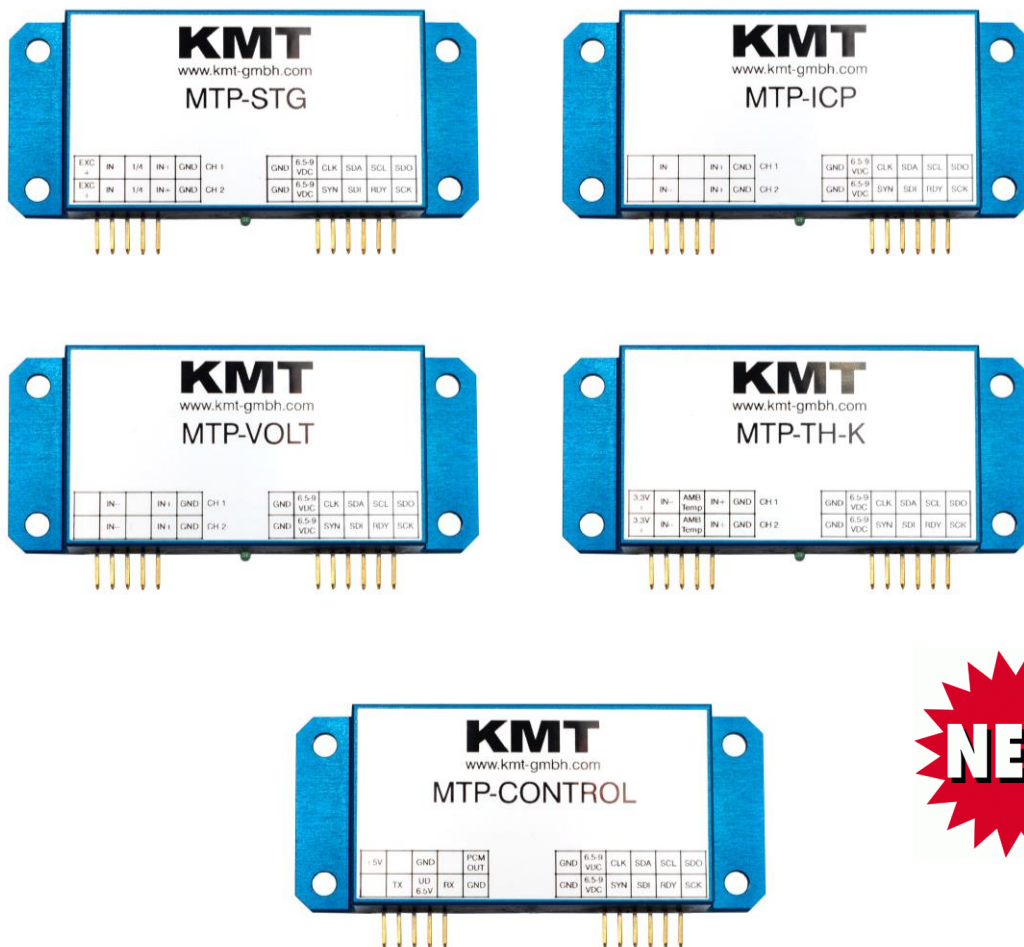


# MTP

## Multi channel telemetry system for rotating application, full software programmable with 16 bit resolution






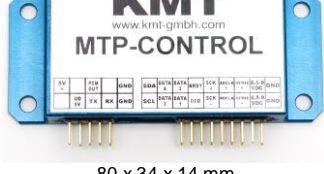


- 2 to 64 channel
- Signal bandwidth 0-24000Hz
- Inputs for STG, TH-K, ICP or VOLT
- STG - Auto Zero calibration
- 4V bridge Excitation
- Gain 125-250-500-1000-2000
- 16 bit ADC, simultaneous sampling
- Full software programmable
- Inductive or battery power
- Rugged housing, water protected
- Output analog +/- 10V
- Digital data interface to PC

## Short description:

The MTP telemetry is a small and flexible telemetry system for rotating applications. Each sensor module (2-channel) is equipped with signal conditioning, anti-aliasing filters, analog-to-digital converters and a digital output. All these up to 32 modules (=64 channels) will be controlled by MTP-Controller module. By this concept it's possible to install the acquisition modules close to the sensor to have short connections for the analog sensor lines. This avoids an undesired coupling of disturbances resulting in noisy signals. The interference insensitive digital outputs then can lead over wider distances of up to 25cm module to module. The MTP-Controller output is a PCM bit stream signal which can be modulated for emission by a transmitter module for distances of up to 0.1 with inductive telemetry transmission or up to 10m with radio telemetry transmission. Suitable for wireless data transmission rates of 312.5kbit/s up to 5000kbit/s

