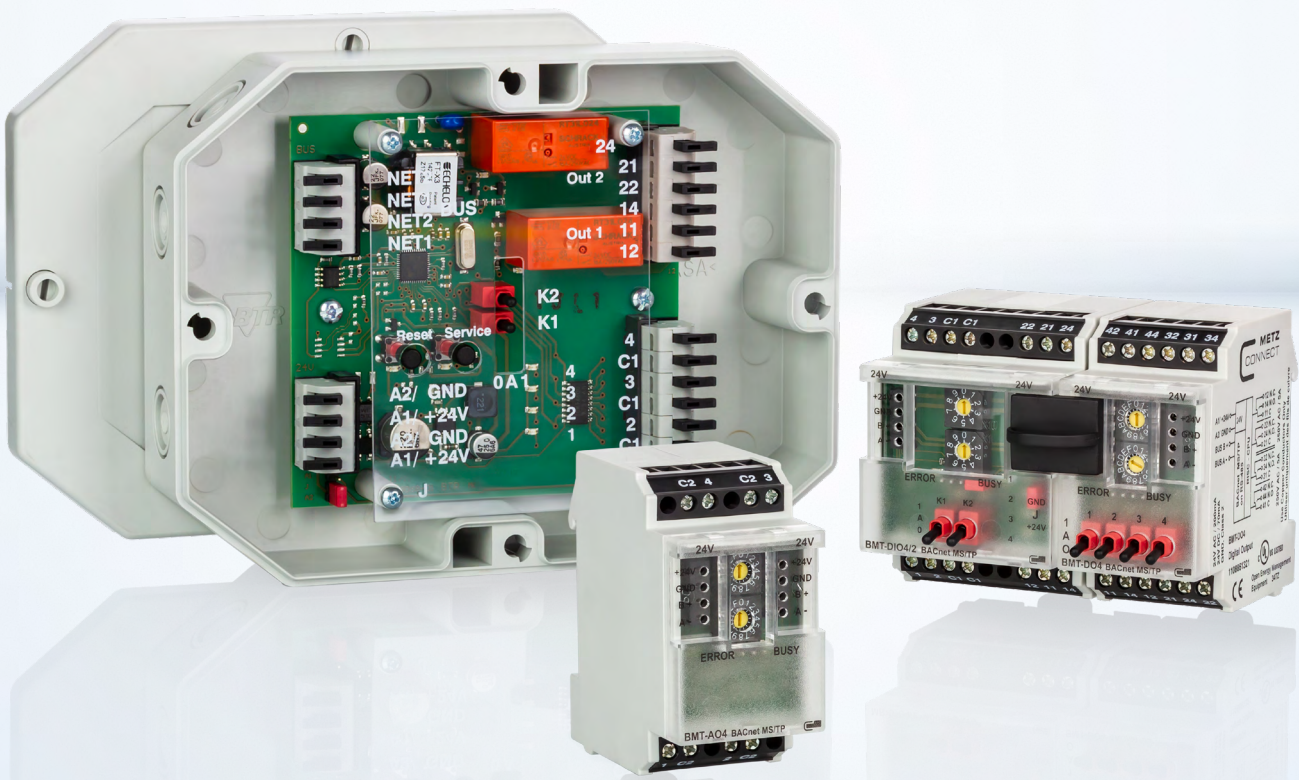
METZ CONNECT

We realize ideas

Intelligent system components with integrated application software –

For automation in buildings, facilities and systems with LON FT5000, BACnet MS/TP and Modbus RTU



C | Logline

I/O components for automation in buildings, facilities and systems

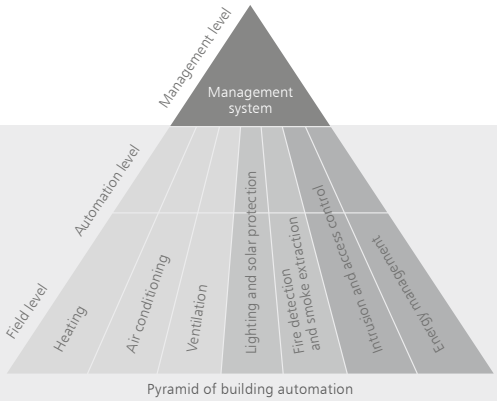
To safely and cost-effectively operate infrastructures in small and large buildings, it is essential that the most vital operational functions run automatically. In turn, this increases the demands placed on the building installation functions. These generally call for a great deal of effort and expense when only implemented with conventional technology. That's why the field of building automation is increasingly turning to serial bus systems to transfer information between sensors and actuators, switches and higher-level control systems.

