

## CMU 1000 Series Condition Monitoring Unit



### Applications



### Description

The CMU 1000 is an electronic evaluation unit for permanent online condition monitoring of machines and systems.

In order to achieve this, the device must be supplied with relevant data which is recorded by the sensors connected to it.

This recorded data (*processed or unprocessed*) can be transferred by the CMU 1000 via different ports or as an analog value to other devices and/or monitoring levels.

The CMU 1000 processes the application program stored in it continuously and cyclically like a PLC. The user creates this program simply and conveniently using the CM Editor developed for this purpose and then uploads it to the CMU 1000.

The CM Editor is part of the HYDAC PC software CMWIN Version V03 or higher and it provides the various tools and functions in accordance with IEC 61131 for designing, integrating and testing the user program using "drag and drop" operations.

For status indication and for displaying messages and values on the device itself, there is a back-lit LCD and three different colored LEDs.

The CMU 1000 is operated and data are input on site using a built-in keypad within the menu structure of the device.

It is possible to connect easily to higher level control systems, monitoring systems and bus systems using the built-in interfaces or in combination with an additional coupling module.

### Technical Details

<b>Supply</b>		
Input voltage	18.0 to 35.0 V DC	
Current consumption max.	1.5 A (3.5 A when CSI-F-10 connected)	
Reverse polarity protection:	-30 V	
Withstand voltage	+40 V	
Connection of sensors	Up to 8 sensors with HSI functionality or up to 8 SMART sensors* and in addition up to 8 analog sensors and up to 4 digital sensors 4 x digital / 2 x digital + 2 x frequency / 3 x digital + 1 x frequency	
<b>Analog inputs</b>		
Channel I and J (Accuracy)	4 to 20 mA 0 to 20 mA 0.5 to 4.5 V 0 to 10 V	$\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max.
Channel K and L (Accuracy)	4 to 20 mA 0 to 20 mA 0.5 to 4.5 V 0 to 50 V -10 to +10 V	$\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.2\%$ FS max. L only!
Channel M and N (Accuracy)	4 to 20 mA 0 to 20 mA 0.5 to 4.5 V	$\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max.
Channel O and P (Accuracy)	4 to 20 mA 0 to 20 mA 0.5 to 4.5 V -10 to +10 V	$\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.1\%$ FS max. $\leq \pm 0.2\%$ FS max. P only!
<b>Digital Inputs</b>		
Quantity	4, of which 2 are for frequency measurement (Channel Q and R)	
Trigger threshold	approx. 2 V	
Dynamics	30 kHz	
Measurement channels	32 - A measurement channel can be a value of a connected sensor (also a subchannel of a SMART sensor) or a value derived (calculated) from sensor data.	
Quantity		
<b>Analog Outputs</b>		
Quantity	2	
Type	individually selectable, current (4 to 20 mA) or voltage (0 to 10 V)	
<b>Digital Outputs</b>		
Quantity	4	
Type	Relay output, change-over contact	
Switching capacity	30V DC / 1 A	
<b>Calculation Unit</b>		
Analog value recording	12 Bit A/D-converter	
<b>Interfaces</b>		
Keypad	- 4 arrow keys ( <i>up, down, right, left</i> ) - OK key - ESC key	
Display ( <i>back-lit</i> )	- Two-line LCD (2 x 16 characters) - Additional indication of status information via 3 different colored LEDs is possible	
USB Mass Storage Device **	- USB 1.1 / USB 2.0 full speed Port for connecting a mass storage device ( <i>memory stick</i> ) - Female connection type "A".	
Ethernet, supported protocols	- RJ 45 8/8 Ethernet interface - HTTP Server - OPC Client	
Serial Interface 0 (UART 0)	- Implementing an RS 232 or an HSI master interface - Change-over user-programmable ( <i>optional IO-Link also possible</i> ) - Connection via plug-in terminals - No handshake lines	
HSI Master	Cascading the CMU	
USB Device	- USB 1.1 / USB 2.0 full speed Port for connecting a PC / Notebook to configure the CMU - Female connection type "B".	

### Approvals

CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

CAN Bus Interface	Can be integrated as an option
IO Link Interface	Can be integrated as an option
Cycle Time	Independently determined at start of program. Display of actual cycle time is possible in the CM Editor
<b>Operating and Ambient Conditions</b>	
Operating temperature	-4° to 158°F (-20 to 70°C)
Storage temperature	-22° to 176°F (-30 to 80°C)
Relative humidity	0 to 70%, non-condensing
Dimensions	approx. 8.35" x 4.17" x 1.42" (212 x 106 x 36 mm)
Weight	approx. 600 g
<b>Technical Standards</b>	
EMC	EN 61000-6-1 / 2 / 3 / 4
Safety	EN 61010
Protection class	IP 40

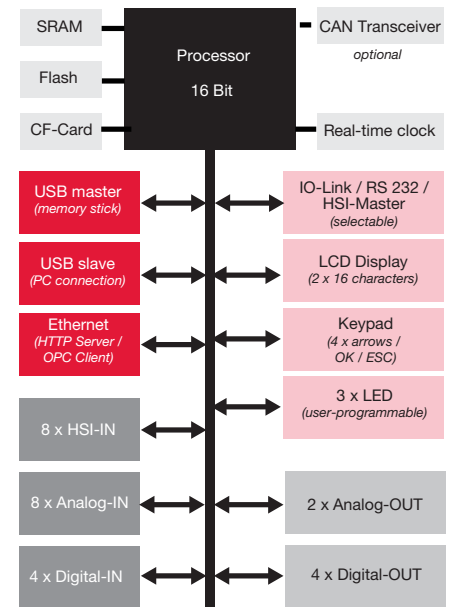
\*SMART sensors (Condition Monitoring Sensors) are a generation of sensors from HYDAC, which can provide a variety of different measured values.

\*\*Recorded data from the CMU can be transferred to a memory stick via this interface. The USB Host supports mass storage devices exclusively.

## Special Features

- 8 input channels for HSI or SMART sensors
- 8 input channels for analog sensors
- 4 input channels for digital signals
- 2 output channels for analog signals
- 4 relay switching outputs with change-over contacts
- USB slave port for PC connection
- USB master port for storing measured data on a standard memory stick
- Ethernet interface
- RS 232 port
- 2-line LCD (2 x 16 characters) to display measured data and status and/or error messages
- 3 user-programmable, different colored LEDs for status indication (red, yellow, green)
- Simple operation using navigation pad
- Creation of customized application program using PC software CMWIN supplied

## Block Circuit Diagram



## Model Code

**CMU 1000 - 000 - X**

Modification number \_\_\_\_\_

000 = Standard

Operating Manual and Documentation \_\_\_\_\_

- D = German
- E = English
- F = French

Note: On units with a different modification number, please read the label or the technical amendment details supplied with the unit.

Accessories:

Appropriate accessories, such as sensor lines for the electrical connection, can be found in the Accessories section.

## Dimensions

