Efficient solutions for your energy management

Series NZM / Series IZMX

Ethernet

PROFIBUS/-NET

Modbus

E·T·N

Capture Energy by Circuit Breaker Communication
Software. Modules. Interfaces. Visualization.

F·T·N

Powering Business Worldwide

Communicative circuit breakers

Series NZM

Switch, protect and communicate.
The principle of innovation and future-oriented technology has been fully implemented in our new, homogeneous NZM circuit breaker series for up to 1600 A. With four circuit breakers in four consistent breaking capacity levels, our comprehensive offer includes reasonably priced devices from 25kA for small sub-distribution to 150kA breaking capacity for complex high-energy systems.

NZM1 and NZM2 circuit breakers can withstand rated currents of up to 160 A or 300 A and will reliably break short-circuit currents of up to 150 kA. Their compact design saves space when used both as main breakers in machine control

systems and as incoming supply units in installation distribution boards or as outgoing breakers in energy distribution boards. Other device levels include the 630 A device in a particularly compact design and the big 1600 A circuit breaker. Consistency with regard to the same way of functioning, mounting and handling of circuit breakers and accessories is among the most characteristic features of the NZM series.

Compact circuit breakers and switch disconnectors for up to 1600 A:

- NZM2 from 32 to 300 A
- NZM3 from 125 to 630 A
- NZM4 from 315 to 1600 A

Series NRX

Small, flexible and efficient.
The new NRX circuit breaker series provides for even more capacity in a minimum of space. Thanks to the innovative design, Eaton is able to offer optimal utilization of space in all switchgear systems, e.g. in xEnergy and MODAN.

The IZMX16 of the NRX series is the smallest air circuit breaker (ACB) worldwide: With a volume of only 24 dm^3 and a front surface of only 0.092 m^2 it is only slightly larger than a DIN-A4 sheet of paper! Two IZMX16 circuit breakers fit into a 600 mm wide section and provide a maximum of capacity in a minimum of space

The modern IZMX40 in its reduced size scores high in Eaton switchgear systems, especially with significantly better derating values than other models in its class.
Our high-capacity circuit breakers cover a rated current range from 630 to 4000 A at a breaking capacity ranging from 42 to 105 kA.

Air circuit breakers and switch disconnectors from 630 to 4000 A:

- IZMX16 for applications in the range from 630 to 1600 A
- IZMX40 for applications in the range from 800 to 4000 A

Powerful communication

Local diagnostics

NZM-XPC-Soft

Fieldbus control

Ethernet

PROFIBUS/-NET

Modbus

NZM module XSWD-704 Interface

DMI data management interface

NZM-XMC measuring and communication module

CAM modules for air circuit breakers

BreakerVisu

Visualization and logging system for energy distribution

Local diagnostics

NZM-XPC-Soft

NZM diagnostics software

Absolute control
The NZM-XPC-Soft software is particularly suitable for diagnostic purposes in the NZM 2, 3 and 4 circuit breaker series because it is able to display the prevailing values of current in all phases on a PC:

If there is a load warning or an overload on one phase that might cause a circuit breaker to trip, NZM-XPC-Soft will immediately indicate it, including the reason for tripping, the phase status, the circuit breaker settings as well as the date and the hour. The last 10 diagnostic messages will automatically be saved by the circuit breaker. This allows you even at a later date to know when and why the tripping occurred.

Another advantage:
The software allows reading the diagnostic memory from a de-energized circuit breaker, which significantly reduces the time it takes to identify the problem and to receive a diagnostic message. All data can either be saved as a file or printed.

In addition, the program supports the parameterization of the Data Management Interface (DMI) which is used to display all messages, measured values, switching cycles, operating hours and diagnostic messages, including a timestamp. And no matter which electronic circuit breakers of the IEC and UL/CSA type series you wish to read - the software will automatically adjust itself to the respective device.

Important information at a glance:

- Display of operating data and diagnostics of the operating and tripping behaviour of circuit breakers of the NZM2, NZM3 and NZM4 series
- Display and parameterization of data in the Data Management Interface (DMI)
- Trend indicator in online mode
- Documentation of parameters and operating data
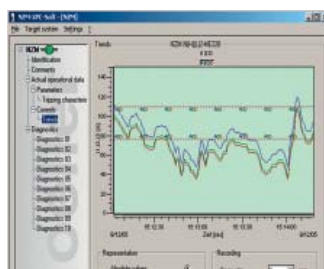
Type designation:
NZM-XPC-KIT

Ordering no. 265631

Software is available free of charge at
www.moeller.net/support

History
of the last 10 events.
Load warnings and trippings
will be saved along with the
tripping parameter settings.