Here, bus systems offer a range of advantages:

- Simplified planning and installation of building functions
- High degree of flexibility in building use, as functions can be configured freely and can be adjusted and readjusted at any time, according to new requirements.

With these functions in mind, METZ CONNECT provides ready-to-use software applications that save the system integrator both time and money. Further information about the applications can be found on page 8.

A range of applications in buildings



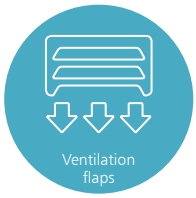
Pyramid of building automation

Heating, ventilation and air conditioning applications

Radiator/chilled ceiling systems as well as air conditioners/fan convectors with heating or cooling operation can be controlled automatically with individual room controllers. You can further energy savings from automatic room temperature control by connecting motion sensors and shade control.

Heating

- Actuating heating coils
- Measuring room temperatures
- Actuating pumps (e.g. flow line)
- Actuating mixer motors
- Actuating motorized valves (radiators)
- Fan coil actuation



Ventilation

- Actuating motorized valves (radiators)
- Temperature recording
- Actuating window flap motors
- Detecting wind speed
- Rain sensor detection
- Volume flow

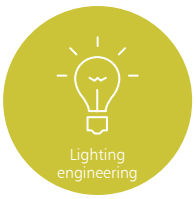
Air conditioning

- Actuating fan motor
- Detecting ventilation flap position
- Actuating ventilation flaps
- Detecting and controlling volume flow
- Pressure switches before and after the flap
- Detecting CO^2 values in the room (department stores)
- Harmful gas monitoring

Lighting and solar protection applications

Energy and operating costs can be reduced with centralized and decentralized control of the lighting. The luminosity is set according to the interior or exterior brightness, or use of the rooms. Lighting scenarios can be saved and created at the touch of a button.

With central or decentralized solar protection control, wind, rain and temperature sensors adjust the position of the blinds and slats depending on the weather conditions, and ensure good lighting conditions in the rooms.



Lighting and solar protection

- Switch light on and off
- Detection from light switches
- Raising and lowering the blind
- Brightness measurement
- Wind force to protect the blind
- Lockout function, patio door detection
- Control of blind drives (curtain)

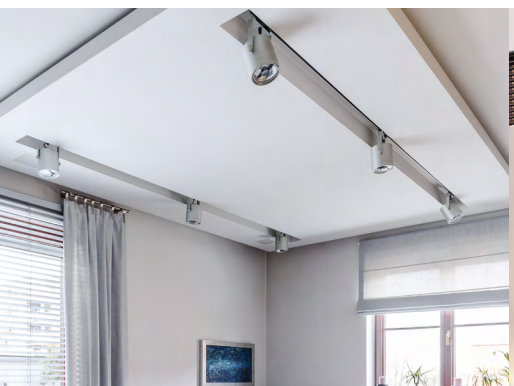
Fire detection and smoke extraction applications

Fire detection systems are installed in buildings and public facilities that are particularly at risk. The necessary catalog of measures is prescribed and regulated by building law. The task of fire detection systems is to ensure that a fire is detected at an early stage, regardless of the presence of people, and that appropriate measures are automatically taken.

Smoke extraction is closely linked to fire detection. Smoke extraction comprises all technical measures and resources to reduce the amount of smoke in escape routes and occupied areas, or to keep them smoke-free, e.g. to improve visibility conditions for the fire department. To implement the measures of both areas effectively, electronic components such as sensors and actuators are used in systems engineering.

Fire detection and smoke extraction

- Actuating fire damper motors
- Detection of the end positions of fire dampers
- Switching on the sprinkler system
- Smoke extraction with damper drives
- Detection of the dampers
- Smoke extraction by actuating the fan
- Escape routes must be supplied with fresh air, oxygen must be extracted at the seat of the fire
- Unlocking the photosensor on elevators



Intrusion and access control applications

Intrusion, espionage or vandalism are a constant threat. This is managed by talking appropriate technical precautions, collecting information about the building and the people inside it. This data acquisition is done electronically using sensors and actuators.

