

## Interpolation and Counter Card MVSXMC

### Characteristics:

- XMC card for measured value acquisition and interpolation
- Connection of 4 analog and 4 digital incremental encoder signals
- Connection of up to 11 additional external digital signals
- 1 ADC 16 bit
- Interpolation rate of up to 2 048 (4 integrated IC GC-IP2000)
- Patented gain and offset regulation
- Maximum input frequency of 260kHz for all resolutions
- Absolute measurement accuracy due to continuous data acquisition in realtime (< 4µs)



Interpolation and Counter Card MVSXMC

The MVSXMC interpolation and counter board from GEMAC provides fast, synchronous and equidistant acquisition and evaluation of four analog and four digital incremental encoder signals. As a space-saving and cost-effective alternative to an external electronic system, the MVSXMC offers maximum application possibilities for highly dynamic processes. To this end, the user can choose from numerous functions and delivery scopes of the board. Furthermore, GEMAC provides support in the form of individual consulting and factory-set board configuration, if necessary.

The signals from the analog encoder are corrected automatically in amplitude and zero position by way of the patented GEMAC control algorithm. Subsequently, the integrated electronic interpolation unit divides the signal period of the encoder into max. 2 048 increments. Due to the automatic closed-loop control, an absolute measuring accuracy (typ.  $\pm 0.7$  increments) is achieved in realtime of less than four microseconds.

In addition to the signals from the incremental sensors, the MVSXMC also acquires another analog signal and up to 11 further digital signals simultaneously. Acquisition of the measured values is triggered by a programmable timer or externally connected components, e. g. a trigger sensor or camera.

For the evaluation of distance coded reference marks, it is also possible to start a measurement via the reference signal from one or several sensors.

### Fields of Application:

- Machines used for quality surveillance (coordinate measuring machines, special measuring machines)
- Automation and control solutions (components for industrial PCs)
- Fast and synchronous detection of position values and other physical values simultaneously
- Detection of position values and position differences depending on trigger events

**NEW****GEMAC**  
Sensorik. Messtechnik. ASIC-Design.**Technical Data\*:**

| Input Signals                         |  |
|---------------------------------------|--|
| <b>Analog sensors</b>                 | 4 channels for sine shaped incremental signals (voltage signals)<br>Nominal gain configurable<br>max. input frequency 260kHz for all resolutions   |
| <b>Digital sensors</b>                | 4 channels for incremental signals RS422<br>min. edge distance 30ns  |
| <b>ADC</b>                            | 1 channel 0V ... 5V  |
| <b>Digital inputs</b>                 | 3 trigger inputs (5V configurable to a max. of 10V), threshold value configurable<br>8 inputs LVTTTL   |
| Output Signals                        |  |
| <b>Digital outputs</b>                | 4 outputs (5V) open drain with pull-up ext. or on board of up to 250mA<br>4 outputs LVTTTL<br>2 outputs open drain of up to 15mA for LED controlling   |
| Interpolation                         |  |
| <b>Functions</b>                      | Fast hardware interpolation<br>Interpolation rate decimal / binary 100 ... 2 048<br>Sensor monitoring  |
| <b>Signal correction</b>              | Patented digital regulation of gain and offset<br>Digital potentiometer for phase correction   |
| Signal Processing                     |  |
| <b>Measured value trigger sources</b> | 3 trigger probe connectors with configurable threshold values<br>8 digital signals<br>8 reference signals of sensors (evaluation of distance coded reference marks)<br>Timer (3.84µs ... 20s)      |
| <b>Software link</b>                  | FIFO memory with 1 024 data sets<br>Automatic equidistant and synchronous measurement<br>API for simple linking to other software<br>PCIe-driver for Windows 2000/XP/Vista/7<br>Driver for LabView |
| <b>Additional functions</b>           | Timestamp register for every trigger that occurred<br>3 configurable PWM signals   |
| Additional Data                       |  |
| <b>Form sector</b>                    | XMC card 74mm x 149mm with 68-pole AMP front connector   |
| <b>Temperature range</b>              | 0°C ... 70°C   |

\* A complete description of technical data is available from 3<sup>rd</sup> quarter 2012 in the datasheet ([www.gemac-chemnitz.de](http://www.gemac-chemnitz.de)).

**Ordering Information:**

| Product Type                | Description   | Article Number                           |
|-----------------------------|---|--|
| <b>MVSXMC Standard</b>      | Interpolation and counter card MVSXMC fully assembled                         | PR-43370-00                              |
| <b>Configuration MVSXMC</b> | Configuration and customization of the card to specific customer requirements | According to our acknowledgment of order |

This card is suitable for numerous applications: For specific configurations kindly send an email with the exact description of the measurement requirements to [interpolation@gemac-chemnitz.de](mailto:interpolation@gemac-chemnitz.de).