Trend indicator
The trend indicator of XPC-Soft
is a convenient feature for live-
monitoring the currents of the
connected circuit breaker. This
function can also be helpful
during the start-up process by
eliminating possible error
sources.

Documentation
All diagnosed operating data of
the connected circuit breaker
can be saved and printed. For
documentation purposes, you
can save the setting values of
the tripping unit in a clearly
structured document and attach
it to the circuit breaker
documentation.

Fieldbus control

Load warnings

Remote switching
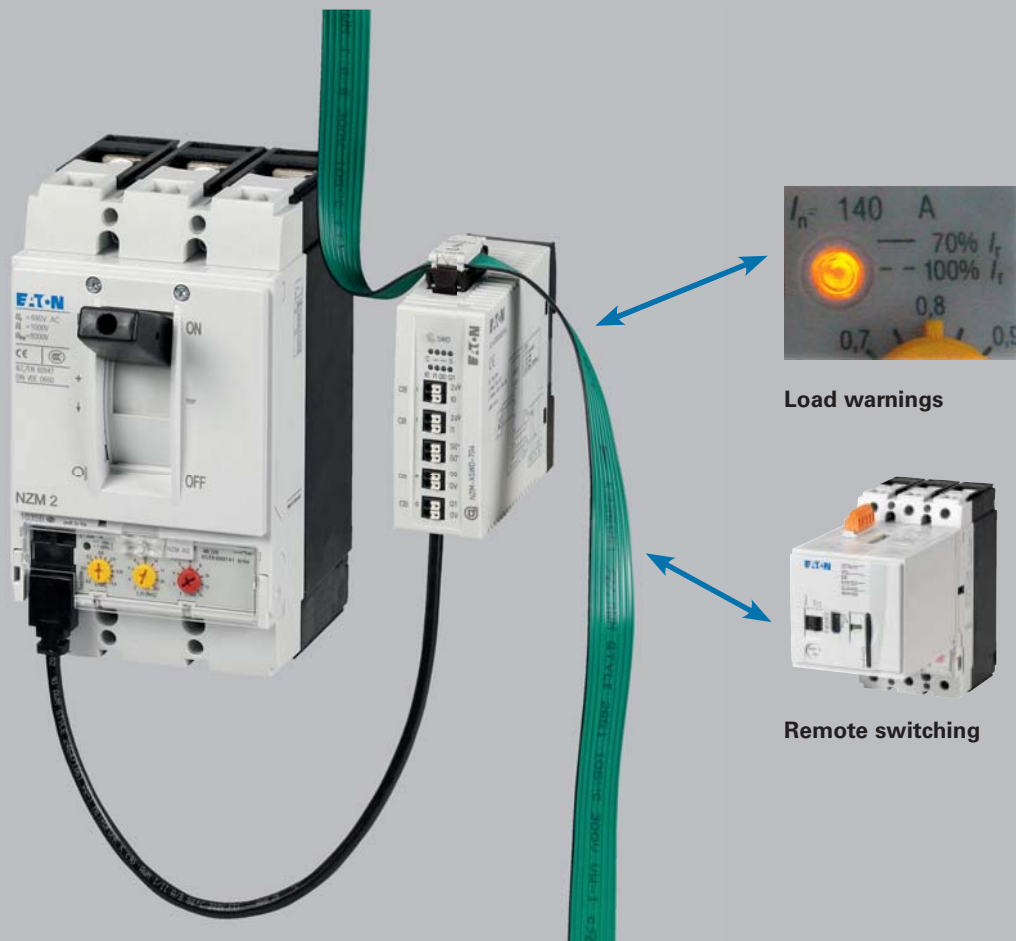
NZM module XSWD-704

Efficient communication based on SmartWire-DT™
The NZM module XSWD-704 enables the SmartWire-DT™ communication system to directly communicate with compact circuit breakers. Plain command devices for 1 bit of data can be served just as well as complex circuit breakers for 32 bytes of data.
Important information of the circuit breaker is made available through SmartWire-DT™, for example phase currents or diagnostic data such as load warnings or diagnostic messages. All NZM 2/3/4 breakers equipped with an electronic tripping device can be directly connected to SmartWire-DT™ via the NZM module. So, SmartWire-DT™ provides access to current ratings of up to 1600 A in energy distribution.