## MTP acquisition modules (rotor side)

 <p style="text-align: center;">80 x 34 x 14 mm Weight 60 grams</p>	<p><b>MTP-STG-V3</b> Acquisition module for 2 strain gages Full, half and quarter bridge (<math>\geq 350\Omega</math>) 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 24000Hz* (*see table of cut-off-frequency) Resolution 16bit Accuracy &lt;0.2% Powering: 6.5-9V DC Current consumption with full bridge 350 ohm 75mA Vibration: 5g Static acceleration: 3000g Shock: 10000g</p>	 <p style="text-align: center;">80 x 34 x 14 mm Weight 60 grams</p>	<p><b>MTP-VOLT-V3</b> Acquisition module for 2x high level inputs Range: <math>\pm 0,625V, \pm 1,25V, \pm 2,5V, \pm 5V, \pm 10V</math> Signal bandwidth 0Hz to 24000Hz* (*see table of cut-off-frequency) +4V sensor excitation max. 20mA Resolution 16bit Accuracy &lt;0.2% Powering: 6.5-9V DC Current consumption 60mA Vibration: 5g Static acceleration: 3000g Shock: 10000g</p>
 <p style="text-align: center;">80 x 34 x 14 mm Weight 60 grams</p>	<p><b>MTP-ICP®</b> Acquisition module for 2 ICP sensors Current EXC. 4mA Gain: 1-2-4-8-16-32 Signal bandwidth 3 Hz to 24000Hz* (*see table of cut-off-frequency) Resolution 16bit Accuracy &lt;0.2% Powering: 6.5-9V DC Current consumption 100mA Vibration: 5g Static acceleration: 3000g Shock: 10000g</p>	 <p style="text-align: center;">80 x 34 x 14 mm Weight 60 grams</p>	<p><b>MTP-TH-K</b> 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 Powering: 6.5-9V DC Current consumption 110mA Vibration: 5g Static acceleration: 3000g Shock: 10000g</p>
	<p><b>MTP-Pt100/1000 (RTD)</b> Acq. module for 2 RTD sensors Range -100 to 600°C, -50 to 300°C or -25 to 150°C Type Pt100 or Pt1000 Current EXC. 1mA Connection: 4-, 3- and 2 wire Sensor break detection Signal bandwidth 6Hz Resolution 16bit Accuracy &lt;0.2% Powering: 6.5-9V DC Current consumption 60mA Vibration: 5g Static acceleration: 3000g Shock: 10000g</p>	 <p style="text-align: center;">80 x 34 x 14 mm Weight 60 grams</p>	<p><b>MTP-CONTROL</b> Controller 1- 32 acquisition modules Output: PCM Programmable via LAN adapter Powering: 6.5-9V DC Current consumption 40mA, with LAN-setup adapter 140mA Vibration: 5g Static acceleration: 3000g Shock: 10000g</p>

### Additional environmental

Operating Temperature -20 – +80°C  
Storage Temperature -30 – +90°C  
Humidity 100%