Intrusion and access control

- Counting people
- Motion sensors
- Monitoring window contacts
- Detecting vibration contacts (window pane)
- Detecting infrared sensors
- Detecting radar sensors
- Alarm sensors

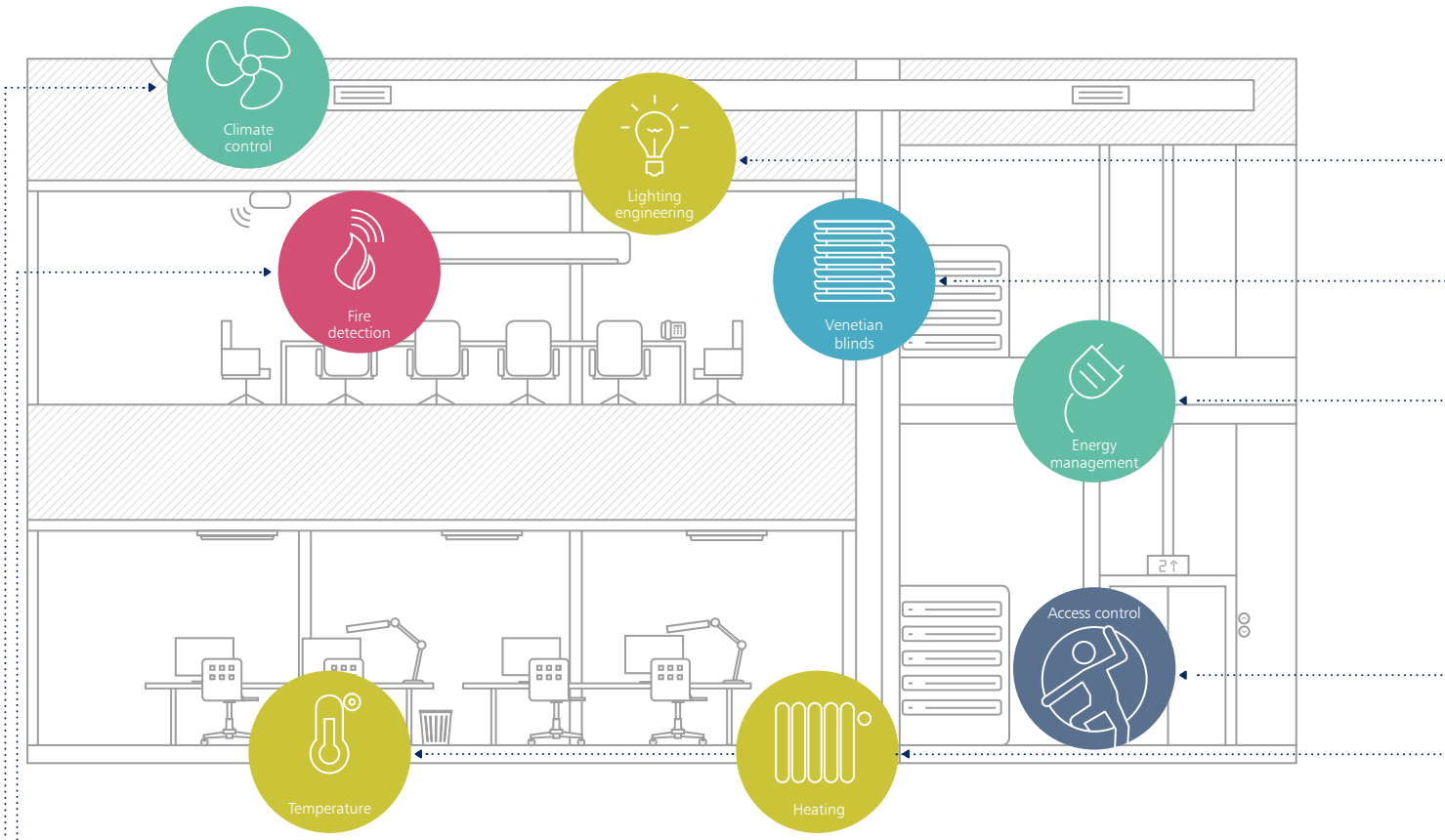
Energy management applications

Energy resources are becoming increasingly scarce, forcing us to reduce energy consumption and CO^2 emissions. One of the most important measures is the optimization of systems engineering. To optimize systems engineering in this area, the energy consumption must be detected and evaluated.

