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 3.125kbit/s up to 5000kbit/s

### MTP acquisition modules (rotor side)

#### MTP-STG-V3
- Acquisition module for 2 strain gages
- Full, half ->350ohm and quarter bridge 3500ohm
- Fixed excitation 4V DC
- Offset calibration by auto zero
- Manual offset shifting after auto zero
- Test shunt-cal step
- Signal bandwidth (0Hz to 24000Hz)* (see table of cut-off-frequency)
- Resolution 16bit
- Accuracy <0.2%
- Powering: 6.5-9V DC
- Current consumption with full bridge 350 ohm 75mA
- Vibration: 5g
- Static acceleration: 3000g
- Shock: 10000g

#### MTP-ICP®
- 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 <0.2%
- Powering: 6.5-9V DC
- Current consumption 100mA
- Vibration: 5g
- Static acceleration: 3000g
- Shock: 10000g

#### MTP-P100/1000 (RTD)
- Acquisition 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 <0.2%
- Powering: 6.5-9V DC
- Current consumption 60mA
- Vibration: 5g
- Static acceleration: 3000g
- Shock: 10000g

#### MTP-VOLT-V3
- Acquisition module for 2x high level inputs
- Range: ±0.625V, ±1.25V, ±2.5V, ±5V, ±10V
- Signal bandwidth (0Hz to 24000Hz)* (see table of cut-off-frequency)
- Powering: 6.5-9V DC
- Resolution 16bit
- Accuracy <0.2%
- Current consumption 60mA
- Vibration: 5g
- Static acceleration: 3000g
- Shock: 10000g

### Technical Data are subject to change without notice!

#### 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)

<table>
<thead>
<tr>
<th>Bit rate</th>
<th>2 Channels</th>
<th>4 Channels</th>
<th>8 Channels</th>
<th>16 Channels</th>
<th>32 Channels</th>
<th>64 Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 kbit/s</td>
<td>24000 Hz max. (62500 Hz)</td>
<td>12000 Hz (31250 Hz)</td>
<td>6000 Hz (15625 Hz)</td>
<td>4550 Hz (7812.5 Hz)</td>
<td>3000 Hz (7812.5 Hz)</td>
<td>1500 Hz (3906.25 Hz)</td>
</tr>
<tr>
<td>2500 kbit/s</td>
<td>12000 Hz (31250 Hz)</td>
<td>6000 Hz (15625 Hz)</td>
<td>3000 Hz (7812.5 Hz)</td>
<td>1500 Hz (3906.25 Hz)</td>
<td>750 Hz (1953.125 Hz)</td>
<td>375 Hz (976.56 Hz)</td>
</tr>
<tr>
<td>1250 kbit/s</td>
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<td>3000 Hz (7812.5 Hz)</td>
<td>1500 Hz (3906.25 Hz)</td>
<td>750 Hz (1953.125 Hz)</td>
<td>375 Hz (976.56 Hz)</td>
<td>95 Hz (488.28 Hz)</td>
</tr>
<tr>
<td>625 kbit/s</td>
<td>3000 Hz (7812.5 Hz)</td>
<td>1500 Hz (3906.25 Hz)</td>
<td>750 Hz (1953.125 Hz)</td>
<td>375 Hz (976.56 Hz)</td>
<td>142.3 ms</td>
<td>285 ms</td>
</tr>
<tr>
<td>312.5 kbit/s</td>
<td>1500 Hz (3906.25 Hz)</td>
<td>750 Hz (1953.125 Hz)</td>
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<td>95 Hz (488.28 Hz)</td>
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</table>
MTP-DEC8/16/32  Receiver unit for max 32 Channels output via 37 pol. Sub D
(inductive transmission 45MHz version up to 5000Mbit)

**Front side view**
- Female 37 pole Sub-D for analog signal output, CH 1 to 32

**Rear side view**
- Out of function
- 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)

**Optional BNC16/32 Box. Connect on 37pol Sub-D**

**MTP – DEC24**
- DC POWER CABLE
- TUCHEL_7 MALE +POWER

**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
- **Environmental**
  - Operating: -20 ... +70°C
  - Humidity: 20 ... 80% not condensing
  - Vibration: 5g
  - Static acceleration: 10g in all directions
  - Shock: 100g in all directions

Technical Data are subject to change without notice!
**MTP-DEC8/16/32**  
Receiver unit for max 32 Channels output via 37 pol. Sub D  
(radio transmission version with diversity receiver 320-1280kbit)

**Front side view**
- Female 37 pole Sub-D for analog signal output, CH 1 to 32

**Rear side view**
- Out of 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.)
- HF – Field strength display
- SMA antenna connector with active LED of antenna (diversity)

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