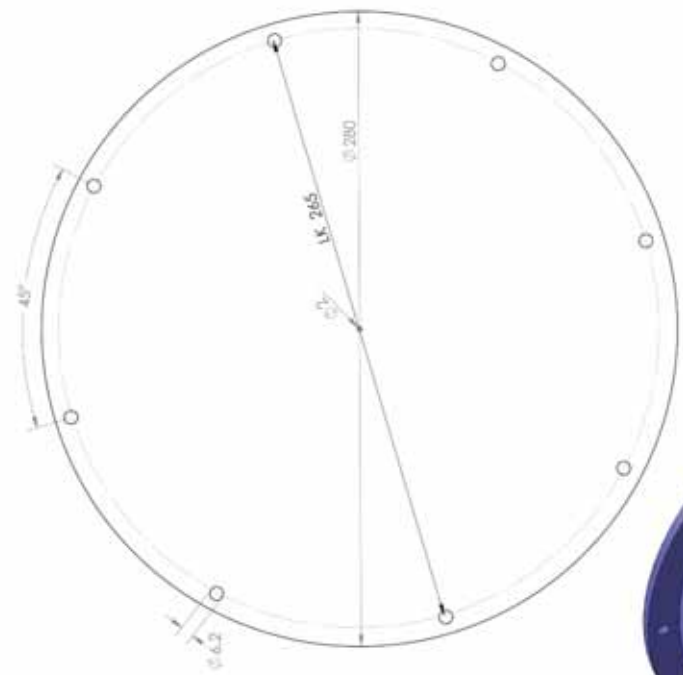
1. Plug the 3-pole socket (charger) in to the CTP-Rotate encoder.
2. Plug banana plugs on to a battery or AC/DC power supply with a voltage range of 10-30V, 30 WATT
3. Press and hold the switch for 1 second to begin charging. The battery will now charge. Charge time 8 hours!

