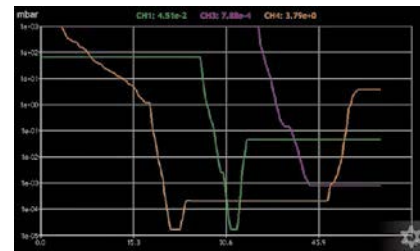


TMC-13

THICKNESS MONITOR CONTROLLER



Real time pressure charts (data export possibility).

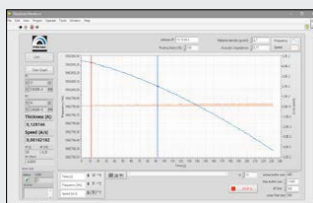
DESCRIPTION

The TMC13 Thickness Monitor Controller is the newest technology electronics designed for monitoring and controlling any coating and deposition processes. Up to six channel inputs and two additional vacuum gauge channels together with 7" TFT display makes this unit really unique and universal. Sensor inputs can be assigned to different materials with individual parameters as well. High speed and high accuracy measuring process controlled by DSP processor improves the film quality and repeatability. It brings also the features of accuracy, stability and instrument configuration. The unit is equipped with autosave function (the device save your parameters, preset and apply them automatically after restart).

FEATURES

- Up to **6 channels for TM sensors with quartz balances**
- **2D real time chart module**
- Compact design
- Two inputs for most active vacuum gauges
- Up to 8 shutter and I/O reprogrammable
- Relay outputs
- Two reprogrammable analog outputs for rate and thickness monitoring with 16 bits resolution
- Frequency resolution 0.1 Hz (for TM13) or 0.01 Hz (for TM14)
- Operation of up to two multi-crystal sensor heads (pneumatic or stepper motor)
- LabVIEW libraries
- Easy firmware upgrade via USB

THICKNESS MONITOR CONTROL APPLICATION



TECHNICAL DATA

Supply voltage	100-240 VAC, 50/60 Hz (power consumption max 100 W)	
TM sensor inputs channels	6	
Thickness	0 - 9999000 Å	
Rate	0 - 9999 Å/s	
Compatible sensors (two channels)	CTR90, TTR91, TTR211, PTR225, PTR90, ITR90, ITR100, Baratron, ANALOG IN, MKS937A, PG105, MG13/14, PKR251/360/361, PCR280, ATMION	
Frequency resolution	TM13: 0.1 Hz	TM14: 0.01 Hz
Frequency range	2 - 6 MHz	
Thickness resolution	TM13: 0.1 Å	TM14: 0.01 Å
Rate resolution	TM13: 0.1 Å/s	TM14: 0.01 Å/s
Frequency stability	TM13: 0.5 ppm	TM14: 0.5 ppm
Tooling factor	1-400 %	
Measurement units	Å, kÅ, nm	
Measurement period	100 ms - 2 s (depend on TM type)	
Shutter control	manual, time, thickness	
Shutter time	1 - 1000000 s	
Pressure channels inputs	2	
Measurement Units	mbar, Pa, Torr, psia	
Degas Time	1 - 3 min	
Outputs	<ul style="list-style-type: none"> • 8 relay outputs (2 outputs with COM NC and NO contacts) • 2 analog outputs: 0-10V (retransmission thickness, rate, pressure) 	
Inputs	4 digital inputs (in 24V logic)	
Communication interface	RS232/485, Ethernet	
Communication protocol	MODBUS-TCP	
User Interface	7" TFT display with touchscreen	
Interface languages	English, German, Polish	
Dimensions	212.6 × 128.4 × 260.9 mm (W×H×D)	
Weight (approx.)	3 kg	



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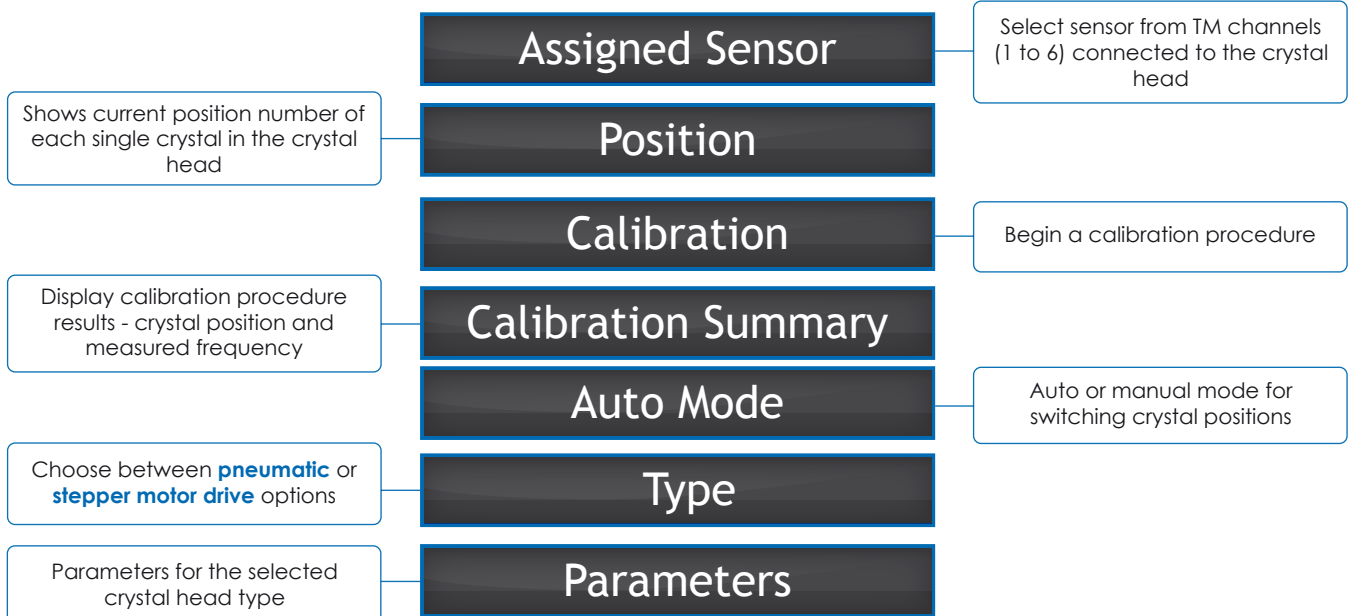
TMC-13

■ Operation of up to two multi-crystal sensor heads

- operate your multi-crystal sensor head **as easily as one single crystal**
- control each single crystal **separately**



■ Crystal heads configuration



Pneumatic drive

- **Number of position**
defines the number of attached crystal sensor head
- **Assigned relay**
relay output number
- **Pulses to switch**
number of pulses needed to switch between positions
- **Pulses width**
pulse duration (relay ON) during switching procedur

Stepper motor drive

- **Number of position**
defines the number of attached crystal sensor head
- **Microsteps number**
number of steps needed to switch between positions
- **Speed**
movement speed in steps per second
- **Direction**
direction of motor rotation
- **Move current**
current during move
- **Mode**
determines the accuracy of the motion of the motor



- one-touch material change
- **favourites list** for frequently used materials
- one-touch units change
- save individual user profile
- built-in video tutorials



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