

# MSX16

## Modular Signal Expansion Unit

- 16-channel modular signal acquisition unit (front-end) for PC
- compatible with SONY SIR-1000 high-speed digital data recorder
- up to 8 dual-channel input modules
- Smart Sensor interface for various types of transducers
- extremely compact and easy to use
- 3-way power supply (AC, DC, internal battery)
- weighting filters for each channel scalable from 2-128 channels (16 per unit)



# MSX16

Flexible and scalable multi-channel data acquisition and signal generation system for use in research, development and production environments

MSX16 is eminently suitable for situations in which extreme power and stability are of the essence. Up to eight MSX16 units can be combined, each of which can contain up to eight intelligent sensor modules (two channels per module), thus allowing up to 128 channels to be controlled as required.

**MSX16 has been developed for use primarily in the following fields:**

- car manufacturers and their subcontractors
- design and development
- quality assurance
- engineering services
- vibration and acoustics
- environmental and labor protection
- scientific research

## Example application areas:

- programmable filter bank / signal conditioner
- PC-based real-time FFT for each channel
- multi-channel data acquisition / signal generation
- multidimensional sound intensity / power measurement
- process and equipment monitoring
- balancing of rotating components
- passing-by noise

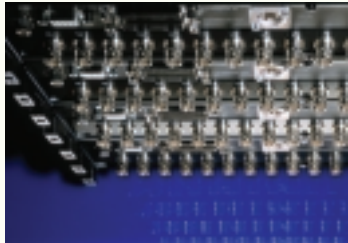
## Interface

The MSX16 unit can be used easily in conjunction with common notebooks or PCs via its standardised PC-Card or short-PCI interface.





One of the key features of the MSX16 is its flexibility. Its combination of modular hardware and software components makes it suitable for a wide range of applications. Various standard input modules (Smart Sensor interface according to IEEE P1451.4) are available, including ICP, microphones, charge input, tacho... Custom development of input modules (sensor interfaces) is also possible. In addition to standard software packages, SINUS offers development and consultancy services based on the MATLAB™ interface provided.



- ICP® Input Module  
ICP / direct voltage compatible  
2 channels per module  
Bar meter indication for each channel

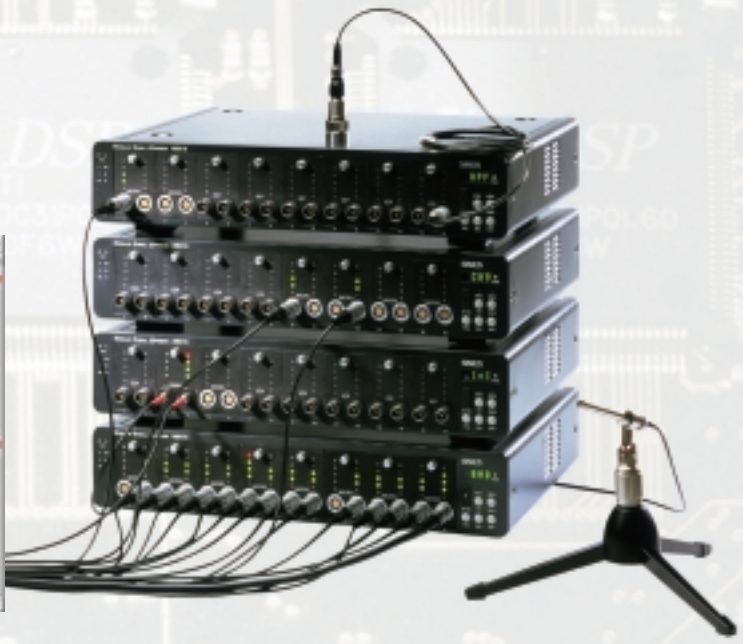
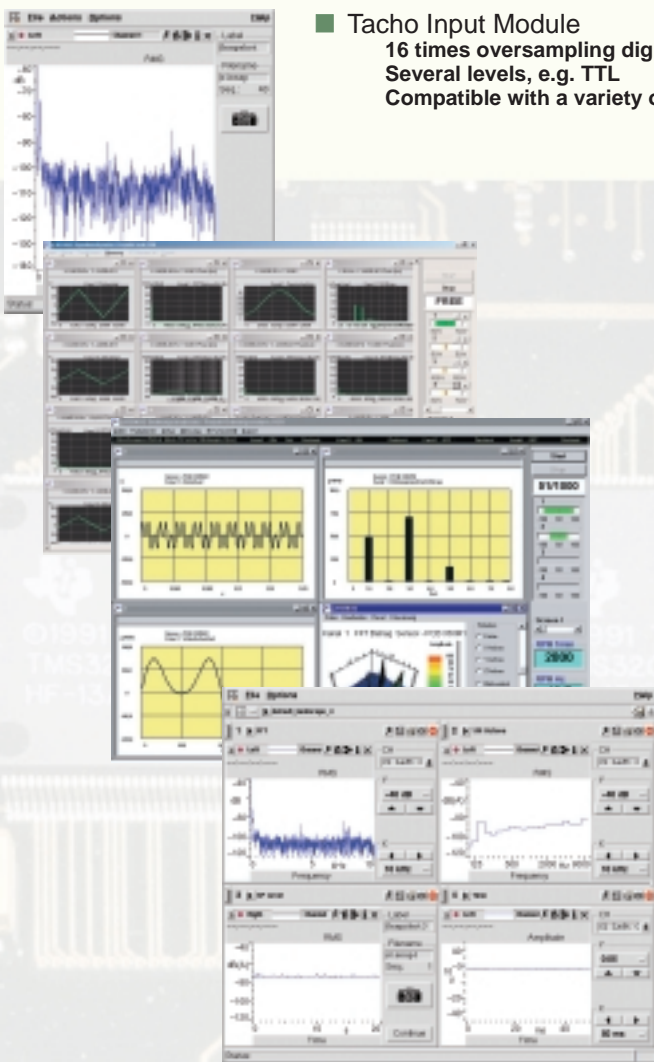
- Microphone Input module  
Low-noise microphone amplifiers  
ICP / direct voltage compatible  
2 channels per module  
Bar meter indication for each channel