Energy management

- Meter measurement (water, gas, electricity, heat)
- Energy data detection
- Load control
- Motion sensors (switch off lights)
- Detecting temperatures
- Assignment of cost centres to energy consumption

Overview of applications using the example of an office building



Fire protection/fire detection

Fire protection, fire detection or smoke extraction constitute one of the most important areas of regulation in building automation. Its main purpose is to protect people and the building itself. By early detection of the seat of a fire, it is possible to avoid "something worse" in most cases. One component of these regulations is, for example, fire dampers. Digital inputs, for example, are required to detect the dampers. At the same time, however, the dampers are to be activated by actuators through digital outputs. For this purpose, METZ CONNECT provides a combined digital mixing module XX-DIO4/2-IP containing both functions.

XX-DIO4/2-IP

Air conditioning

Fresh air at all times - Automatic switching of the air conditioning system and window monitoring. METZ CONNECT provides a digital relay output module XX-DO4 with 4 changeover contacts for performing switching tasks in such automated systems, e.g. for switching an air conditioning system on and off. The 4 switches on the front of the device allow one person to access them for the corresponding switching task.

XX-DO4

Lighting

Optimum lighting in all rooms. Dimmers and light scenarios create a homely atmosphere. Since most lighting circuits have a high switch-on load, a special digital mixing module XX-DIO4/2 was developed to actuate these lighting circuits directly using powerful relays. At the same time, the XX-DIO4/2 has digital inputs for connecting the light switches directly for manual operation. This ensures system uptime should the controller not be available at any time.

XX-DIO4/2

Solar protection

Automatic control roller shutters and blinds as required. The electric awning provides protection from sunlight. The XX-TP three-state module is the right device for actuating such drives due to the corresponding protective devices for actuating blind motors.

XX-TP

Energy management

Detecting consumption from e.g. electricity, gas, heat and water meters form the basis of energy transparency. Only then is it possible to use the energy in a cost-optimized way. A so-called XXSI4 meter pulse module was specially developed to detect this consumption data. The module has 4 channels with a standardized S0 pulse interface to which it is possible to connect 4 meters of different media. The specially-integrated memory management ensures that no consumption data is lost.

XX-SI4

Intrusion and access control

Display of open windows and doors. Warning message in case of malfunction, intrusion or emergency call. Digital inputs are required to obtain information on the states of windows or doors, for example, in such automated control installations. To do this, METZ CONNECT provides a 10-way digital input module XX-DI10 to detect the states of windows and doors using window or door contacts.

XX-DI10

Heating/ventilation/air conditioning

Adjust the temperature individually in each room. Energy-efficient temperature control and ideal heat distribution. Various I/Os are required for this control installation. Among other things, analog inputs are required for recording temperatures to connect the temperature sensors available on the market. For this purpose, METZ CONNECT specially developed a universally programmable XX-AI8 analog input module with 8 available inputs. Different temperature sensors can be connected to these 8 inputs simultaneously.

XX-AI8

Heating/ventilation/air conditioning

Adjust the temperature individually in each room. Energy-efficient temperature control and ideal heat distribution. Various I/Os are required for this control system, e.g. for the control of electronic pulse-width modulated radiator valves, METZ CONNECT provides a XX-TO4 triac output module in its I/O range.

XX-TO4

Applications from METZ CONNECT with LON – from the perspective of the applications

