Event Management - Serial Bus

Industrial LAN-RING and PLC IPLOG switches are equipped with a number of serial interfaces. The switches are mainly RS485 buses, which can operate in various operating modes.

LAN-RING - Overview of Supported RS485 Modes

		BUS 2				
		ASSET	GALAXY	MODBUS	RS485	POZNÁMKA
BUS 1	ASSET	✓	×	✓	✓	PZTS Fides
	GALAXY	O	O	P	P	PZTS Honeywell
	MODBUS	P	P	P	P	MODBUS ASCII/RTU
	RS485	P	P	P	P	Typ. zpoždění 4-5ms mezi RS porty

🕮 **The following rules apply when transmitting data of alarm systems according to ČSN EN 50131-1:**

- ❖ **All frames are marked with VLAN headers according to IEEE 802.1Q**
- ❖ **All connected systems have a limited bandwidth (protection against DDoS attacks)**
- ❖ **Alarm system data has the QoS bits set to the highest priority**

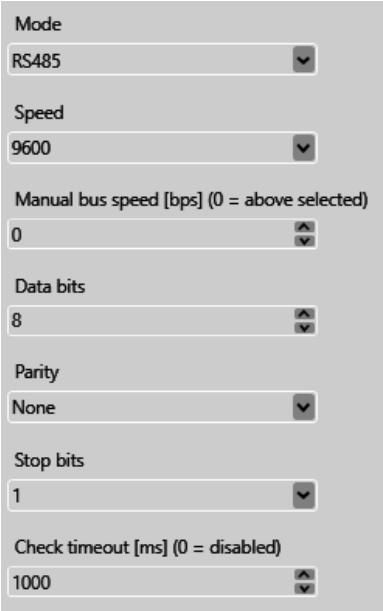
We recommend monitoring the activity of all ports of the system using the SNMP protocol

BUS

Setting the operating mode of RS485 buses.

Mode - supported protocol
RS485 - general RS485 communication with Modbus RTU support
Asset - for PZTS systems Asset
Galaxy – for Galaxy Dimension PZTS systems
Other items only apply in RS485 mode (Modbus RTU)
Speed - communication speed 1.2 to 57.6 kbps
Manual bus speed - manual speed setting up to max 115.2 kbps
Data bits - number of data bits (5-9) in Byte
Parity - parity mode (Even, Odd, Space Mark)
Stop bits - number of stop bits
Check Timeout - interruption of communication in the Tx or Rx direction can be signaled by sending an SNMP trap. Trap sending is enabled in the "SNMP / BUS" menu separately for Rx / Tx direction and bus

Application notes:
RS485 transmission
GALAXY system connection



Event Management - Serial Bus

Modbus RTU / TCP protocols ensure easy sharing of inputs and outputs between LAN-RING and PLC IPLOG systems.

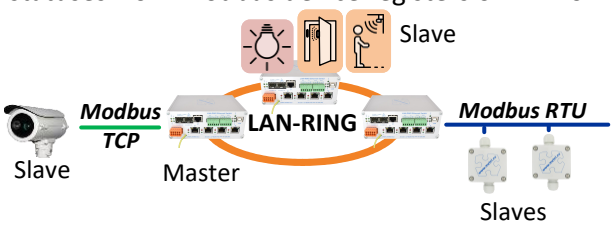
MODBUS RTU / TCP - Support in LAN-RING and IPLOG Devices

Modbus is a serial communication protocol that was created in 1979. Since then, it has found wide application, especially in industrial automation. LAN-RING switches and IPLOG control PLCs support this standard. The use of Modbus in industrial LAN-RING switches can be the following:

PARAMETRY MODBUS RTU	PLC IPLOG-GAMA	SWITCH LAN-RING F, G
Bitrate	115.2 / 19.2 kbps	57.6/19.2 kbps
Distance	Max. 100 / 1.200 m	Max. 100 / 1.200 m
Slave na sběrnici	Max. 30	Max. 16
R / W cyklus	> 10 ms	> 100 ms

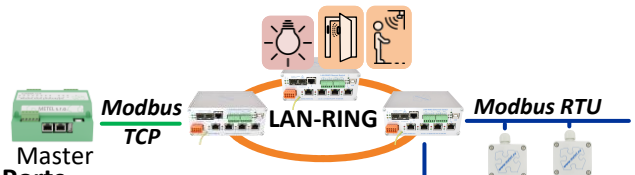
Transparent Modbus Data Transfer between RS485 POrts

LAN-RING switch set as MODBUS Master reads statuses from Modbus device registers on LAN or RS485.