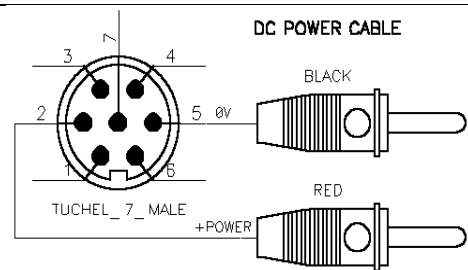
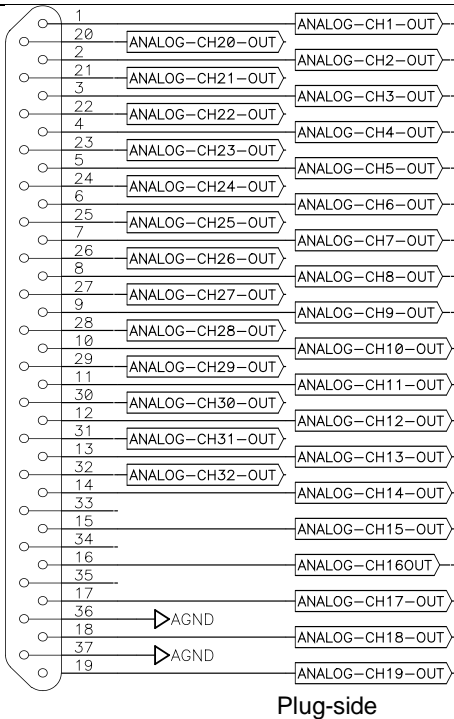
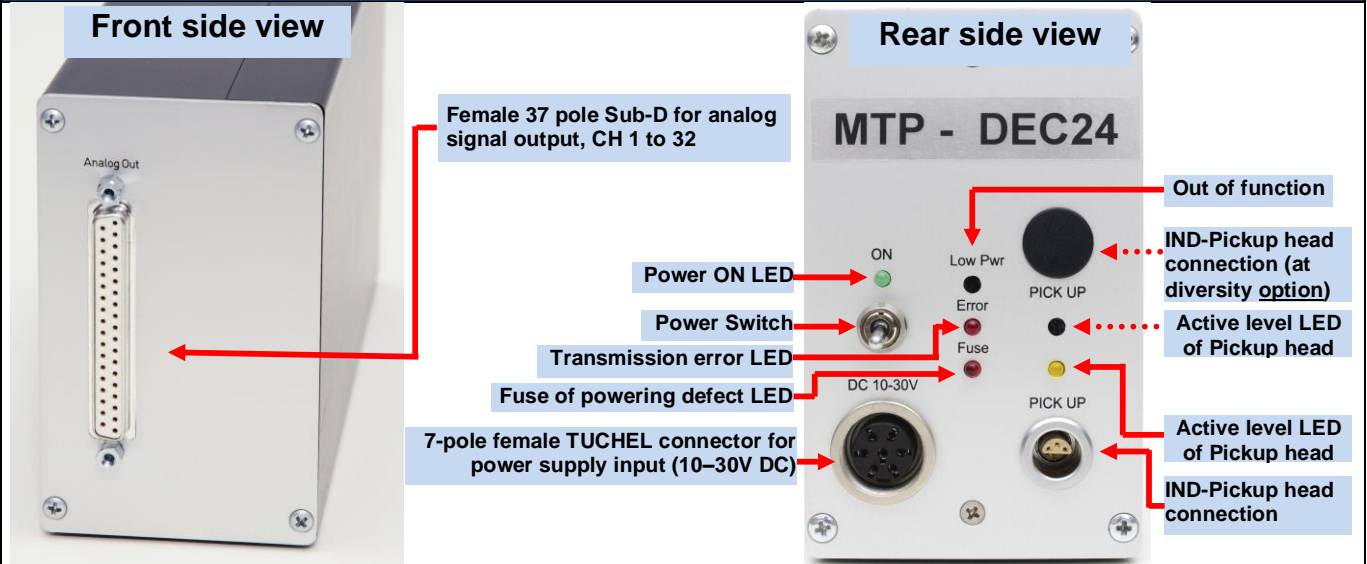
### Signal bandwidth, sampling rates and delay time:

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

Delay Time from Analog In to Analog Out (theoretical, brown)

Bit rate	2 Channels	4 Channels	8 Channels	16 Channels	32 Channels	64 Channels
5000 kbit/s	-----	24000 Hz max. (62500 Hz) 1,6 ms	12000 Hz (31250 Hz) 2,3 ms	6000 Hz (15625 Hz) 4,5 ms	3000 Hz (7812.5 Hz) 8,9 ms	1500 Hz (3906.25 Hz) 17,9 ms
2500 kbit/s	24000 Hz max. (62500 Hz) 1,6 ms	12000 Hz (31250 Hz) 2,3 ms	6000 Hz (15625 Hz) 4,5 ms	3000 Hz (7812.5 Hz) 8,9 ms	1500 Hz (3906.25 Hz) 17,9 ms	750 Hz (1953.125 Hz) 35,7 ms
1250 kbit/s	12000 Hz (31250 Hz) 2,3 ms	6000 Hz (15625 Hz) 4,7 ms	3000 Hz (7812.5 Hz) 9,1 ms	1500 Hz (3906.25 Hz) 17,9 ms	750 Hz (1953.125 Hz) 35,7 ms	375 Hz (976.56 Hz) 71,5 ms
625 kbit/s	6000 Hz (15625 Hz) 4,7 ms	3000 Hz (7812.5 Hz) 9,4 ms	1500 Hz (3906.25 Hz) 18,3 ms	750 Hz (1953.125 Hz) 35,7 ms	375 Hz (976.56 Hz) 71,5 ms	190 Hz (488.28 Hz) 142,3 ms
312,5 kbit/s	3000 Hz (7812.5 Hz) 9,4 ms	1500 Hz (3906.25 Hz) 19,1 ms	750 Hz (1953.125 Hz) 36,3 ms	375 Hz (976.56 Hz) 71,5 ms	190 Hz (488.28 Hz) 142,5ms	95 Hz (244.14 Hz) 285 ms