NZM communication
To identify and eliminate errors before they can occur is what preventive warning is all about. Via SmartWire-DT™, the NZM breaker signals excessive current values in 3 different alarm levels. Remote activation of the circuit breaker is also carried out via SmartWire-DT™, so wiring is no longer required for this purpose.

Energy meter on board
The NZM module also transmits the value of active energy used in the respective incoming or outgoing circuit. A remanent energy meter, which can be read at all times via SmartWire-DT™, is used to provide this service. This is how the pre-requisites for energy optimization are provided. To collect energy data, the NZM module is equipped with a standardized S0 interface.

The NZMXMC-S0 module, which does the actual energy measuring, is connected to that interface, and it accommodates the measuring transformers and the required measuring technology.

SmartWire-DT speaks many different languages
If you wish to use the information collected for you by the 704 module in other fieldbus systems and communication platforms, Eaton products and services will optimally prepare you for this purpose.

Thanks to the different gateways in the SmartWire-DT product portfolio, you can choose from among the following five gateways:
• PROFIBUS DP • CAN
• Modbus TCP   • Ethernet IP
• PROFINET

At a glance:

• Status
  (open/closed)
• Current ratings
• Type of circuit breaker
• Parameter settings
• Reason for tripping
• Remote switching

Type designation:
NZM-XSWD-704

Ordering no. 135530

DMI Data Management Interface

Fieldbus-controlled – easy to snap on and connect
Full linking-up of all functions with the automation level is now possible with PROFIBUS DP.
All status and measuring details can be monitored and logged. Any infringements of threshold values can be linked to superior switching concepts.
Link-up is particularly easy via PROFIBUS: thanks to the standard data-profile of the PROFI-BUS user structure, all data are available in the same format and structure.
Access to all signalling, diagnostic and parameter data as well as motor-starter functions is possible through DP-V1.

On-site testing by simply connecting the laptop or DMI to the circuit breaker
Detailed reasons for a warning or tripping can be reported by the electronic tripping unit, including the reason for tripping, the status of each phase, the setting of the circuit breaker as well as the date and time of tripping. Ten historical diagnostic messages can be saved directly in the circuit breaker.

So, all data are available on site for mobile diagnostic and logging purposes on your laptop. The DMI Data Management Interface is used for stationary display of all messages, measurements, switching cycles and operating hours as well as diagnostic messages including a time stamp.

At a glance:

- Status (open/closed)
- Current ratings
- Type of circuit breaker
- Parameter settings
- Remote parameterization
- Reason for tripping
- Past events memory
- Remote switching
- Remote tripping
- Motor-starter function

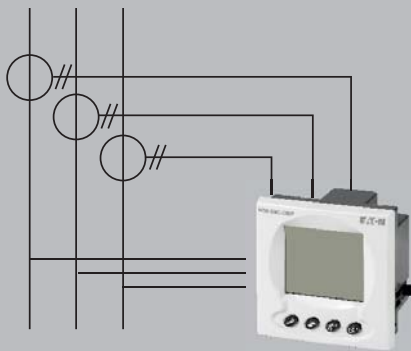Type designation:
NZM-XDMI612

Ordering no. 260217

Type designation:
NZM-XDMI-DPV1

Ordering no. 270333

Fieldbus control

NZM-XMC measuring and communication module

Classic

compact
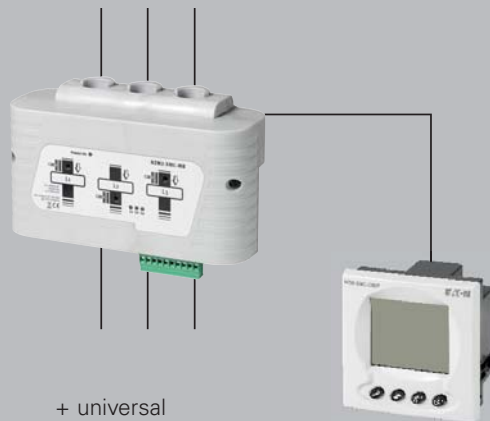
+ universal

– higher amount of cabling

+ universal
+ easy to install
+ low cost

The new and compact solution for recording energy-related data
The new range of XMC measuring and communication modules offers a very interesting solution:
Transformer, voltage probe, measuring electronics, fieldbus interface and display interface – everything in a single enclosure.
This is how you can avoid the usually considerable higher amount of mounting and cabling.
And all relevant measuring data required for calculating energy consumption can be made available:

• Phase and N conductor currents
• Rms voltages
• Active, reactive and apparent power
• Active, reactive and apparent energy
• Power factor
• cos phi.