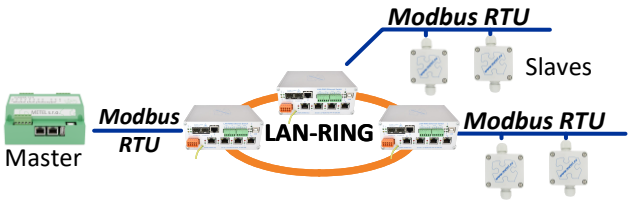


MODBUS SLAVE Mode

The PLC controls the outputs and monitors inputs of the LAN-RING switch and the connected Modbus slave devices

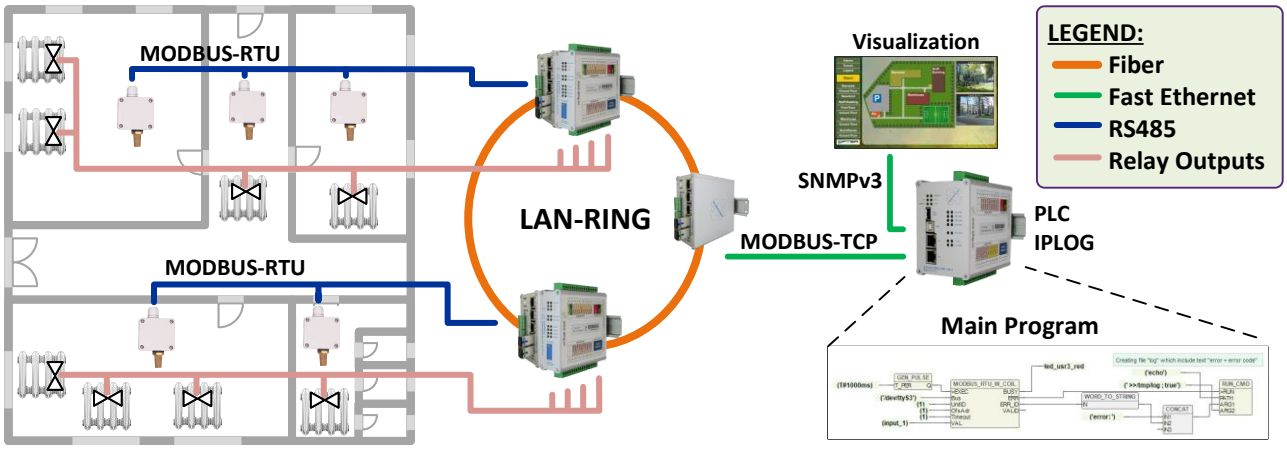


Transparent Modbus Data Transfer between RS485 Ports



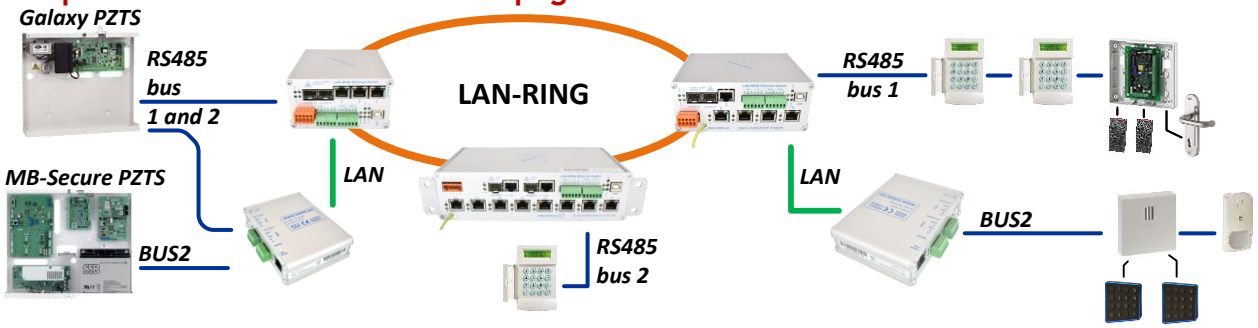
Comprehensive MODBUS Solution for Data Collection, Control and Visualization of Objects

Another option for data processing from Modbus devices is PLC IPLOG. It can also execute a program written in FBD, LD, ST or IL languages according to IEC 61131-3 and visualize the values in the IFTER-EQU software.



