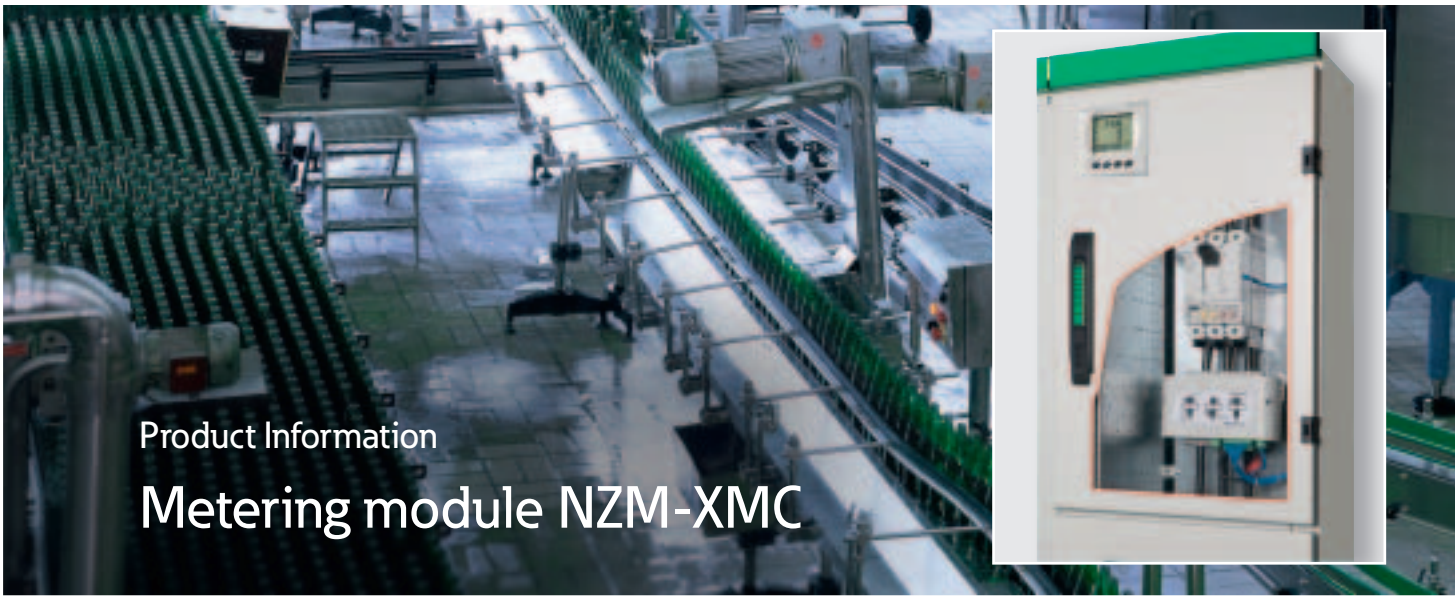
www.eaton.com www.moeller.net

Recording and optimising energy



Product Information

Metering module NZM-XMC

EATON
Powering Business Worldwide

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Metering and communication module for energy distribution and motor control centres

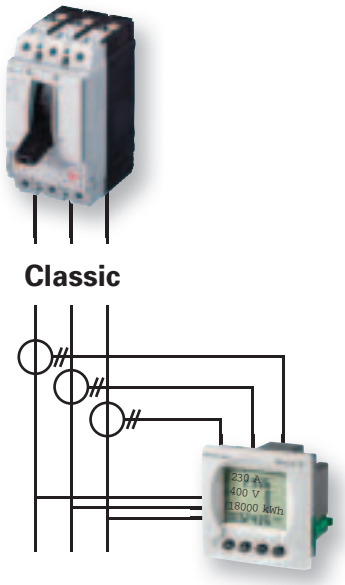
Recording energy consumption

The requirement for a simple metering function to detect the transferred energy is in demand with energy distribution and motor control centres. Energy is a precious resource and everyone is urged to conserve it. A prerequisite for reduction in consumption requires knowledge of the level of consumption, and accordingly simple sensors for recording energy consumption are becoming ever more important.

The product range

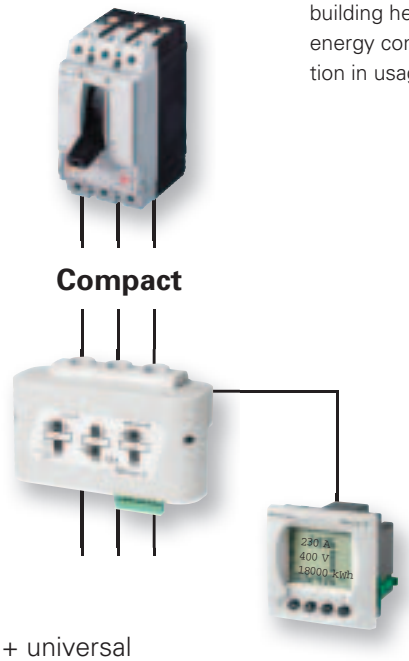
The new range of metering and communication modules (XMC) are specially designed for circuit-breakers NZM2 and NZM3 and can be used universally in a voltage range from 35 V - 500 V and in a current range from 1.5 - 630 A. There are two sizes matched to the NZM current ranges. Size 2 (NZM2-XMC) extends up to 300 A and size 3 (NZM3-XMC) accordingly up to 500 A. Each of these sizes are available as 3 or 4-pole versions.