## Recommend position of receiving antennas

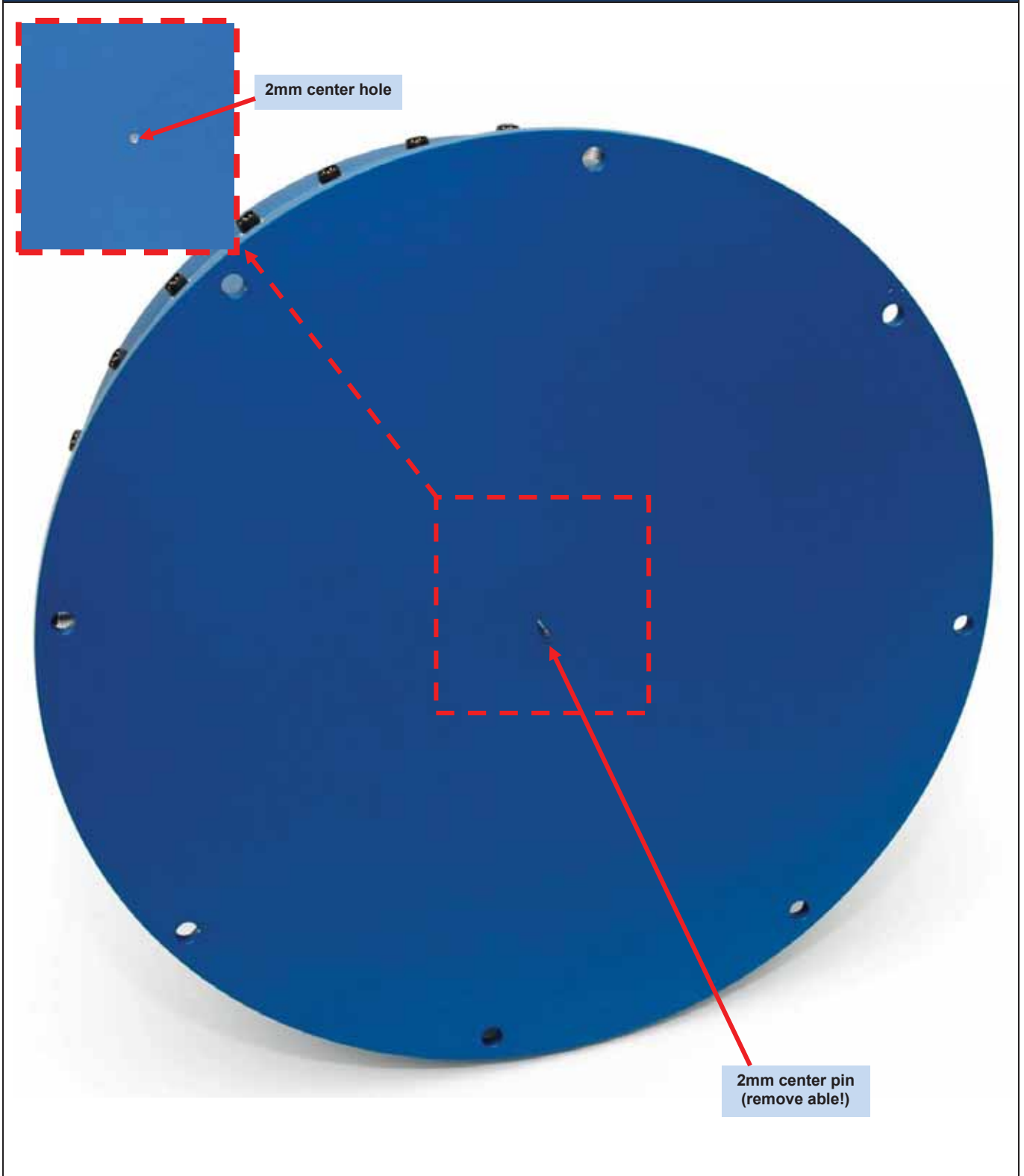


# Dimensions CTP32-Rotate-ENC

Date	Version	Modt
11/13/2014		Revisjon
		Scale
		2:3
		Part
		CTP32-ROT
		Send kommentarer til: <a href="mailto:ctp@ctp.no">ctp@ctp.no</a>



CTP32-Rotate-ENC – bottom side with 2mm center pin





## Settings CTP-Rotate-ENC

## Programmable via web interface

Web interface address LAN adapter:  
e.g. IP 192.168.0.110 or 111, 112  
(see current IP no. on LAN-Adapter!!)

### 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

#### PT100/1000

Type:	PT100	4 Wire
	PT100	3 Wire
	PT100	2 Wire
	PT1000	4 Wire
	PT1000	3 Wire
	PT1000	2 Wire

Range: -25..150 °C  
-50..300 °C  
-100..600 °C

Selectable for each channel!

KMT MT-PRO Analog Channel Setup

Channel	Type	Gain	Make Autozero
Channel 1	Strain Gauge	1000	<input type="checkbox"/>
Channel 2	Strain Gauge	1000	<input type="checkbox"/>
Channel 3	Strain Gauge	1000	<input type="checkbox"/>
Channel 4	Strain Gauge	1000	<input type="checkbox"/>
Channel 5	Strain Gauge	1000	<input type="checkbox"/>
Channel 6	Strain Gauge	1000	<input type="checkbox"/>
Channel 7	Strain Gauge	1000	<input type="checkbox"/>
Channel 8	Strain Gauge	1000	<input type="checkbox"/>
Channel 9	Strain Gauge	1000	<input type="checkbox"/>
Channel 10	Strain Gauge	1000	<input type="checkbox"/>
Channel 11	Strain Gauge	1000	<input type="checkbox"/>
Channel 12	Strain Gauge	1000	<input type="checkbox"/>
Channel 13	Strain Gauge	1000	<input type="checkbox"/>
Channel 14	Strain Gauge	1000	<input type="checkbox"/>
Channel 15	Strain Gauge	1000	<input type="checkbox"/>
Channel 16	Strain Gauge	1000	<input type="checkbox"/>
Channel 17	Strain Gauge	1000	<input type="checkbox"/>
Channel 18	Strain Gauge	1000	<input type="checkbox"/>
Channel 19	Strain Gauge	1000	<input type="checkbox"/>
Channel 20	Strain Gauge	1000	<input type="checkbox"/>
Channel 21	Strain Gauge	1000	<input type="checkbox"/>
Channel 22	Strain Gauge	1000	<input type="checkbox"/>
Channel 23	Strain Gauge	1000	<input type="checkbox"/>
Channel 24	Strain Gauge	1000	<input type="checkbox"/>
Channel 25	Strain Gauge	1000	<input type="checkbox"/>
Channel 26	Strain Gauge	1000	<input type="checkbox"/>
Channel 27	Strain Gauge	1000	<input type="checkbox"/>
Channel 28	Strain Gauge	1000	<input type="checkbox"/>
Channel 29	ICP	1	<input type="checkbox"/>
Channel 30	ICP	1	<input type="checkbox"/>
Channel 31	ICP	1	<input type="checkbox"/>
Channel 32	ICP	1	<input type="checkbox"/>

