

# Mobile Multi-Channel Front-End m+p VibMobile



## KEY FEATURES

- **Portable, for field and laboratory use, battery option, rugged housing, silent operation**
- **Embedded CPU i7 2.4 GHz, QuadCore, 8 GB DDR3L, 2 x GBit Ethernet, one of them supporting IEEE 1588 precision time protocol, SATA 6G Raid controller for 2 onboard SSD discs, Windows 7 embedded operation system**
- **Counter timer module for clock generation, trigger I/O, synchronization of multiple devices, incl. 2 sources, 2 tacho ports and 4/4 digital I/O ports**
- **12-slot mainframe for up to 8 m+p proprietary I/O boards and up to 4 industry-standard CompactPCI® Serial boards opens almost unlimited choice of analog and digital I/O, communication interfaces and storage devices**

m+p VibMobile was engineered for the requirements of mobile multi-channel noise and vibration measurements and dynamic signal analysis as well as demanding data acquisition and monitoring applications. Including multi-range AC and DC power supply and battery option, the front-end is ideal for portable use in the field or mounted in vehicles as well as for use in the lab.

A wide choice of m+p proprietary analog I/O boards for high-speed data acquisition, simultaneous sampling, signal conditioning for voltage inputs, IEPE sensor supply and bridge measurements together with DSP powered real-time processing makes it ideally suited for all kind of measurement and signal analysis tasks. Up to four CompactPCI® Serial boards can be used additionally in the mainframe allowing for the free selection of industry standard I/O, interface and storage solutions.

The m+p VibMobile can be used as a front-end together with a remote PC or laptop or standalone by having all application software installed on the powerful embedded CPU with monitor, keyboard and mouse connected directly to the CPU. For very high channel counts and distributed measurements over long distances, several mainframes in a master-slave configuration can be used and all of them will be precisely synchronized by the master clock.

Just take your measurements, do online analysis, review the results, store raw data and results, share the results with colleagues and continue your work in the lab or in the office using the field data. m+p VibMobile fulfills both the robustness and channel density criteria needed for optimal test and measurement productivity.



Networking of three m+p VibMobile instruments housed in 19" wide shock-proof boxes



Data analysis directly in the field



Monitor, keyboard and mouse connected to CPU for standalone operation

### Use in the Field, in Vehicles or in the Lab

The new m+p VibMobile with its compact form factor, robust design, embedded CPU and storage media and optional battery power is made for portable or standalone operation. The silent temperature-controlled fans make it ideally suited for acoustic measurements. With a broad selection of analog input and output boards and appropriate signal conditioning modules, it can be used in all kinds of dynamic and quasi-static measurement fields: noise and vibration, modal analysis, experimental strain and stress analysis, engine testing, functional testing, process monitoring etc.

### Reliable Acquisition in Harsh Environments

The conditions under which you have to take measurements are sometimes tough. The robust steel housing qualifies the m+p VibMobile for operation under harsh ambient conditions and for high temperatures.

Lightweight polyurethane side panels provide extra protection if you carry your device. For very high shock and vibration exposure, for example during test runs in vehicles, we offer a shock-isolated mount in a strong steel box which has vapour-tight front and rear covers – also perfect for protected transport to the site.

You get reliable, accurate measuring data – anytime and anywhere.

### Networking of Multiple Systems

For channel expansion and distributed measurements multiple m+p VibMobile front-ends can be combined to act as one system. The daisy-chained master-slave configuration makes it possible to place the front-ends close to the measuring points, resulting in reduced transducer cabling and much higher measurement quality. Fully synchronized, precise data from all devices are transferred via GBit Ethernet lines to the host PC and stored consistently in one measurement file.