AREA	APPLICATION	PROGRAM ID	DEVICE	P/N
Air conditioning	Actuating heating and cooling valves in summer/winter mode	9F:FE:0D:05:2B:0A:04:A0	LF-TO4	11086213
	Spatial axis	9F:FE:0D:05:01:0A:04:03	LF-TI-IP	11086105IP
	Actuation of 2 three-state drives	9F:FE:0D:05:28:0A:04:B0	LF-TP	11085913
	Application with SNVT_tempa	90:00:00:00:00:0A:04:8F	LF-AOP4	11085413
	Application with nvihvac_status for heating and cooling valve	9F:FE:0D:05:40:0A:04:A0	LF-AOP4	11085413
	Double three-state controller	9F:FE:0D:05:3E:0A:04:C0	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Application FanspeedCmd	90:00:00:00:00:0A:04:CF	LF-DO4	1108521321
Solar protection	Actuation of two solar protection motors	9F:FE:0D:05:28:0A:04:A4	LF-TP	11085913
	Control of blinds	9F:FE:0D:05:1F:0A:04:C0	LF-DIO4/2 LF-DIO4/2-IP	1108551326 1108551326IP
	UP/DOWN switch with SNVT_setting	90:00:00:00:00:0A:04:1A	LF-DI10 LF-DI10-IP	1108511319 1108511319IP
General	Application for electricity meter pulses	9F:FE:0D:05:0E:0A:04:A1	LF-DM4/4	1108561326
	Application with AND/OR and INV	90:00:00:00:00:0A:04:AF	LF-DM4/4	1108561326
	Controller optimization by Hand_c	9F:FE:0D:05:0E:0A:04:A0	LF-DM4/4	1108561326
	Controller optimisation through SNVT_count	9F:FE:0D:05:1F:0A:04:A0	LF-DIO4/2 LF-DIO4/2-IP	1108551326 1108551326IP
	Application with input variables in SNVT_flow format	9F:FE:0D:05:40:0A:04:B0	LF-AOP4	11085413
	Controller optimization by Hand_c	9F:FE:0D:05:3E:0A:04:A0	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Modified manual message	90:00:00:00:00:0A:04:94	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Adaptation to the WAGO-LON interface	90:00:00:00:00:0A:04:95	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Actuation of relays with SNVT_lev_disc	9F:FE:0D:05:3E:0A:04:EA	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Locking the manual switch at the mains	90:00:00:00:00:0A:04:93	LF-DO4 LF-DO4-IP	1108521321 1108521321IP

AREA	APPLICATION	PROGRAM ID	DEVICE	P/N
General	First reading detection, interlocking communication monitoring	9F:FE:0D:05:2A:0A:04:C2	LF-DI10 LF-DI10-IP	1108511319 1108511319IP
	Event counter	90:00:00:00:00:0A:04:9F	LF-DI10 LF-DI10-IP	1108511319 1108511319IP
	Meter inputs with overflow	90:00:00:00:00:8A:04:81	LF-DI4	1108501319
	Input state through SNVT_lev_disc	90:00:00:00:00:8A:04:51	LF-DI4	1108501319
	Application with button function	9F:FE:0D:05:3D:0A:04:A0	LF-DI4	1108501319
	Adaptation to a WAGO-LON interface	90:00:00:00:00:0A:04:96	LF-DI4	1108501319
Lighting	Application to light control in day/night mode	9F:FE:0D:05:0E:0A:04:C8	LF-DM4/4	1108561326
	Lighting control application	9F:FE:0D:05:0E:0A:04:C9	LF-DM4/4	1108561326
	Application to light control in day/night mode	9F:FE:0D:05:0E:0A:04:C0	LF-DM4/4	1108561326
	Control of 2 striplights with motion sensors	90:00:00:00:00:0A:04:78	LF-DIO4/2 LF-DIO4/2-IP	1108551326 1108551326IP
	Control of 2 striplights with motion sensors and control panel	90:00:00:00:00:0A:04:77	LF-DIO4/2 LF-DIO4/2-IP	1108551326 1108551326IP
	Lighting control with override by BMS, gates or fire	90:00:00:00:00:0A:04:BF	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	LF-DO4 as part of a lighting matrix	9F:FE:0D:05:3E:0A:04:D0	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Toggle actuation of relays and central function	90:00:00:00:00:0A:04:52	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Detection of buttons	9F:FE:0D:05:2A:0A:04:C1	LF-DI10 LF-DI10-IP	1108511319 1108511319IP
Fire protection	Damper control with 3 priority levels	9F:FE:0D:05:0E:0A:04:B1	LF-DM4/4	1108561326
	Application with HVAC_emerg	90:00:00:00:00:0A:04:4D	LF-DM4/4	1108561326
	LF-DO4 for shutdown by FireChain and smoke detector	90:00:00:00:00:0A:04:FB	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Evaluation of limit switches for fire dampers	90:00:00:00:00:8A:04:88	LF-DI10 LF-DI10-IP	1108511319 1108511319IP

