PANOVO tec haptics measurement systems

Portfolio

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Push/Pull Button Haptic System – THM1

... discover detailed information on our homepage! 🔗

General:

- +/- 50 N force sensor
- glass scale < 10 µm resolution for direct measurements
- 10 kHz sample rate, 16 bit
- Exchangeable measuring pickup element
- For laboratory or automated line systems

Optional signal input:

- Up to two additional analog input channels
  (+/- 10 V, 16-bit resolution)
- Digital input for switching signal

Measurement parameters:

- Measurement velocity [mm/s]
- Force limit value [N]
- Distance limit value [mm]

Measurement value output:

- Number of snaps
- Peak/valley (force/displacement)
- Preload
- Maximum force/displacement

Digital IO Port [12 V - 24 V]:

- Position top/bottom [OUT]
- 6 user specified outputs
- 8 user specified inputs

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Rotary Haptic System – DHM3

General:

- Frictionless +/- 100 mNm torque sensor
- 0.0144 ° encoder resolution
- 10 kHz sample rate, 16 bit
- Exchangeable gripper for many kinds of rotary knobs
- For laboratory or automated line systems

Optional signal input:

- Up to two additional analog input channels
  (+/- 5 V or +/- 10 V, 16-bit resolution)

Measurement parameters:

- Measurement speed [°/s]
- Measurement angle [°]
- Torque limit value [mNm]

Measurement value output:

- Number of detents
- Peaks/valleys [mNm]
- Frictional torque [mNm]
- Idle torque [mNm]
- Transition torque [mNm]
- Detent distance [°]

Digital IO Port [12 V - 24 V]:

- Gripper open/close
- 6 user specified outputs
- 8 user specified inputs

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Dynamic Measurement System – FFM1

General:

- +/- 50 g acceleration sensor
- Highly reproducible dynamic impedance
- Integrated force sensor
- 10 kHz sample rate, 16 bit
- For laboratory or automated line systems

Optional signal input:

- Up to two additional analog input channels
  (+/- 10 V, 16-bit resolution)

Measurement parameters:

- Measurement speed [mm/s]
- Force limit value [N]
- Distance limit value [mm]

Measurement value output:

- Max./min. acceleration a(t) [m/s²]
- Max. acceleration a(f) [m/s²]
- Max. frequency [Hz]
- Release force [N]
- Force drop at release [N]
- Custom features (e.g. Daimler AG)

Digital IO Port [12 V - 24 V]:

- Reference position
- 6 user specified outputs
- 8 user specified inputs

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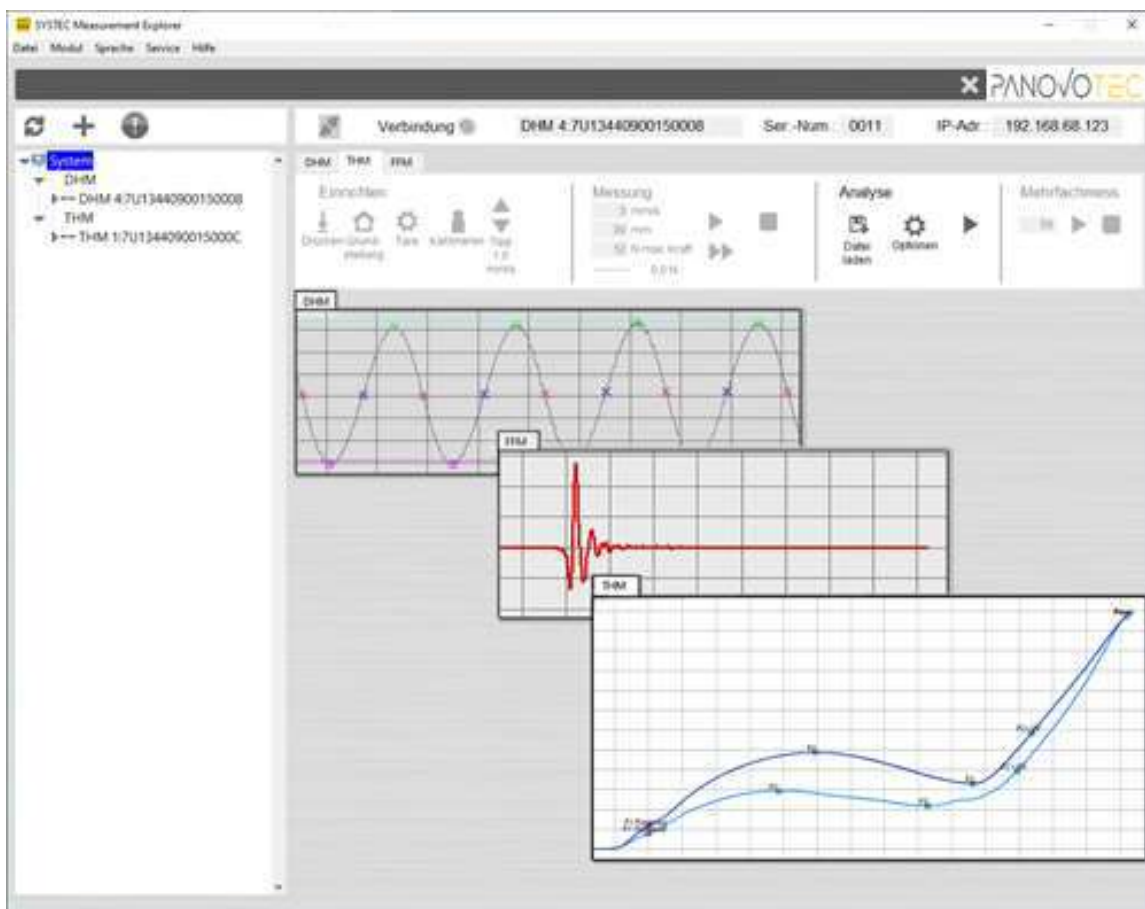# PANOVO tec **Measurement Explorer – MX**