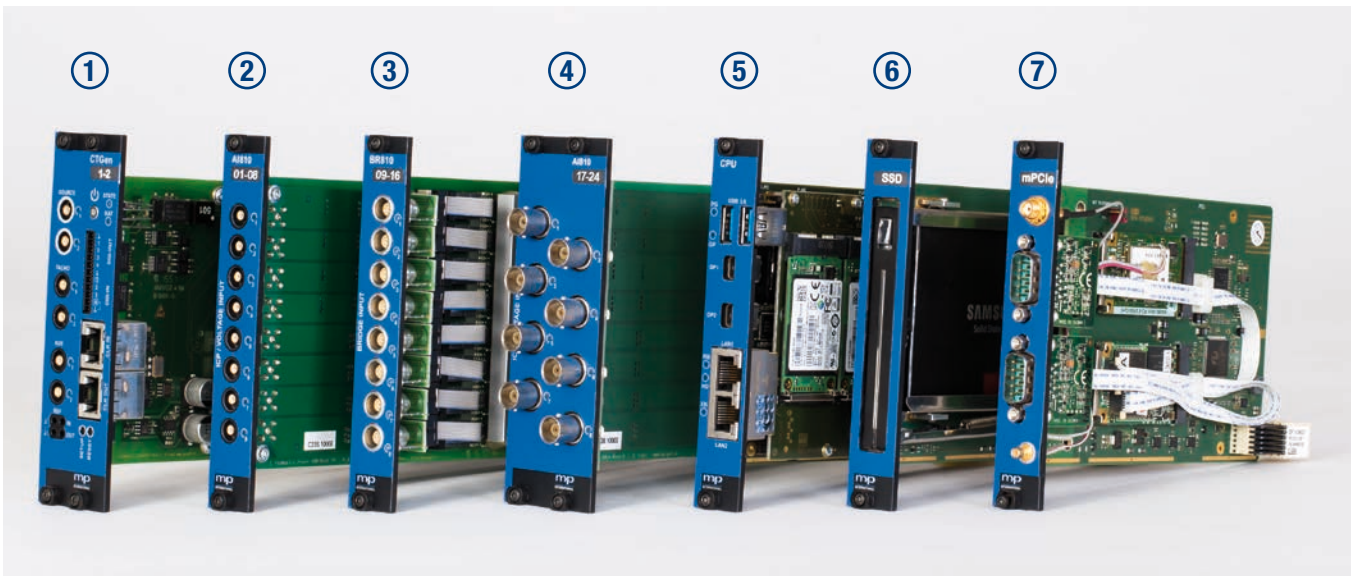
### Analog and Digital I/O Boards and Signal Conditioning

For NVH test and measurement applications we offer two sigma-delta A/D converters, 102.4 or 204.8 kHz sampling rate, each with 8 channels, configurable input architecture and gain as well as multiple clocking and trigger options. The switchable input voltage ranges provide improved sensitivity for very low level vibration signals and microphone measurements as well as higher voltage sources such as tach sensors. 24-bit resolution, full anti-aliasing protection and more than 120 dB spurious-free dynamic range make these digitizers high-precision instruments for measurements in frequency ranges up to 40 or 80 kHz. The channel type can be switched between full differential and single-ended, thus enabling potential-free measurements. Other functions include TEDS support, IEPE sensor conditioning, cable break and overload detection.

The 102.4 kSa/s per channel bridge module is perfect for dynamic strain measurements, experimental stress analysis



Removable disc for data storage



- ① Control unit CTGen incl. two analog outputs, two tacho channels, two auxiliary digital inputs
- ② 8-channel A/D converter VMAI810 (102.4 kHz SR) or VMAI820 (204.8 kHz SR), SMB connectors
- ③ 8-channel bridge module (available with 9 pin LEMO 0B or 7 pin LEMO 1B connectors)
- ④ 8-channel A/D converter VMAI810BDBW (102.4 kHz SR) or VMAI820BDBW (204.8 kHz SR), BNC connectors
- ⑤ Embedded CPU
- ⑥ Removable disc drive
- ⑦ Two-port CANbus and GPS receiver

and fatigue testing of mechanical structures. It enables connection of eight strain gauges in full-, half-, or quarter-bridge configurations. Up to 64 channels, all precisely synchronized, can be connected to one m+p VibMobile. Robust, reliable LEMO connectors are used for the 6-pin wiring. All channels support TEDS for fast and secure system set-up.