Upload Parameters to MT-PRO and perform Autozero

Download Parameters from MT-PRO

\*\*\* Download success \*\*\*

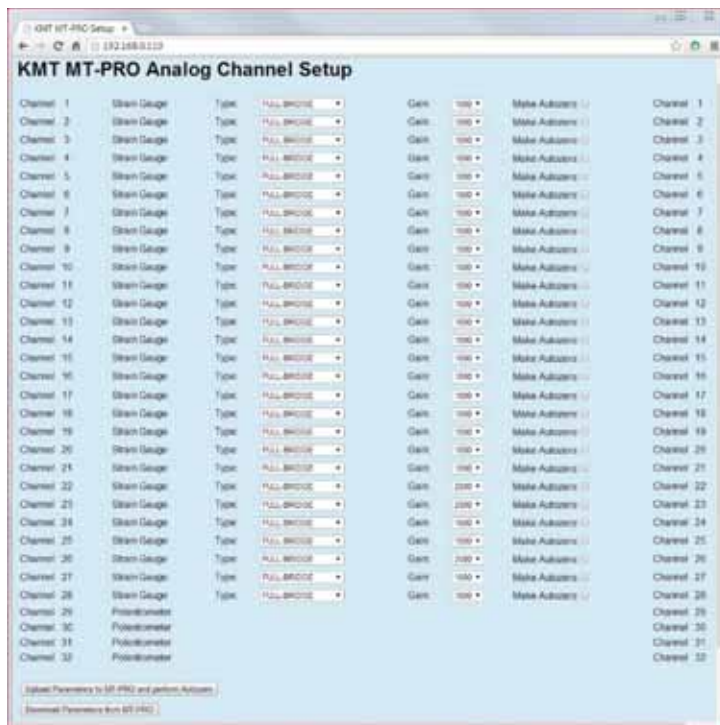
KMT Kraus Messtechnik GmbH  
Gewerbestring 3  
D-82624 OTTERFING  
Germany  
[www.kmf-gmbh.com](http://www.kmf-gmbh.com)  
[info@kmf-gmbh.com](mailto:info@kmf-gmbh.com)

# CTP ENCODER

## Software setup via LAN-Adapter and notebook



- 1) Power ON the CTP32-Rotate ENCODER
- 2) Connect the LAN-Adapter on the SETUP connector of CTP32-Rotate ENCODER
- 3) Adjust your notebook to manual on e.g. IP 192.168.0.100 (see current IP no. of LAN-Adapter!!)
- 4) Connect LAN-Adapter with your notebook via **cross-over** LAN cable
- 5) Open e.g. Microsoft Internet Browser and enter IP address **192.168.0.110** of LAN-Adapter
- 6) Now you get access on the web-interface and can adjust the CTP acquisition module



# MTP-CONTROL V1 - Software setup


## DOWNLOAD parameters for device

The screenshot displays the 'KMT MT-PRO Analog Channel Setup' web interface. The browser address bar shows '192.168.0.110'. The page title is 'KMT MT-PRO Analog Channel Setup'. The main content is a table with 32 rows, each representing a channel. The columns are: Channel (1-32), Type (Strain Gauge or Potentiometer), Type (FULL BRIDGE), Gain (1000 or 2000), and Make Autozero (checkbox). At the bottom of the page, there are two buttons: 'Upload Parameters to MT-PRO and perform Autozero' and 'Download Parameters from MT-PRO'. A red message '\*\*\* Download success \*\*\*' is displayed below the buttons.

