

# SMT – Product Family Overview

Softing Measurement Technology – the Universal Measurement and Automation System for Mobile and Stationary Applications

SMT combines sophisticated measurement technology with signal generation, communication, computing power and memory depth. The module family provides a whole range of physical IOs and communication interfaces in one modular system.



## System Design

The unique module concept enables optimal adaptation to each individual application. Channels can be scaled to virtually any degree – from just a few IOs to several hundred. Not even decentral systems or large spatial distances pose a problem thanks to intelligent networking possibilities.

The modularity of SMT is in no way limited to measurement and communication channels. Fundamental system characteristics such as energy supply, cooling and computing power can be adapted to suit the individual case of application. At the same time, the Softing Measurement Technology is geared to the best possible integration. The sophisticated housing mechanism means the systems only ever grow to the minimum size required for a particular function scope.

## Areas of Application

As SMT systems are rugged, they are perfect for harsh, mobile use in test vehicles. However, they are also often used in stationary applications such as test benches and in manufacturing. SMT tasks are in no way limited to simply acquiring measured values. As a combined measurement, test and automation system, Softing Measurement Technology is responsible for relevant functions in the areas control and regulation, process monitoring and automation, real-time simulation and data logging.

softing

PEA

SMT

µ Series

## AREAS OF APPLICATION

- Mobile measurement technology for road tests
- Measurement data acquisition in test bench applications
- Process monitoring
- Application of control and regulation systems
- Automation of component test benches
- Test system for manufacturing tests

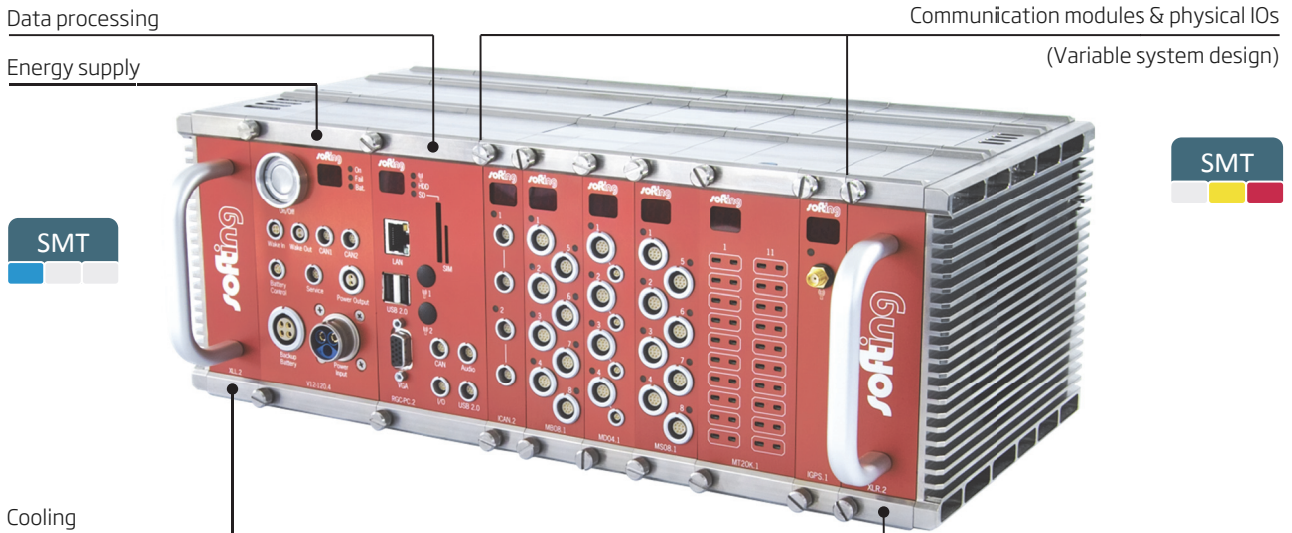
## BENEFITS

- High degree of coverage of different applications
- Compact, rugged and 100% suitable for use in vehicles
- Flexible adjustment to the particular application
- Uniform measurement technology and peripherals (sensor technology, connectors, cables, ...) in mobile and stationary use
- Future-proof thanks to open and generic interfaces
- Can be used standalone without additional components
- Comprehensive fail-safe and onboard diagnostic functions
- System assembly and module exchange possible at the flick of a wrist and without tools
- Simple parameterization using transducer memory
- All ports accessible from the front
- Optical display of channel and module state

Data Sheet

**Scalability**

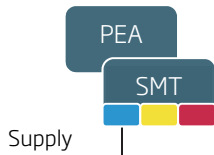
An SMT Base System consists of two fans, a supply module suitable for the relevant application and a data processing module. The degree to which the system is extended depends entirely on the needs of the relevant application and can be varied to virtually any degree. A whole range of communication modules as well as acquisition and output components for physical variables are available. These are plugged according to the number of channels required in each case.



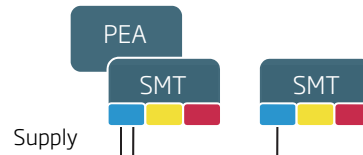
**Link Variants**

SMT is not limited to monolithic system setups. If required, the components can also be arranged decentrally and intelligently connected to one another. Both SMT modules and the models of the  $\mu$  Series can be combined diversely in order to accommodate individual requirements for example in terms of space, environmental conditions, energy supply and handling.