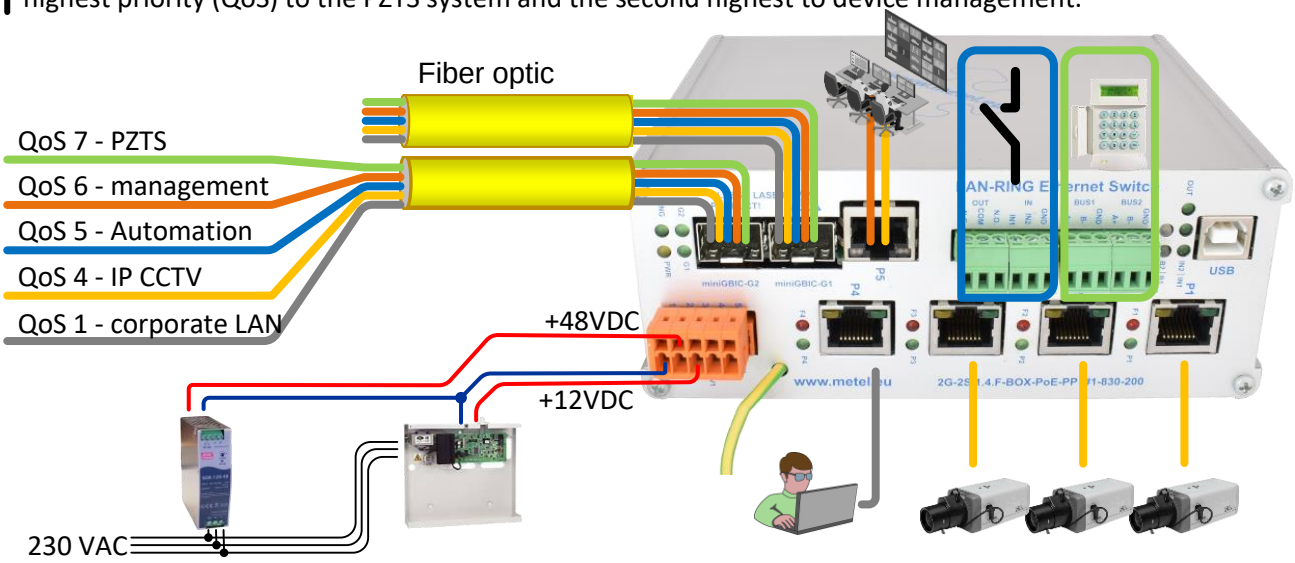
Event Management – Serial Bus

LAN-RING switches with RS485 buses are also certified as a transmission route for PZTS system buses. Therefore, we verify compliance with the ČSN EN 50131-1 standard every 3 years in the TESTALARM testing laboratory. Currently valid certificates are available at www.metel.eu. Ensuring compatibility with the standard requires compliance with all precautions described on this page.



VLANs and QoS

Communication between the SIMULand software and the device is encrypted by the AES algorithm and protected against unauthorized changes in the transmitted data using the SHA1 hash algorithm. The switches thus meet the requirements for secure communication according to EN 62676-1-2. If switches are used for data transmission of alarm systems, they are also subject to the EN50131-1 standard. In this case, different VLANs and priorities (QoS) must be used for each service. We recommend assigning the highest priority (QoS) to the PZTS system and the second highest to device management.



Backup Power

In systems where switches are used to transmit PZTS system buses, the switches must be powered from backed up system resources. See image above. After a failure of the basic power supply, the 48VDC switch continues to operate at 12V and further forwards the PZTS system data.

FAQ for Using LAN-RING as a PZTS Transmission Route

Can I transmit multiple PZTS buses via LAN-RING?
Yes. It is not limited.

Can I connect multiple PZTS buses to one switch?
It is always possible to connect only one PZTS bus directly to the RS485 ports of the switch. Additional buses are connected via miniLAN converters to FE or GE ports.

What is the max recommended load of the network if it is also used as a transmission route of the PZTS.
For this, the requirement of the ČSN EN 62676-1-1 applies to a load of max. 75% of the available capacity.