Applications from METZ CONNECT with LON – from a device perspective

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Air conditioning	Actuating heating and cooling valves in summer/winter mode	9F:FE:0D:05:2B:0A:04:A0	LF-TO4	11086213
Air conditioning	Double three-state controller	9F:FE:0D:05:3E:0A:04:C0	LF-DO4 LF-DO4-IP	1108521321 1108521321IP
	Application FanspeedCmd	90:00:00:00:00:0A:04:CF		
General	Controller optimization by Hand_c	9F:FE:0D:05:3E:0A:04:A0		
	Modified manual message	90:00:00:00:00:0A:04:94		
	Adaptation to the WAGO-LON interface	90:00:00:00:00:0A:04:95		
	Actuation of relays with SNVT_lev_disc	9F:FE:0D:05:3E:0A:04:EA		
	Locking the manual switch at the mains	90:00:00:00:00:0A:04:93		
Lighting	Lighting control with override by BMS, gates or fire	90:00:00:00:00:0A:04:BF		
	LF-DO4 as part of a lighting matrix	9F:FE:0D:05:3E:0A:04:D0		
	Toggle actuation of relays and central function	90:00:00:00:00:0A:04:52		
Fire protection	LF-DO4 for shutdown by FireChain and smoke detector	90:00:00:00:00:0A:04:FB		
Air conditioning	Spatial axis	9F:FE:0D:05:01:0A:04:03	LF-TI-IP	11086105IP
Air conditioning	Actuation of 2 three-state drives	9F:FE:0D:05:28:0A:04:B0	LT-TP	11085913
Solar protection	Actuation of two solar protection motors	9F:FE:0D:05:28:0A:04:A4		
Air conditioning	Application with SNVT_tempa	90:00:00:00:00:0A:04:8F	LF-AOP4	11085413
	Application with nvihvac_status for heating and cooling valve	9F:FE:0D:05:40:0A:04:A0		
General	Application with input variables in SNVT_flow format	9F:FE:0D:05:40:0A:04:B0		
Solar protection	Control of blinds	9F:FE:0D:05:1F:0A:04:C0	LF-DIO4/2 LF-DIO4/2-IP	1108551326 1108551326IP
General	Controller optimization through SNVT_count	9F:FE:0D:05:1F:0A:04:A0		
Lighting	Control of 2 striplights with motion sensors	90:00:00:00:00:0A:04:78		
	Control of 2 striplights with motion sensors and control panel	90:00:00:00:00:0A:04:77		

AREA	APPLICATION	PROGRAM ID	DEVICE	P/N
Solar protection	UP/DOWN switch with SNVT_setting	90:00:00:00:00:0A:04:1A	LF-DI10 LF-DI10-IP	1108511319 1108511319IP
General	First reading detection, interlocking, communication monitoring	9F:FE:0D:05:2A:0A:04:C2		
	Event counter	90:00:00:00:00:0A:04:9F		
Lighting	Detection of buttons	9F:FE:0D:05:2A:0A:04:C1		
Fire protection	Evaluation of limit switches for fire dampers	90:00:00:00:00:8A:04:88		
General	Meter inputs with overflow	90:00:00:00:00:8A:04:81	LF-DI4	1108501319
	Input state through SNVT_lev_disc	90:00:00:00:00:8A:04:51		
	Application with button function	9F:FE:0D:05:3D:0A:04:A0		
	Adaptation to a WAGO-LON interface	90:00:00:00:00:0A:04:96		
General	Application for electricity meter pulses	9F:FE:0D:05:0E:0A:04:A1	LF-DM4/4	1108561326
	Application with AND/OR and INV	90:00:00:00:00:0A:04:AF		
	Controller optimization by Hand_c	9F:FE:0D:05:0E:0A:04:A0		
Lighting	Application to light control in day/night mode	9F:FE:0D:05:0E:0A:04:C8		
	Lighting control application	9F:FE:0D:05:0E:0A:04:C9		
	Application to light control in day/night mode	9F:FE:0D:05:0E:0A:04:C0		
Fire protection	Damper control with 3 priority levels	9F:FE:0D:05:0E:0A:04:B1		
	Application with HVAC_emerg	90:00:00:00:00:0A:04:4D		

Further information on our LON applications can be found on our website: https://www.metz-connect.com/lon

Applications from METZ CONNECT with BACnet MS/TP and Modbus RTU*

AREA	APPLICATION	DEVICE	P/N
Solar protection	55.5 mm	BMT-TP BACnet MS/TP	11088813
Energy management	integrated counter application	BMT-SI4 BACnet MS/TP	11088913
Solar protection	integrated sun protection application	MR-TP Modbus RTU	11083813
Energy management	integrated counter application	MR-SI4 Modbus RTU	11083913
Leakage-/ Level monitoring	integrated application	MR-LD6 Modbus RTU	11084413

*Further tailored applications can be created for you on request. We look forward to receiving your inquiry

METZ CONNECT

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