

IF modules are used in the modular PLC system IPLOG-GAMA and its IO modules in the following cases:

- ❖ The PLC communicates with third party devices
- ❖ PLC communicates with IO modules via Modbus RTU
- ❖ PLC expands inputs and outputs
- ❖ The IO module communicates via Modbus RTU
- ❖ The IO module expands the inputs and outputs

When ordering, we recommend using the online configurator available at [www.iplog.eu](http://www.iplog.eu). The configurator automatically offers only compatible IF, IO and motherboard modules.

IF modules in the IPLOG GAMA PLC are always inserted into the IF slots. In PLC we distinguish: IF Slot 1 on the motherboard, IF Slot 2 on the IO board, if used.

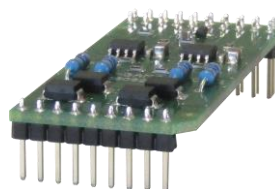
- ❖ All IF modules are designed to work in **IF Slot 1** on any motherboard. Only IF modules without serial interfaces can be used in the **IF Slot 2** PLC.
- ❖ In the event of using a separate IO module, which is connected to PLC IPLOG-GAMA or LAN-RING switch via serial bus, use IF modules with RS485 Modbus RTU interface.

📖 IPLOG GAMA PLCs, LAN-RING industrial switches and miniLAN converters communicate with external IO modules and METEL sensors via RS485 Modbus RTU bus.

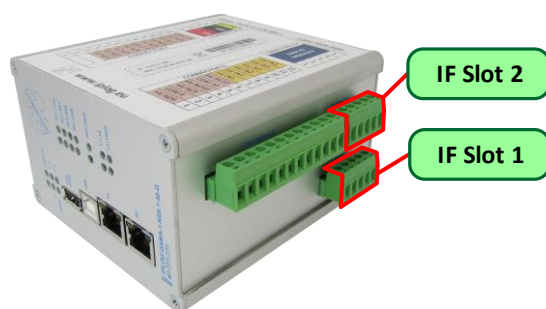
Modbus-RTU bus Length	
PLC IPLOG-GAMA	PLC IPLOG-GAMA Switch LAN-RING miniLAN-485 and 4B2
< 100m	< 1000m
115,2 kbps	19,2 kbps

- 📖 Default settings of Modbus RTU bus of IO modules and sensors:
- Device ID: 1
  - Baudrate: 115 200
  - Parity: None
  - Data bits: 8
  - Stop bits: 1