Recording energy usage in a building helps in the analysis of energy consumption and reduction in usage.



+ universal

- high level of wiring effort



+ universal
+ simple installation
+ low price

The new compact solution

A combination of current transformer, voltage tap-off, measurement electronics, fieldbus interface and display interface in an enclosure is a very interesting solution. Four individual devices (3 current transformers and 1 measurement device) are combined in a single enclosure. Considerable wiring and installation effort and expense are avoided. The installation of the metering and communication module can be undertaken at any location in the control panel. The system is independent of the switch design and model. All existing circuit-breakers and switch disconnectors can be used, only the minimum clearances required by the design of the respective switches must be observed. This solution offers a very large range of applications and can even be retrofitted in a short time to existing switchboards.

The recording of energy consumption is a prerequisite in industry for the avoidance of expensive energy usage peaks.

XMC as a data source for 3 recipients

All relevant data is provided for the control level in addition to the local display for on-site personnel. These include the current states ON/OFF/TRIP of the circuit-breaker as well as control of a remote operator for automatic switch functions. The **management level** is concerned with the present values of currents, voltages and powers which can be individually displayed as well as saved. The course for optimization of consumption can be set here.

Pre-processing in the XMC enables load shedding

Pre-processing means reducing the load on the processing stations. A simple form of optimization is load shedding. If a defined threshold is reached, a digital output can be controlled that is integrated into the interlock. A range of digital and analog input/output expansion boards are available for this extended functionality. These boards are installed in the base unit and can be supplied directly with the unit, or retrofitted later. The following expansion boards are available:

1. 2 outputs as a changeover contact
2. 4 outputs as NO contacts
3. 4 digital inputs / 4 digital outputs
4. 1 analog output 4 - 20 mA / 1-10 V

As an intelligent pre-processing unit the XMC offers further information for the control and management level. For example, the **maximum values** of measured values can be calculated and issued over a time period, or **time window values** can also be mapped for a specific time. The XMC can also score points in terms of **diagnostics**. Load warnings can be issued to counteract tripping due to an overload.

Mechanical connection

A central factor in its success is the simplicity of the mechanical installation of the devices. The cables or braids are connected through the apertures of the XMC to the switching/protective device. They can be mounted on both the incoming and outgoing side. The tunnel diameter for both module types with a diameter of 27.5 mm is suitable for max. 185 mm² conductor cross-sections. Alternatively, a 11 x 21 x 1 mm copper braid can be used. An NZM 3 up to 500 A can be operated using this conductor. An adapter is supplied for smaller cross-sections.

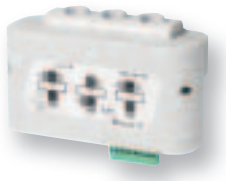
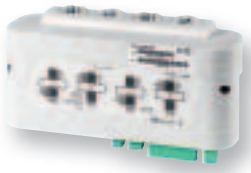
Summary

XMC is a component for modern energy distribution which can be easily mechanically integrated and where the measured values can be transferred on-location as well as via a fieldbus. It plays an important role in the area of recording energy consumption, control of switchgear, load shedding and diagnostics.

Coupling for PROFIBUS-DP

All XMC devices with Modbus interface can communicate via a coupler as a slave on the PROFIBUS-DP. On the Modbus end, the coupler acts as a master and can map up to 32 XMC devices on the PROFIBUS-DP. All details can be found under the following link: http://www.moeller.net/en/products_solutions/power_distribution/power_communication/messmodule/index.jsp

Adapter for smaller cross-sections	MC 2/3
Tunnel diameter	27.5 mm
Conductor cross-section with adapter	35 mm²-120 mm²
Conductor cross-section without adapter	95 mm²-185 mm²

	Moeller Type	Number of poles	Maximum rating	Main features
	NZM2-XMC-S0	3	300	Digital S_0 output
	NZM3-XMC-S0	3	500	Digital S_0 output
	NZM2-XMC-MB	3	300	Modbus, 2 S_0 outputs, display interface
	NZM3-XMC-MB	3	500	Modbus, 2 S_0 outputs, display interface
	NZM2-4-XMC-S0	4	300	Digital S_0 output
	NZM3-4-XMC-S0	4	500	Digital S_0 output
	NZM2-4-XMC-MB	4	300	Modbus, 2 S_0 outputs, display interface
	NZM3-4-XMC-MB	4	500	Modbus, 2 S_0 outputs, display interface
	NZM-XMC-DISP			Display for all Modbus types
	NZM-XMC-AC			Power supply for AC supply

	EXPANSION CARDS			
	+NZM-XMC-MB			Modbus protocol
	+NZM-XMC-1AO			Analog output 4-20 mA / 0-10 V
	+NZM-XMC-2DO-R			2 switched contacts
	+NZM-XMC-4DO-R			4 NO contacts
	+NZM-XMC--4DI-4DO			4 digital input/outputs

Eaton Corporation

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