This provides the transparency you need for optimizing energy consumption and cost cutting.

XMC as a source of data for 3 recipients
Apart from local display for on-site staff, all relevant data are also made available for the control level. They include ON/OFF/TRIP status information of the circuit breaker as well as controlling the remote drive for automatic switching functions. The control level is interested in the real values of currents, voltages and capacities which are both displayed and saved individually on that level.
This is also where you can set the course for optimizing your energy consumption.

XMC is a vital element in modern energy distribution, it is easy to integrate and it is able to transmit the measured values both on site and via a fieldbus. It is a major contribution to

issues such as energy recording, control of switchgear, load shedding and diagnostics

Type designation:	Ordering no.
NZM2-XMC-S0	129839
NZM3-XMC-S0	129960
NZM2-XMC-MB-250	156641
NZM2-XMC-MB	129961
NZM3-XMC-MB	129962
NZM3-XMC-KIT-TCP-630	153140
NZM3-XMC-KIT-630	153141
NZM2-4-XMC-S0	129963
NZM3-4-XMC-S0	129964
NZM2-4-XMC-MB-250	156642
NZM2-4-XMC-MB	129965
NZM3-4-XMC-MB	129966
NZM-XMC-DISP	129967
NZM-XMC-AC	129968
NZM-XMC-USB485	158562

**NZM-XMC
in a smaller frame size**
With the XMC up to 250A, Eaton offers a compact frame size for currents up to 250A. It is especially designed to go with the NZM frame size 2. The clearance for inserting wires or busbars is designed to suit the NZM2. This is why bending of wires/busbars is no longer necessary, a fact that will help you to cut costs and to reduce assembly time.

At a glance:

- Status
  (open/closed)
- Current ratings
- Voltages
- Capacity
- Energy
- Remote switching

Fieldbus control

IZMX16
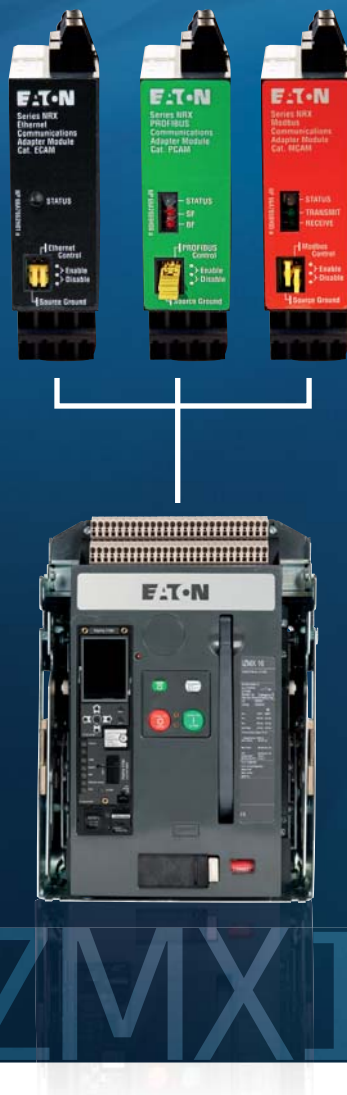
CAM modules

Fieldbus interfaces – communicative and informative

Thanks to its communication skills, the NRX circuit breaker series offers new opportunities in energy distribution. It supplies and forwards all the information that's important for operation. Consequently, the transparency of the system will increase while the response time to statuses such as excess current, phase imbalance and overvoltage will decrease.

By quickly intervening in a process it is possible to avoid system failures or to plan preventive maintenance action, for example.

This will increase the availability of the system. Interface modules for Profibus, Modbus and Ethernet can now easily be plugged onto the circuit breaker, between the control line connections.

Communication modules:

IZMX-PCAM:
Profibus DP logging

IZMX-MCAM:
Modbus-RTU logging

IZMX-ECAM:
Ethernet logging

With the respective communication module – PCAM, MCAM or ECAM – every circuit breaker of the NRX series is equipped for the needs of modern and future-proof communication. Via databus it will not only be possible to transmit information, but also to receive commands/settings.