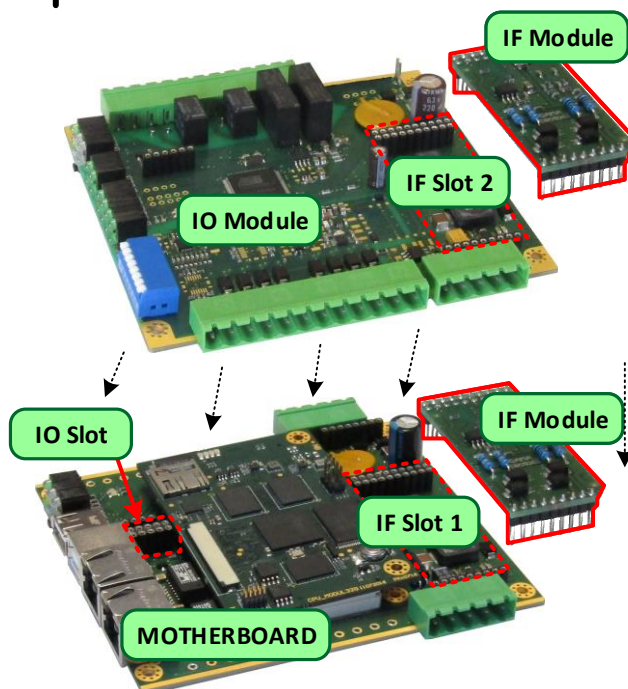
### Standalone IF Module



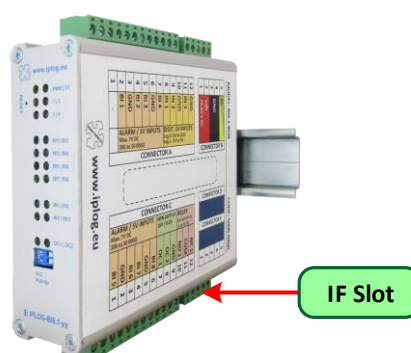
### Location of IF Slots on the PLC



### Internal Layout of PLC IPLOG



### IF slot on a Standalone IO Module



Overview of IF modules available as of March 1, 2020

NAME	DESCRIPTION	PINS					COMPATIBILITY		
		1	2	3	4	5	IF Slot 1	IF Slot 2	IO Module
IF-01	2x RS485	A1+	B1-	GND	B2-	A2+	YES		YES
IF-01G		A1+	B1-	ISO-GND	B2-	A2+	YES		YES
IF-02	2x RS232	Rx1	Tx1	GND	Rx2	Tx2	YES		
IF-02G		Rx1	Tx1	ISO-GND	Rx2	Tx2	YES		
IF-04G	RS485 ISO, DALI	A+	B-	ISO-GND	-D BUS	+D BUS	YES		
IF-05	RS485, 2x INPUTS <sup>(1), (2)</sup>	A+	B-	GND	BI 2	BI 1	YES		YES
IF-06	AUDIO	LINE OUT R	LINE OUT L	GND	LINE IN R	LINE IN L	YES		
IF-07G	RS485 ISO, 1-Wire	A+	B-	ISO-GND	1-Wire	ISO-5V	YES		
IF-09	M-Bus	M-Bus+	M-Bus+	GND	M-Bus-	M-Bus-	YES		
IF-10	KNX	BUS+	BUS+	NC	BUS-	BUS-		YES	
IF-11	Wiegand, 2x INPUTS <sup>(1)</sup>	DATA-0	DATA-1	GND	BI 2	BI 1	YES		
IF-12	4x INPUTS <sup>(1)</sup>	BI 4	BI 3	GND	BI 2	BI 1	YES	YES	
IF-13	RS232 (CTS, RTS, Rx, Tx)	CTS	RTS	GND	Rx	Tx	YES		
IF-13G		CTS	RTS	ISO-GND	Rx	Tx	YES		
IF-15	4x OC (NPN) OUTPUTS	OC 4	OC 3	GND	OC 2	OC 1	YES	YES	
IF-15G		ISO OC 4	ISO OC 3	ISO-GND	ISO OC 2	ISO OC 1	YES	YES	
IF-18G	1x LORA-EP1, 1x RS485	A+	B-	ISO-GND	Tx/Rx	VCC	YES		
IF-21	2x INPUTS <sup>(1)</sup> , 1x RELAY	COM	NO	GND	BI2	BI1	YES	YES	
IF-22G	2x INPUTS <sup>(3)</sup> , 1x RELAY	COM	NO	ISO-GND	DI2	DI1	YES	YES	

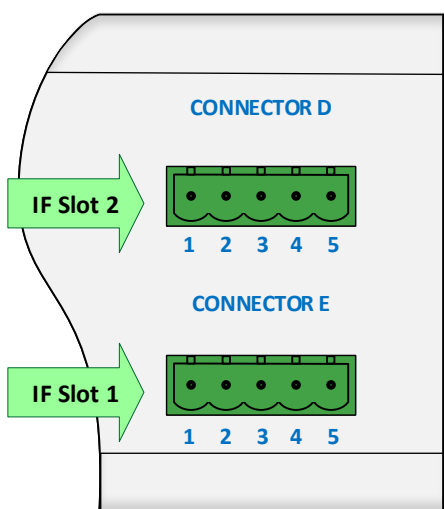
<sup>(1)</sup> Alarm / 5V Digital Inputs.

<sup>(2)</sup> It does not apply to a combination with the BI-8.1 module, where they only work as digital.

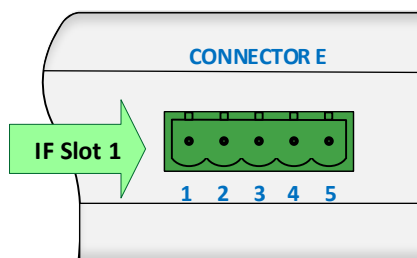
<sup>(3)</sup> Digital 24 V inputs.