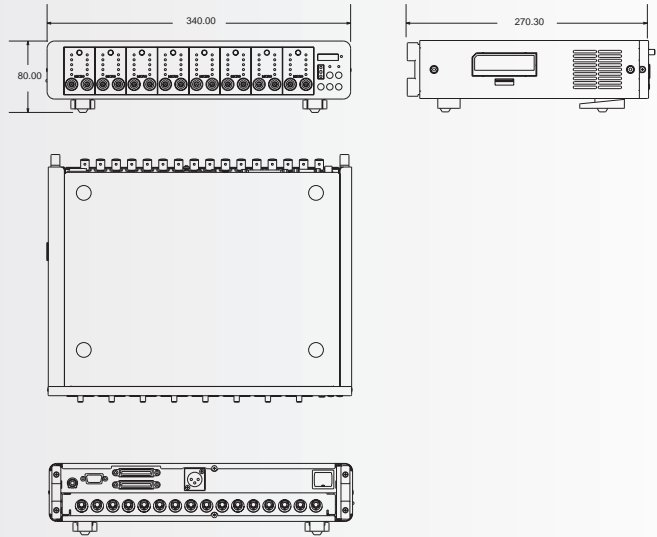
- Charge Input Module  
General-purpose low-noise charge amplifiers  
2 channels per module  
Bar meter indication for each channel



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- Tacho Input Module  
16 times oversampling digital input  
Several levels, e.g. TTL  
Compatible with a variety of RPM-Sensors





**MSX16, power supply, laptop PC and accessories - it's all in the bag!**

## Technical Specifications

### 982000.5 Main Frame

#### Analog Channels

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| Number of Slots for Input Modules | 8 (16 channels)                       |
| Internal Sampling Frequency       | 48 kHz, per channel                   |
| Quantization                      | 16 Bit linear                         |
| Frequency Response                | ± 0.5 dB, 0dB @ 1 kHz                 |
| Dynamic Range                     | 80 dB or more                         |
| Distortions                       | 0.01 % or less                        |
| Cross Talk                        | -80 dB or less                        |
| Inter-Channel Phase Difference    | 1° or less                            |
| DC Accuracy                       |                                       |
| Offset                            | ± 0.15 % or less                      |
| Gain                              | ± 0.2 % or less                       |
| DC Linearity                      | ± 0.1 % or less                       |
| Digital Weighting Filters         | A, B, C, D, M, Mi, Others on request! |
| Input Filters                     |                                       |
| AC                                | 0.3 Hz                                |
| HPF                               | 10 Hz                                 |
| LPF                               | 2.5 kHz                               |
| Output                            |                                       |
| Connector                         | BNC                                   |
| Level                             | ± (1, 2, 5) Vpk                       |
| Impedance                         | 50 Ohms                               |

#### Power Requirements

|            |            |
|------------|------------|
| DC Voltage | 11 to 30 V |
| Current    | 2 A @ 12 V |

#### Dimensions and Other Specifications

|                       |  |
|-----------------------|--|
| Dimensions W x H x D  | 340 x 65 x 250 mm                              |
| Operation Temperature | 0 to 40 °C                                     |
| Operation Humidity    | 20 to 80 % RH                                  |
| Vibration Resistance  | 40 G, 11 ms, half sinus                        |
| Safety Regulations    | EN 61010, UL 3101                              |
| EMC Compliance        | FCC Class A, EN55011-1, EN61000-3-2, EN50082-2 |

### 982120.7 ICP Input Module

|                    |                                  |
|--------------------|----------------------------------|
| Number of Channels | 2                                |
| Input Connectors   | 2 x BNC                          |
| Input Range        | ± (0.1, 0.2, 0.5, 1, 2, 5, 10) V |
| Input Couplings    | DC, AC, LPF, HPF                 |
| ICP Current Supply | 2 mA constant current            |

### 982121.5 Microphone Input Module

|                           |                                  |
|---------------------------|----------------------------------|
| Number of Channels        | 2                                |
| Input Connector           | 2 x LEMO7                        |
| Input Ranges              | ± (0.1, 0.2, 0.5, 1, 2, 5, 10) V |
| Input Coupling            | DC, AC, LPF, HPF                 |
| Polarization Power Supply | 0 or 200 V                       |
| Preamplifier Power Supply | ± 14 V                           |
| ICP Current Supply        | 2 mA constant current            |

### 982122.1 Charge Input Module

|                    |                 |
|--------------------|-----------------|
| Number of Channels | 2               |
| Input Connector    | 2 x microdot    |
| Input Range        | 100 pC to 10 nC |
| Input Coupling     | AC, LPF         |

### 982123.1 Charge Input Module / BNC

|                    |                 |
|--------------------|-----------------|
| Number of channels | 2               |
| Input Connector    | 2 x BNC         |
| Input Range        | 100 pC to 10 nC |
| Input Coupling     | AC, LPF         |

### 982124.8 Tacho Input Module

|                    |         |
|--------------------|---------|
| Number of Channels | 2       |
| Input Connector    | 2 x BNC |
| Level              | TTL     |
| Clock Frequency    | 768 kHz |