IZMX40

At a glance:

MCAM
- Status (open/closed)
- Current ratings
- Voltages
- Capacity
- Energy
- Reason for tripping
- Remote switching
- ARMS On/Off

PCAM
- Status (open/closed)
- Current ratings
- Voltages
- Capacity
- Reason for tripping
- Remote switching

ECAM
- Status (open/closed)
- Current ratings
- Voltages
- Capacity
- Energy
- Type of circuit breaker
- Parameter settings
- Remote parameterization
- Reason for tripping
- Remote switching
- ARMS On/Off

Type designation:	Ordering no.
IZMX-MCAM	122892
IZMX-PCAM	122913
IZMX-ECAM	124164

BreakerVisu
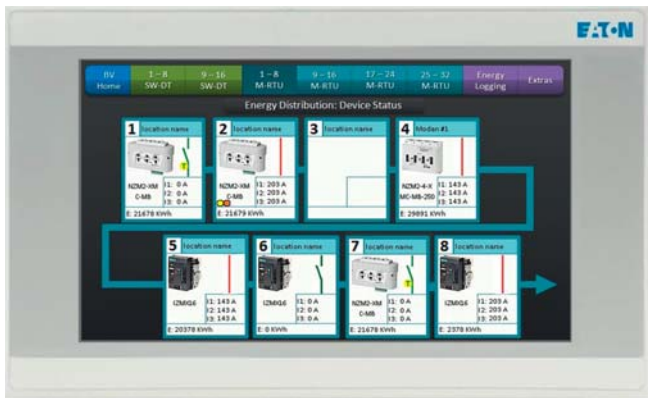
Visualization and logging system for energy distribution

With BreakerVisu, Eaton offers a cost-effective solution for modern energy distribution. On a Multi-Breaker display, the system displays all operating data of your low-voltage switchgear system in a centralized and easy-to-read way.

Centralizing them on a 7" HMI touch screen will increase the availability of important operating data. At the same time you will achieve cost-savings compared to a conventional switchgear system using individual display units for each individual circuit breaker. You will receive BreakerVisu as a fully programmed solution, instantly ready to operate without any further requirements.

It supports the following Eaton circuit breakers:

- Compact circuit breakers (MCCB) of the NZM series
- Air circuit breakers (ACB) IZMX16(40) of the NRX series
- Air circuit breakers (ACB) of the IZM26 series

Type designation:
XV-102-D6-70TWR-10-PLC
Ordering no. 142538
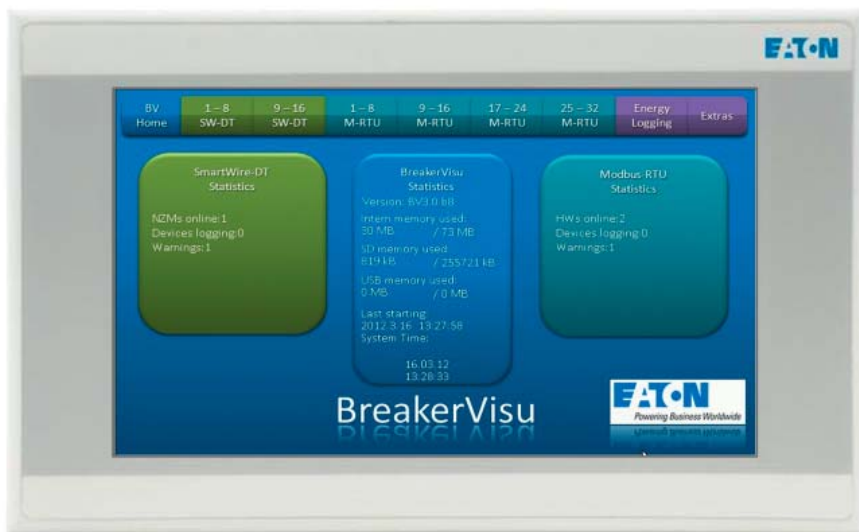
Visualization – easy to read and clearly structured