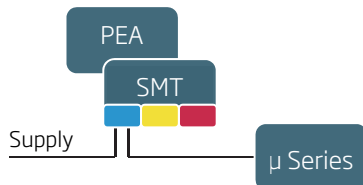
Central SMT system incl. PEA measuring software



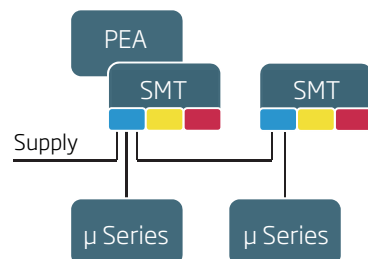
Central SMT system incl. PEA measuring software + separate SMT slave system




Central SMT system incl. PEA measuring software + field bus measurement technology ( $\mu$  Series)



Central SMT system incl. PEA measuring software + separate SMT slave system + field bus measurement technology ( $\mu$  Series)



## System Modules


 <b>The system modules cover the areas energy supply, cooling and networking as well as data processing.</b>		
Energy supply	<b>Supply Module for Operation with an On-Board Electrical System or Battery Supply</b> 12 V input voltage / 120 W power output 12 V input voltage / 240 W power output	V12-120.4 V12-240.1
	<b>Supply Module for Mains Operation in Stationary Applications</b> Mains operation / 240 W power output	VAC-240.1
	<b>Buffer Module for Bridging Voltage Interruption</b> Intrinsic charging / fast-charging / 33 Wh total capacity	B12-033.1
	<b>Fan Modules for Appropriate Cooling of All Components</b> Left-hand side of system / incl. handle Right-hand side of system / incl. handle	XLL.2 XLR.2
Networking	<b>Link Module for Connecting Decentral Components</b> Link between system bus and energy supply when SMT systems are cascaded	LBITSTER.2
	<b>Interface Module for Integrating Field Bus Measurement Components</b> Links Softing $\mu$ Series / one CAN node / 15 W power output / 160 measuring signals	ICANSYS.3
	<b>Interface Module for Linking Components to Workstations via Ethernet</b> System supply and PC interface for using SMT in the lab	RGC-ETH.1
Data processing	<b>Controller Module for Data Acquisition and Processing with the Measuring Software PEA</b> PC with Intel® Core™ i7 / data storage on SSD / removable memory via USB and SD card	RGC-PC.2

Coming soon


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## Communication Modules

 <b>A whole range of interface components is available for communication purposes.</b>		
CAN	<b>Communication Module for Integrating Signal-Based CAN Networks (2 nodes)</b> Use for data acquisition and residual bus simulation / 160 measuring and output signals	ICAN.2
FlexRay	<b>Communication Module for Integrating FlexRay Networks (2 nodes)</b> Signal acquisition / cold-start-capable and sync-capable / 160 measuring and output signals	IFLEXRAY.1
GPS	<b>Communication Module for Acquiring GPS Signals in Mobile Applications</b> Integrated GPS receiver / external GPS antenna can be connected	IGPS.1
LIN	<b>Communication Module for Integrating Signal-Based LIN Networks (4 nodes)</b> Can be configured as master, slave or bus monitor / 160 measuring and output signals	ILIN.1

## Physical IOs

 <b>The modules are used to acquire and stimulate physical variables and support a large number of common transducers.</b>		
Electrical inputs and outputs	<b>Measurement Amplifier for Measuring Voltage and for Measuring Current Using Shunts (8 channels)</b> Acquisition of analog signal outputs (ECUs, transducers) / cell monitoring	MS08.1
	<b>Output Module for Generating Analog Voltage Signals (8 channels)</b> Stimulation of analog signal inputs / sensor simulation / output of measured values	AS08.1
	<b>Input and Output Module for Acquiring and Generating Digital Signals (32 channels)</b> Status and alarm outputs / actuator drive / ECU signals / switch monitoring	MD32.1
Acquisition of transducers	<b>Measurement Amplifier for Acquiring Voltage-Fed Transducers (8 channels)</b> Voltage measuring incl. supply for active measuring transducers	MA08.1
	<b>Measurement Amplifier for Acquiring Voltage-Fed Transducers (8 channels)</b> Voltage measuring incl. supply for active measuring transducers / IEP sensor technology	MA08.2
	<b>Measurement Amplifier for Supplying and Acquiring Ratiometric Transducers (8 channels)</b> DC interpretation of ohmic and piezoresistive half and full bridges	MB08.1
	<b>Measurement Amplifier for Temporal Interpretation of Pulse-Shaped Signals (4 channels)</b> Incremental encoders / counter applications / acquisition of frequency and PWM	MD04.1
	<b>Measurement Amplifiers for Measuring Temperatures with Thermocouples of the Type K (20 channels)</b> Galvanic isolation of individual channels / measuring point assignment via thermocouple identification	MT20K.1
	<b>Measurement Amplifiers for Measuring Temperatures with Thermocouples (20 channels)</b> Galvanic isolation of individual channels / measuring point assignment via thermocouple identification	MT20.2

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## Technical Data

### General system data

Online data rate	20 kSPS
Max. no. of SMT modules per system	99
Internal clock	1 MHz
System bus bandwidth	1.25 GBit/s

### Mechanical data

Dimensions	187 mm x 140 mm (cross section, system width depends on degree of extension)
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### Environmental conditions

Storage	-30 °C ... +85 °C, 10 % ... 90 % rel. humidity, non-condensing
Use	-30 °C ... +70 °C, 10 % ... 90 % rel. humidity, non-condensing