ISO = Isolated (galvanic separation)

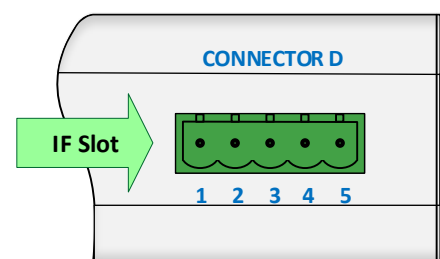
Motherboard with IO Module



Motherboard



IO Module



- ❖ 2x Independent RS485 Buses
- ❖ Modbus-RTU Support
- ❖ Transparent Mode Support
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



IF modules contain two RS485 serial interfaces supporting the Modbus RTU protocol. Function blocks for bus settings and subsequent data processing are part of IEC 61131-3 METEL IDE.

PRODUCT NAME	CODE	NOTE
IF-01	0001-0001	2x RS485
IF-01G	0002-0002	2x RS485 (Isolated)
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
	IF-Slot 1	IF-Slot 2

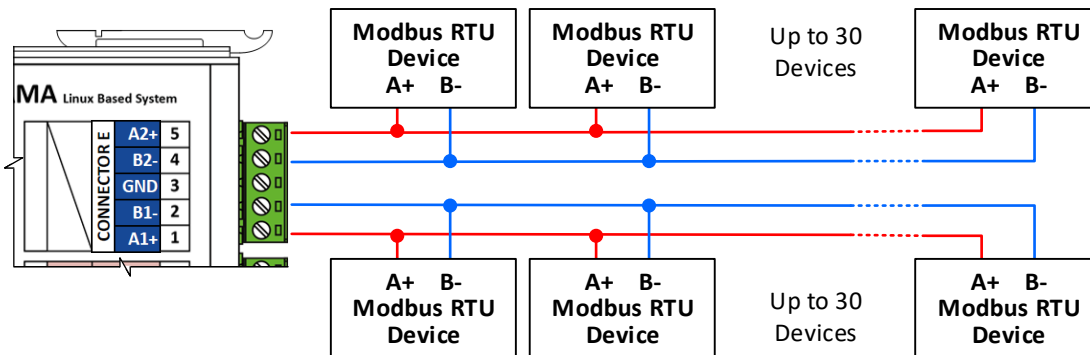
**Description of Terminals and Default LED Functions in PLC GAMA and IO Module**

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	A1+	BUS1 RS485 bus with Modbus RTU Support	1	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	B1-				
3	GND	Ground	-		
4	B2-	BUS2 RS485 bus with Modbus RTU Support	2	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	A2+				

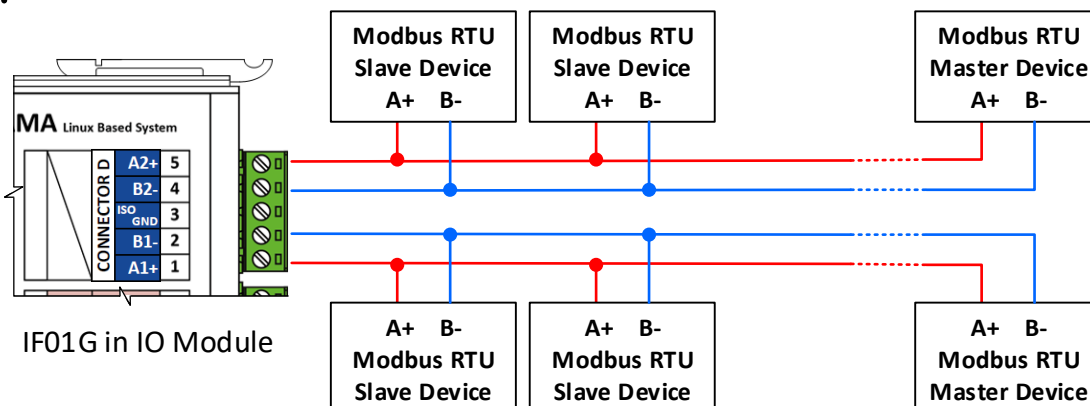
**MODBUS RTU Communication Bus Connection**

If the IF module is used on an IPLOG PLC, it supports the connection of up to 30 MODBUS SLAVE devices (IO modules and sensors) with a communication speed of up to 115.2 kbps. If the IF module is inserted in the IO module, it is used for communication with the PLC (MODBUS MASTER). Devices from various manufacturers can be connected to the MODBUS BUS.