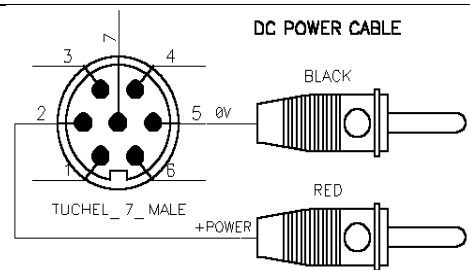
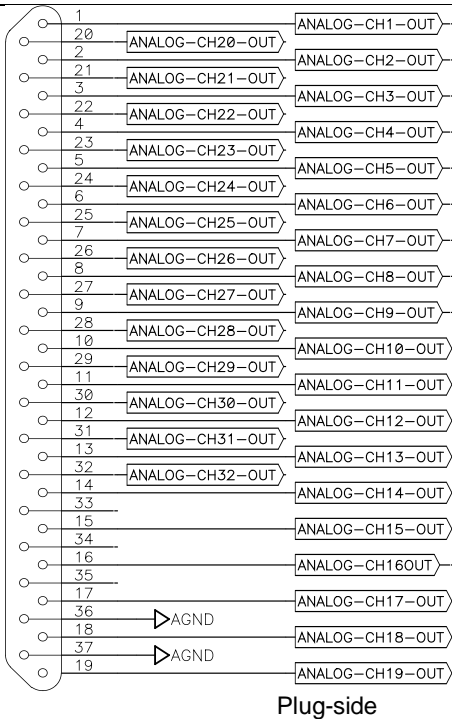
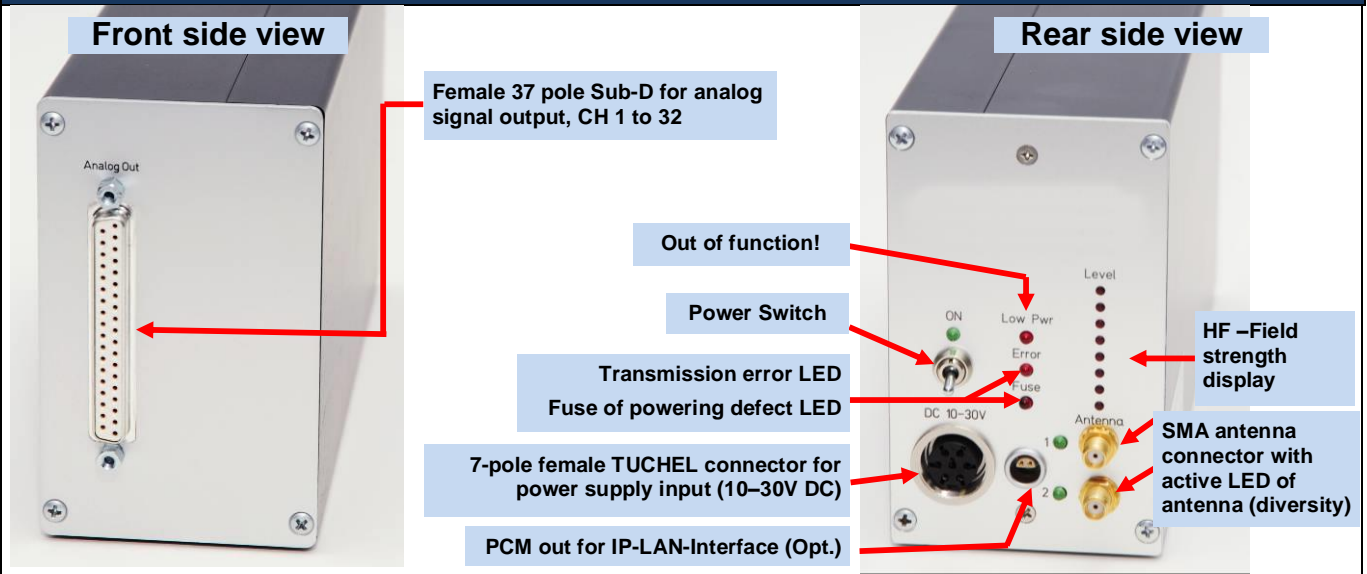
**MTP-DEC8/16/32 Receiver unit for max 32 Channels output via 37 pol. Sub D (inductive transmission 45MHz version up to 5000Mbit)**



**MTP-DEC8/16/24/32 System Parameters:**

Channel:	8,16 or 32x +/-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
Transmission:	Digital PCM Bi-Phase Format – FSK, receiver
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
<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

**MTP-DEC8/16/32 Receiver unit for max 32 Channels output via 37 pol. Sub D (radio transmission version with diversity receiver 320-1280kbit)**



**MTP –DEC8/16/24/32 System Parameters:**

Channel:	8,16 or 32x +/-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
Transmission:	Digital PCM Bi-Phase Format – FSK,
Dimensions:	205 x 105 x 65mm
Weight:	1.25 kg without cables and antenna
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