Menu guidance is easy and clearly structured. At the top you will find the menu bar which allows you to get to the individual menu items. "Touching" one of the fieldbus networks, e.g. Modbus, will take you to an overview page.
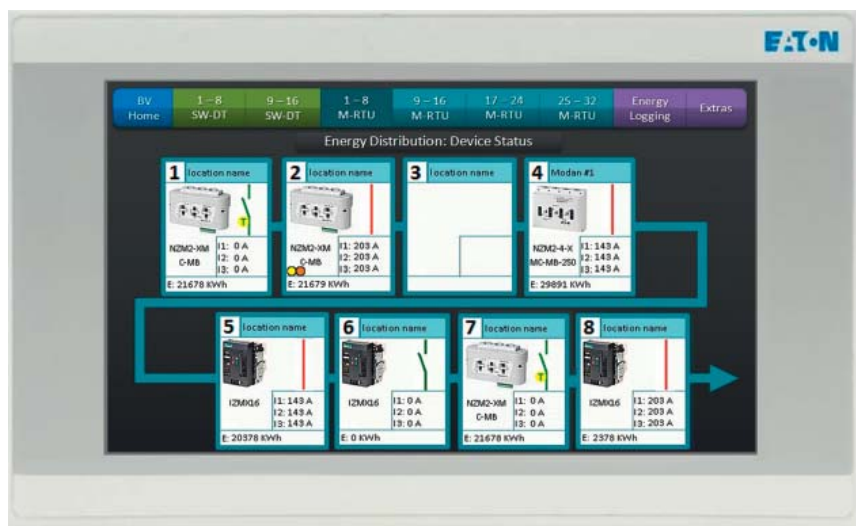
Overview

There you will find a list of all devices that are connected. A short overview will provide information on the type of circuit breaker, on the status and on the prevailing currents. If you select a circuit breaker, more in-depth operating data will be displayed.

Logging

Logging of operating data could not be easier. You just select the data you wish to log by touching the corresponding buttons, then select a time interval and a CVS file will be generated and include the required data, which are then available for download via Ethernet, for example.

BreakerVisu

Topology

Variable and multi-functional structure

The variable structure of the BreakerVisu topology enables you to individually adjust the system to your system structure.
It supports the Modbus RTU and SmartWire-DT™ fieldbus systems.

BreakerVisu allows you to connect a max. of 48 circuit breakers.

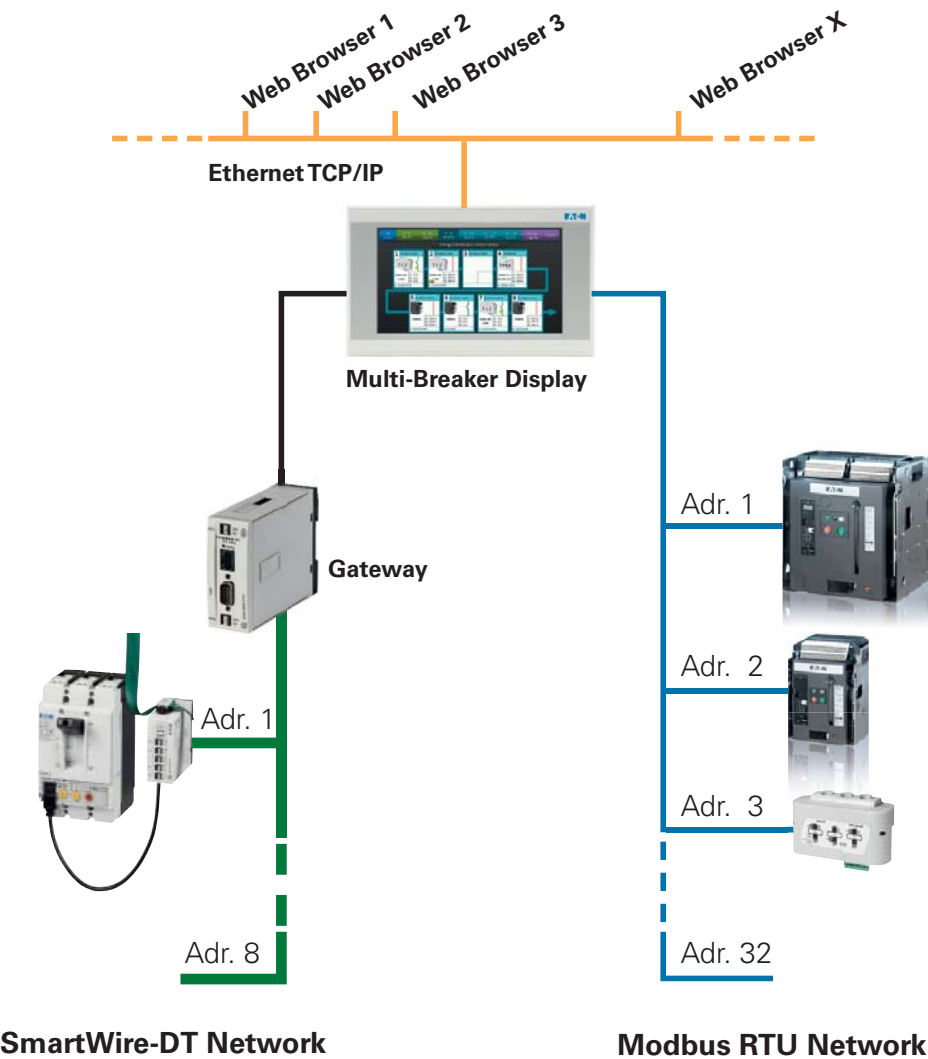Via SmartWire-DT™ you can address NZM circuit breakers of frame size 2,3 and 4. In a Modbus network, BreakerVisu supports IZMX16, IZMX40 and IZM26 circuit breakers. Via Modbus you can also link up the NZM-XMC measuring and communication module for NZM2 and NZM3 circuit breakers.