**IF-01 in PLC IPLOG-GAMA – set as Modbus RTU Master or Modbus RTU Slave (Modbus RTU Master is another device on the bus)**



**IF-01 in IO Module – set as Modbus RTU Slave**



- ❖ 2x RS232 Serial Buses (Tx / Rx)
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



IF modules contain two RS232 serial interfaces. Bash scripts are used to set RS232 buses and subsequent data processing. Data can also be transparently forwarded via TCP server port to external devices. Function blocks for bus settings and subsequent data processing are part of IEC 61131-3 METEL IDE.

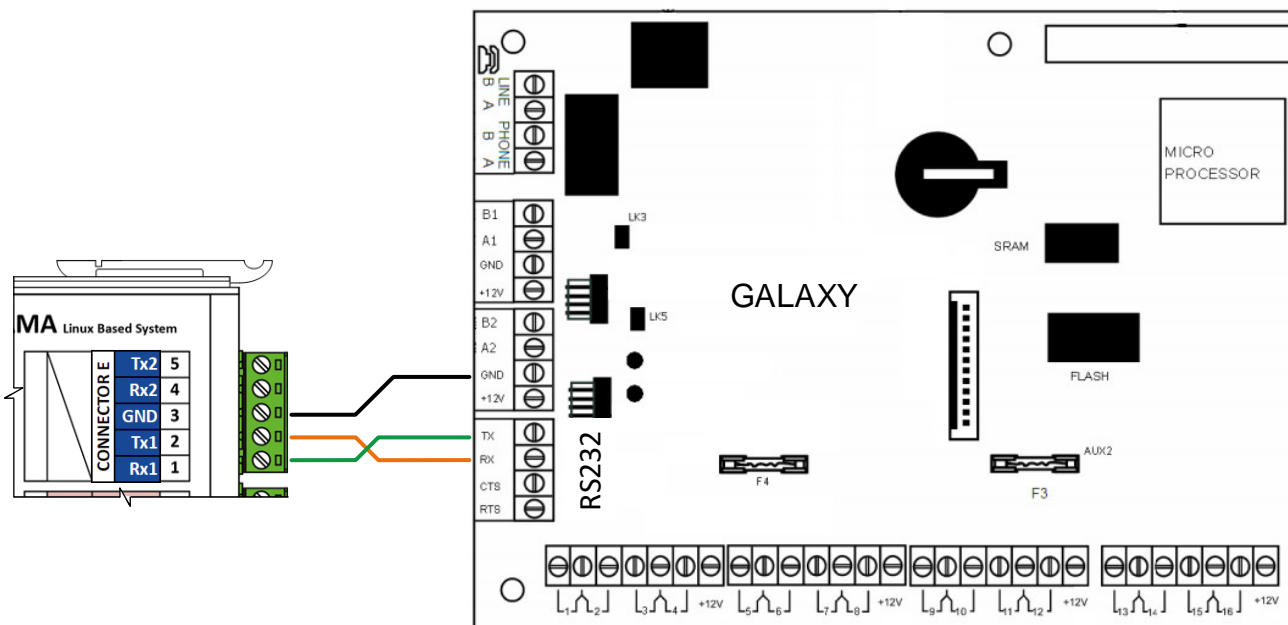
PRODUCT NAME	CODE	NOTE
IF-02	0003-0003	2x RS232
IF-02G	0004-0004	2x RS232 (Isolated)
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot-2 IF-Slot

### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION	
NUMBER	LABEL		LED	NOTE
1	Rx1	BUS1 RS232 Bus	1	Tx = Red Rx = Green On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	Tx1			
3	GND	Ground	-	
4	Rx2	BUS2 RS232 Bus	2	Tx = Red Rx = Green On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	Tx2			

### Example of Connection

The IPLOG equipped with the IF02 module performs the function of RIIS as an independent server for remote integration (Remote Independent Integration System). For this purpose, it uses a MySQL database and a C ++ application created by the client. This allows encrypted transmission on the serial bus even when communicating with the BMS EQU software, which ensures compliance with the defense standard EN 60839-11-1 in the security range of class 3.



- ❖ 1x DALI Master for Lighting Control
- ❖ 1x RS485 with Galvanic Isolation
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains a DALI interface for light control and an RS485 serial interface with Modbus RTU support. Function blocks for bus settings and subsequent data processing are part of IEC 61131-3 METEL IDE.