... discover detailed information on our homepage!

General:

- Intuitive usability
- Intuitive measurement setup
- Connect multiple PANOVO tec modules to one measurement software via ethernet connection
- All modules in one software
- Easy connection setup
- One-click-analysis
- TCP remote control available
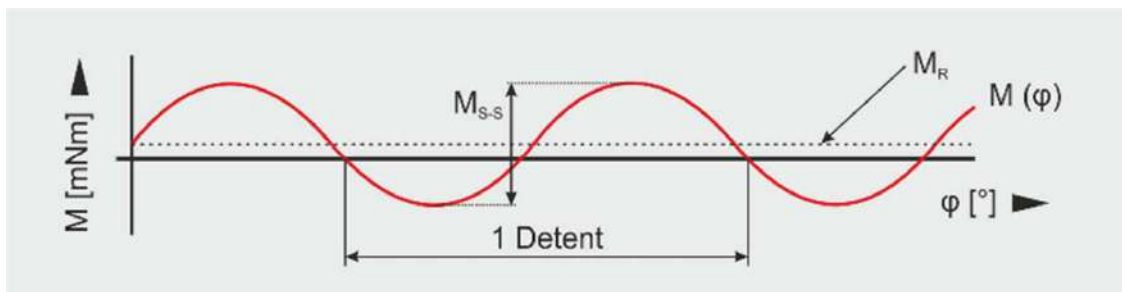
## Export Files:

- TDMS
- TXT
- CSV

Transfer standards

Torque transfer standard – DTN

- Calibrated torque curve
- 10 to 80 mNm nominal torque (M_{S-S})
- Peak-peak accuracy: ±0,05 mNm
- Frictional torque accuracy: ±0,1 mNm
- Low temperature influence
- Low frictional torque
- Low mass moment of inertia of the rotor

Key haptic transfer standard – THN

- Calibrated force curve
- Nominal force: 5,0 N
- minimized backlash-free flexure bearings for axial guidance
- excellent long-term stability

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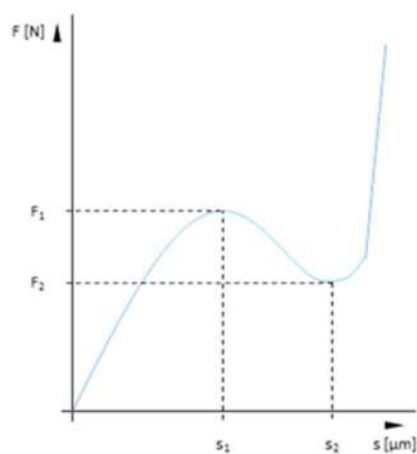
Rotary Haptic Gripper – DHG

... discover detailed information on our homepage! 🔗

DHG 3:

The gripper series DHG3 has been specially developed for use in rotary haptic measuring systems. They have been optimized regarding the mass, moment of inertia and torsion resistance, while their high reliability resistance has been demonstrated in many applications.

- gripping range 15 ... 60 mm
- Transferable torque > 70 mNm

Gripper closed   Gripper open
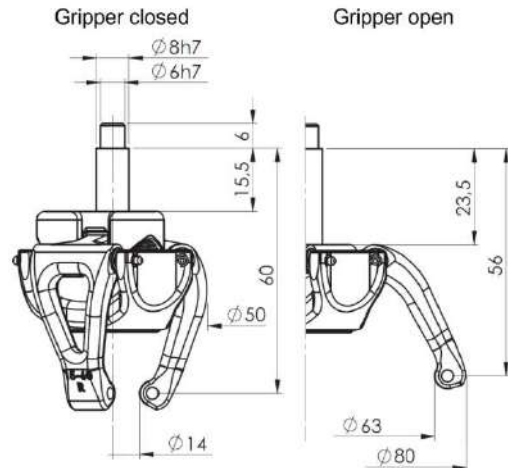
DHG 4:

PANOVO tec has developed a gripper type especially for rotary toggle switches, the DHG 4. Like the grippers of type DHG3, they center themselves above the switch and ensure high measuring accuracy due to their low moment of inertia and high torsional stiffness.

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