A 24-bit D/A converter provides four analog outputs for vibration testing or modal analysis applications requiring drive signals for the shakers. Control circuitry is implemented on all source channels for a controlled shutdown of the output voltage signal in case of emergency or power failure ensuring safe operation of the test system.

Tacho inputs with 32-bit high-speed up/down counters allow for rotating machinery testing. Digital inputs and digital outputs support various testing tasks such as combined environmental tests (climatic chamber control) or parallel functional tests.

### CompactPCI® Serial Boards

m+p VibMobile covers many of your day-to-day data acquisition and dynamics testing tasks. And we will add more and more I/O boards to complete our offer for even more application ranges. For special requirements the m+p VibMobile has four slots of the industry-standard CompactPCI® Serial bus for freely selectable, 3<sup>rd</sup> party boards like mega-sampling high-speed transient recorders, GPS receivers, RS-232 or RS-485 serial interfaces, Fieldbus, CANbus, IRIG or ARINC time protocol interfaces and also fixed or removable disc modules with terabytes of storage space. We offer a selection of these boards as standard solutions, supported by our application software suites. Other boards may require a tailor-made solution which will be integrated on demand.



## **m+p international**

Founded in Hannover, Germany in 1980, m+p international develops and manufactures test and measurement systems for vibration testing, dynamic signal analysis, multi-channel data acquisition and monitoring and test stand engineering. Our product reputation and broad experience coupled with valuable user feedback have led to significant market share in numerous key industries worldwide.

The company has its headquarters in Hannover, Germany with sales/marketing subsidiaries in New Jersey (USA), England, France and China, along with representatives and agents in many countries.

Learn more on the full range of m+p international products and services and their applications. Select the m+p literature library on our website and download the desired product literature.

m+p VibControl, m+p Analyzer, m+p Coda, m+p VibPilot, m+p VibRunner, m+p VibMobile, m+p HFDST-3000-E and m+p ACON are products of m+p international.

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[www.mpihome.com](http://www.mpihome.com)

### **Germany**

#### **m+p international**

#### **Mess- und Rechnertechnik GmbH**

Thurnithstraße 2  
30519 Hannover  
Phone: (+49) (0)511 856030  
Fax: (+49) (0)511 8560310  
[sales.de@mpihome.com](mailto:sales.de@mpihome.com)

### **USA**

#### **m+p international, inc.**

271 Grove Avenue, Bldg. G Verona,  
NJ 07044-1705  
Phone: (+1) 973 239 3005  
Fax: (+1) 973 239 2858  
[sales.na@mpihome.com](mailto:sales.na@mpihome.com)

### **United Kingdom**

#### **m+p international (UK) Ltd.**

Mead House  
Bentley, Hants  
GU10 5HY  
Phone: (+44) (0)1420 521222  
Fax: (+44) (0)1420 521223  
[sales.uk@mpihome.com](mailto:sales.uk@mpihome.com)

### **France**

#### **m+p international Sarl**

5, rue du Chant des Oiseaux  
78360 Montesson  
Phone: (+33) (0)130 157874  
Fax: (+33) (0)139 769627  
[sales.fr@mpihome.com](mailto:sales.fr@mpihome.com)

### **China**

#### **m+p international China Co., Ltd.**

Room No. 06 · 12/F · Office Tower C  
Building 6 Suzhou Center  
Su Xiu Road · Suzhou Industrial Park  
215021 Suzhou  
Phone: (+86) 512 6510 0765  
Fax: (+86) 512 6510 0769  
[sales.cn@mpihome.com](mailto:sales.cn@mpihome.com)