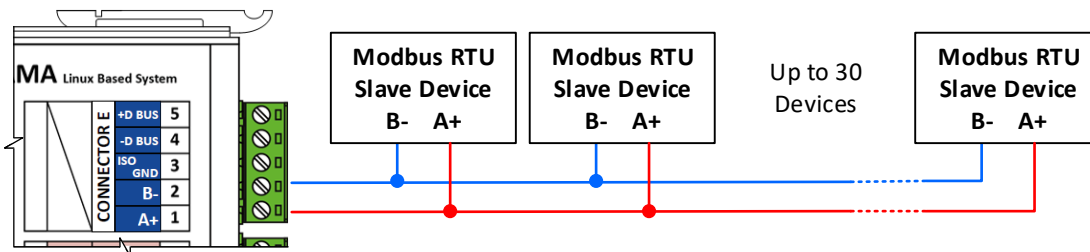
PRODUCT NAME	CODE	NOTE
IF-04G	0006-0006	DALI, 1x RS485
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot-2
		IF-Slot

**Description of Terminals and Default LED Functions in PLC GAMA and IO Module**

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	A+	BUS1 RS485 bus with Modbus RTU Support	1	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	B-				
3	ISO-GND	Isolated Ground	-		
4	-D BUS	Dali Master Interface	2	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	+D BUS				

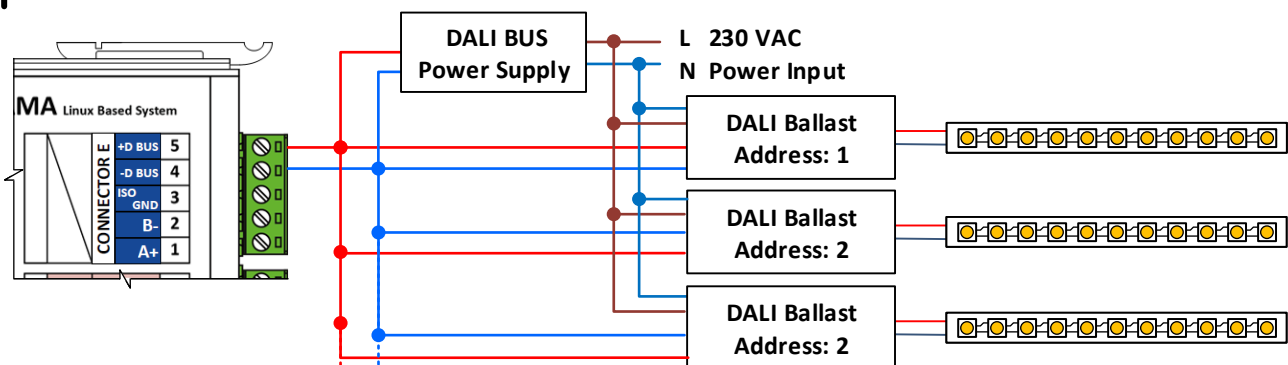
**MODBUS RTU Communication Bus Connection**

If the IF module is used on an IPLOG PLC, it supports the connection of up to 30 MODBUS SLAVE devices (IO modules and sensors) with a communication speed of up to 115.2 kbps. Devices from various manufacturers can be connected to the MODBUS BUS. In the PLC IPLOG-GAMA it can be set as Modbus RTU Master or Modbus RTU Slave (Modbus RTU Master is another device on the bus).



**DALI Communication Bus Connection**

DALI BUS MASTER control unit that can control up to 64 different SLAVES (DALI-compatible ballasts). It is possible to transfer commands to individual ballasts or to a group of ballasts.



- ❖ 1x RS485 with Modbus-RTU Support
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Transparent Mode Support
- ❖ 2x 10-bit Alarms / Digital 5 V Inputs
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains an RS485 serial interface with Modbus RTU support and two 10-bit alarm / digital inputs for connecting eg PIR sensors, tampers and buttons. Function blocks for the Modbus-RTU bus are part of IEC 61131-3 METEL IDE. Inputs are available in the IDE as variables of type BOOL and INTEGER.