Channel	Type	Type	Gain	Make Autozero
Channel 1	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 2	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 3	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 4	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 5	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 6	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 7	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 8	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 9	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 10	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 11	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 12	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 13	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 14	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 15	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 16	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 17	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 18	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 19	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 20	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 21	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 22	Strain Gauge	FULL BRIDGE	2000	<input type="checkbox"/>
Channel 23	Strain Gauge	FULL BRIDGE	2000	<input type="checkbox"/>
Channel 24	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 25	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 26	Strain Gauge	FULL BRIDGE	2000	<input type="checkbox"/>
Channel 27	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 28	Strain Gauge	FULL BRIDGE	1000	<input type="checkbox"/>
Channel 29	Potentiometer			
Channel 30	Potentiometer			
Channel 31	Potentiometer			
Channel 32	Potentiometer			

First you can download the stored parameters from the acquisition modules via LAN adapter from the controller module . All connected acquisition modules will detect!

### Caution:

Never use the refresh button  on your browser; otherwise the parameters of you browser cash will upload to the MTP-STG!®

## BRIDGE setting STG

Channel	Strain Gauge	Type	Gain	Make Autozero
Channel 1	Strain Gauge	FULL-BRIDGE	1000	<input checked="" type="checkbox"/>
Channel 2	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 3	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 4	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 5	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 6	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 7	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 8	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 9	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 10	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 11	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 12	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 13	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 14	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 15	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 16	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 17	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 18	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 19	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 20	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 21	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 22	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>
Channel 23	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>
Channel 24	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 25	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 26	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>
Channel 27	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 28	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 29	Potentiometer			
Channel 30	Potentiometer			
Channel 31	Potentiometer			
Channel 32	Potentiometer			

Upload Parameters to MT-PRO and perform Autozero

Download Parameters from MT-PRO

\*\*\* Parameters saved \*\*\*

Select full-, half- or quarter-bridge by popup window

Execute through "Upload Parameters to MT-PRO and perform Autozero" button

## GAIN setting STG

KMT MT-PRO Setup

192.168.0.110

### KMT MT-PRO Analog Channel Setup

Channel	Sensor Type	Type	Gain	Make Autozero
Channel 1	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 2	Strain Gauge	HALF-BRIDGE	1000	<input type="checkbox"/>
Channel 3	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 4	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 5	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 6	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 7	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 8	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 9	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 10	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 11	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 12	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 13	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 14	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 15	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 16	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 17	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 18	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 19	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 20	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 21	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 22	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>
Channel 23	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>
Channel 24	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 25	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 26	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>
Channel 27	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 28	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>
Channel 29	Potentiometer			
Channel 30	Potentiometer			
Channel 31	Potentiometer			
Channel 32	Potentiometer			

Upload Parameters to MT-PRO and perform Autozero

Download Parameters from MT-PRO

\*\*\* Parameters saved \*\*\*

Select gain of 125-250-500-1000 or 2000 by popup window  
After change the gain you must make a new autozero!!

Execute through "Upload Parameters to MT-PRO and perform Autozero" button

## AutoZero setting STG

**KMT MT-PRO Analog Channel Setup**

Channel	Type	Type	Gain	Make Autozero	Channel
Channel 1	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 1
Channel 2	Strain Gauge	HALF-BRIDGE	500	<input checked="" type="checkbox"/>	Channel 2
Channel 3	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 3
Channel 4	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 4
Channel 5	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 5
Channel 6	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 6
Channel 7	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 7
Channel 8	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 8
Channel 9	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 9
Channel 10	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 10
Channel 11	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 11
Channel 12	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 12
Channel 13	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 13
Channel 14	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 14
Channel 15	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 15
Channel 16	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 16
Channel 17	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 17
Channel 18	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 18
Channel 19	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 19
Channel 20	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 20
Channel 21	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 21
Channel 22	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>	Channel 22
Channel 23	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>	Channel 23
Channel 24	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 24
Channel 25	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 25
Channel 26	Strain Gauge	FULL-BRIDGE	2000	<input type="checkbox"/>	Channel 26
Channel 27	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 27
Channel 28	Strain Gauge	FULL-BRIDGE	1000	<input type="checkbox"/>	Channel 28
Channel 29	Potentiometer				Channel 29
Channel 30	Potentiometer				Channel 30
Channel 31	Potentiometer				Channel 31
Channel 32	Potentiometer				Channel 32

\*\*\* Parameters saved \*\*\*

Select Auto-Zero per channel. The Auto-Zero function will be executed only one time per upload the parameters to CTP-STG! It will be stored also after power off in the CTP-STG until you make a new Auto-Zero on this channel!

Execute through **“Upload Parameters to MT-PRO and perform Autozero”** button