The on-site visualisation on the multi-breaker display is enhanced by remote access via Ethernet TCP/IP. Access via the Web browser offers the full range of functions as available on the 7" touch screen.

Web Browser 1
Web Browser 2
Web Browser 3
Web Browser X

Ethernet TCP/IP

Multi-Breaker Display

Gateway

Adr. 1

Adr. 8

SmartWire-DT Network

Adr. 1

Adr. 2

Adr. 3

Adr. 32

Modbus RTU Network

Logging

Individually adjustable to your needs

All operating data will be logged and prepared for your Office system in a well-structured way in the CSV file format. You can individually select which of the data you wish to log. Three settings prepared for this purpose will help you to make your choice:

• Event logging
• Data logging
• Energy logging

The particularly user-friendly menu guidance and the 7" touch screen will make it easy for you to handle the system. The analysis of the data you save depends on your individual needs and decisions.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Eaton Industries GmbH			BreakerVisu 3.0			Circuit Breaker Logging Prottocol:				21.11.2011	
2		Data Logging			Start Logging Date:		21.11.2011					
3												
4		HW Adr.		2								
5		location:		CB West								
6		HW Type:		NZM3-4-XMC-MB								
7		Serial No.:		800000015								
8		Scanrate:		1min								
9												
10		Date	Time	IA [A]	IB [A]	IC [A]	VA [V]	VB [V]	VC [V]	P 3PH [kW]	P 3PH [kvar]	P 3PH [kVA]
11		21.11.2011	13:11:10	100	100	100	250	250	250	25	0	26
12		21.11.2011	13:12:10	100	100	100	250	250	250	25	0	26
13		21.11.2011	13:13:10	148	148	148	250	250	250	37	0	38
14		21.11.2011	13:14:10	148	148	148	250	250	250	37	0	38
15		21.11.2011	13:15:10	148	148	148	250	250	250	37	0	38
16		21.11.2011	13:16:10	50	50	50	250	250	250	13	0	14
17		21.11.2011	13:17:10	37	37	37	250	250	250	9	0	10
18		21.11.2011	13:18:10	22	22	22	250	250	250	6	0	7
19		21.11.2011	13:19:10	22	22	22	250	250	250	6	0	7
20		21.11.2011	13:20:10	22	22	22	250	250	250	6	0	7

Remote access

Remote access of all functions

Remote access enables you to call up the full range of functions of BreakerVisu in a safe mode via the Ethernet TCP/IP in your company's Intranet.

- Remote access of all functions
- Unlimited number of clients
- Password-protected access
- Ethernet TCP/IP

Wear indicator

Wear indicator – a useful feature for planning purposes

BreakerVisu supplies you with a percentage-based information on the service life of NZM circuit breakers in the Smart-Wire-DT™ network. As a user, all you need to do is define three values of the NZM circuit breakers installed:

- Type of circuit breaker
- Rated voltage
- Category of utilization

BreakerVisu will then analyse the data and calculate the mechanical and electrical service life. With this essential function BreakerVisu makes it easy for you to plan your maintenance teams. In addition, you will obtain information on the status of the circuit breaker after a shutdown due to overload.

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customized, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But, decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority.

For more information, visit www.eaton.eu.

The products presented are part of the comprehensive Eaton offer.
For more information, please contact your Eaton consultant.

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