PRODUCT NAME	CODE	NOTE
IF-05	0007-0007	RS485, 2x Input
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2 IF-Slot

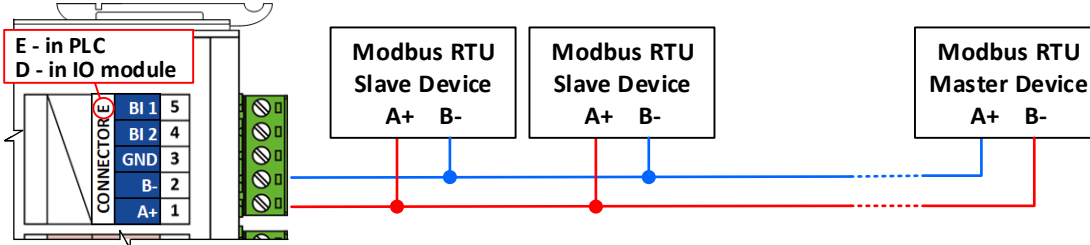
**Description of Terminals and Default LED Functions in PLC GAMA and IO Module**

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	A+	BUS1 RS485 bus with Modbus RTU Support	1	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	B-				
3	GND	Ground	-		
4	BI2	10-bit Alarms / Digital 5 V Inputs	4	Sabotage Short = Log 1 = Lights	
5	BI1		3		

**MODBUS RTU Communication Bus Connection**

If the IF module is used on an IPLOG PLC, it supports the connection of up to 30 MODBUS SLAVE devices (IO modules and sensors) with a communication speed of up to 115.2 kbps. Devices from various manufacturers can be connected to the MODBUS BUS.

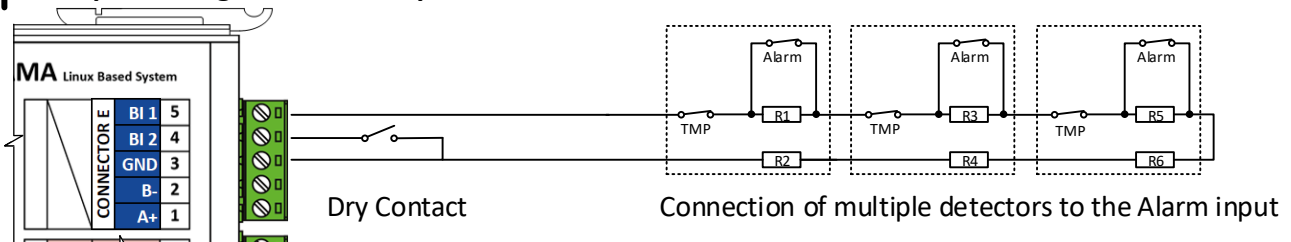
IF-05 in PLC IPLOG-GAMA - set as Modbus RTU Master or Modbus RTU Slave  
 IO Module - set as Modbus RTU Slave



**Technical Parameters of Inputs**

Parameter	Value	Note
Input Voltage	Max. 7 V DC	
Surge Protection	600 W	10 / 1000 µs
Alarm Mode		
Range	From 10 to 30.000 Ω	10-bit resolution
Digital Mode		
Dry Contact	Log. 0: Open / Log. 1: Close to Ground	

**Examples of Digital / Alarm Input Connections**





- ❖ Audio Line IN / Audio Line OUT
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains a line audio stereo input and output. IEC 61131-3 METEL IDE includes function blocks for playing audio files stored in the PLC memory (warning messages) or playing HTTP streams (radio).

PRODUCT NAME	CODE	NOTE
IF-06	0008-0008	Audio Input / Output
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
		IF-Slot

### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

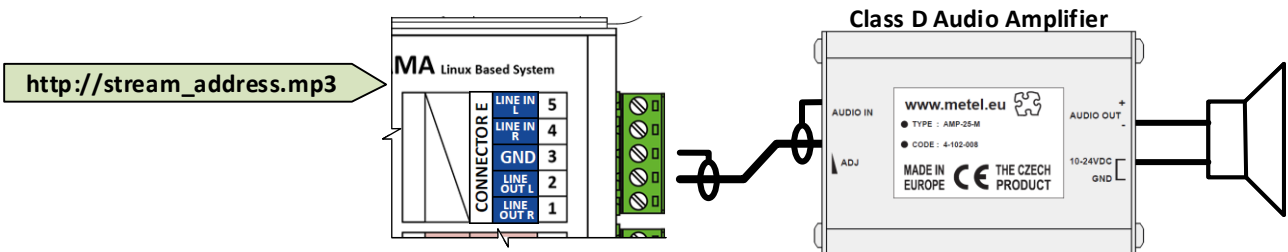
PIN		DESCRIPTION	NOTE
NUMBER	LABEL		
1	LINE OUT R	Line Audio Output	Right Channel
2	LINE OUT L		Left Channel
3	GND	Ground	
4	LINE IN R	Line Audio Input	Right Channel
5	LINE IN L		Left Channel

### Technical Parameters

Parameter	Value	Note
Input / Output Resistance	10 KΩ	
Input / Output Level	Max. 755 VRMS	
Codec	MP3	
Playing Files	WAV, MP3	

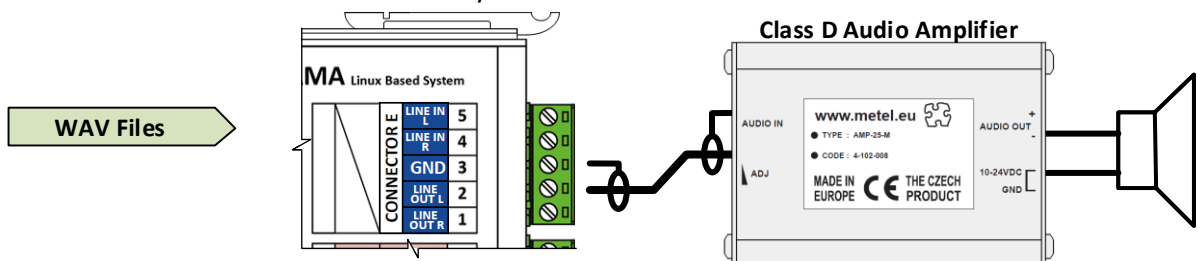
### Play MP3 Streams

One of the applications is the playback of HTTP streams of Internet radios for the sound of public spaces. Stream playback can be controlled by a program that automatically starts sounding at a set time, when a button is pressed, or when other conditions are met.



### Play Audio Files from Memory

Another typical application is playing audio files from PLC memory while securing remote objects. When approaching people, a warning message is first played to warn of the guarded area. As you continue to approach and attempt to break in, additional warning messages are played. The audio output can also be switched to an online stream from the security control room.



- ❖ 1x RS485
- ❖ 1-Wire Interface for Connecting Sensors
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains an RS485 serial interface with Modbus RTU support and a 1-Wire interface for connecting external sensors or for example iButton readers. Function blocks for the Modbus-RTU bus are part of IEC 61131-3

PRODUCT NAME	CODE	NOTE
IF-07G	0009-0009	Isolated
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
		IF-Slot

METEL IDE. To set 1-Wire interface and 1-Wire data processing are used by Bash scripts.

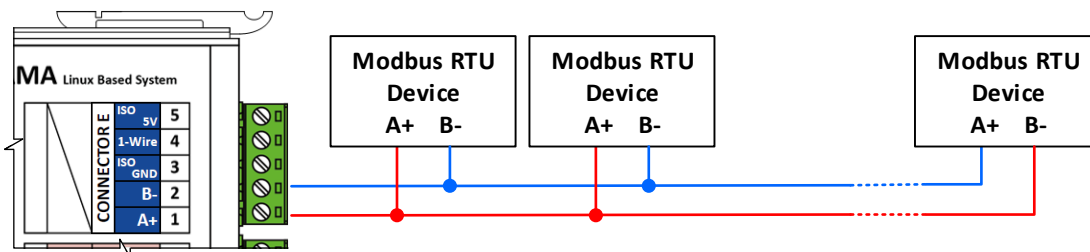
### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	A+	BUS1 RS485 bus with Modbus RTU Support	1	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	B-				
3	ISO GND	Isolated Ground	-		
4	1-Wire	1-Wire Interface	2	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	ISO 5V				

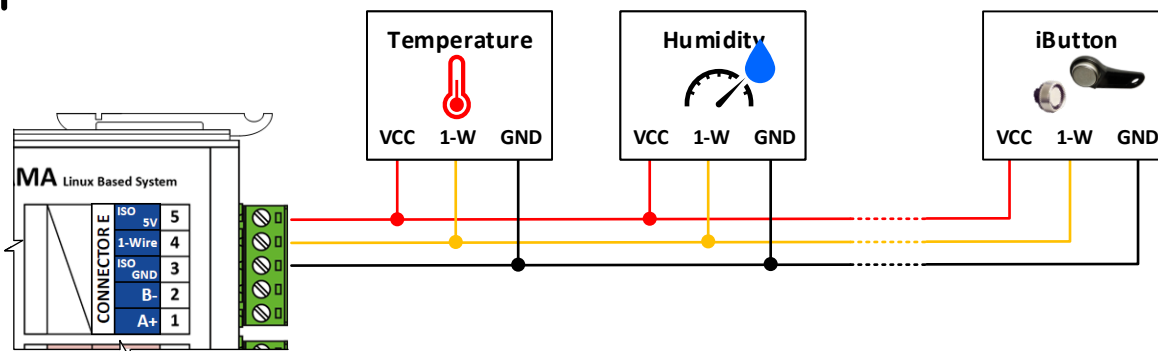
### MODBUS RTU Communication Bus Connection

If the IF module is used on an IPLOG PLC, it supports the connection of up to 30 MODBUS SLAVE devices (IO modules and sensors) with a communication speed of up to 115.2 kbps. Devices from various manufacturers can be connected to the MODBUS BUS.

**IF-07G in PLC IPLOG-GAMA** - set as Modbus RTU Master or Modbus RTU Slave (Modbus RTU Master is another device on the bus)



### 1-Wire Communication Bus Connection





- ❖ KNG Gateway
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



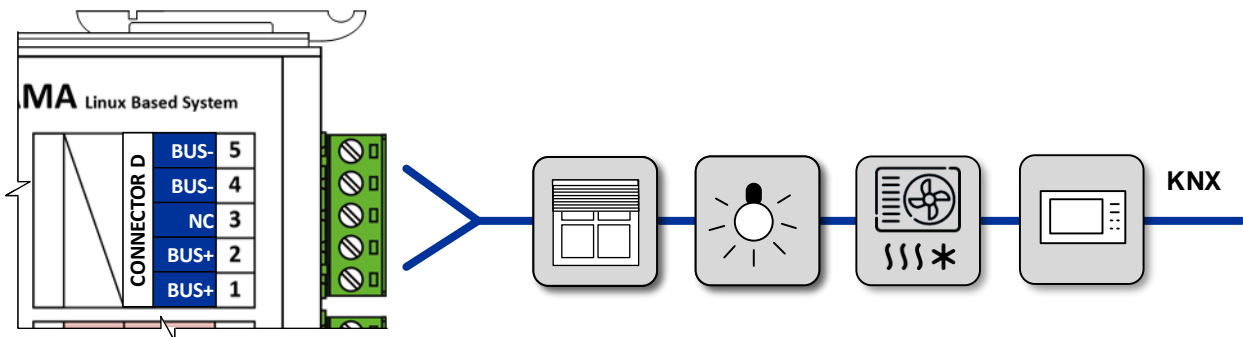
IPLOG with the IF-10 module is a multifunctional KNX Gateway with above-standard PLC functions. Typical examples of applications are for example transmission of status information between KNX and Modbus systems, control of Dali lighting from a KNX system, integration of KNX systems with IP CCTV. The inputs / outputs of the connected KNX devices are available as variables in IEC 61131-3 METEL IDE.

PRODUCT NAME	CODE	NOTE
IF-10	0012-0012	KNX
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
	IF-Slot	

Description of Terminals and Default LED Functions in PLC GAMA and IO Module					
PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	BUS+	BUS+ Bus KNX	1	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	BUS+				
3	NC	Not Connected			
4	BUS-	BUS- Bus KNX			
5	BUS-				

**KNX Communication Bus Connection**

The IF module with KNX interface can only be used in the IO module on the motherboard (IF slot 2). The basis is a mapping table of the web interface and Modbus registers in the PLC IPLOG. The table defines which values will be passed between systems. Independant of this mapping table, the IEC program works, which allows you to add logical operations and other dependencies to the simple passing of values.



- ❖ 1x Wiegand
- ❖ 2x 10-bit Alarms / Digital 5 V Inputs
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains a Wiegand interface and two 10-bit alarm / digital inputs for connecting for example PIR sensors, tampers and buttons. Bash scripts are used to set the Wiegand bus and subsequent data processing. The data can also be transparent forwarded through the TCP server port to external devices. The inputs are available in IEC 61131-3 METEL IDE as variables of type BOOL and INTEGER.

PRODUCT NAME	CODE	NOTE
IF-11	0013-0013	Wiegand, 2x Input
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2 IF-Slot

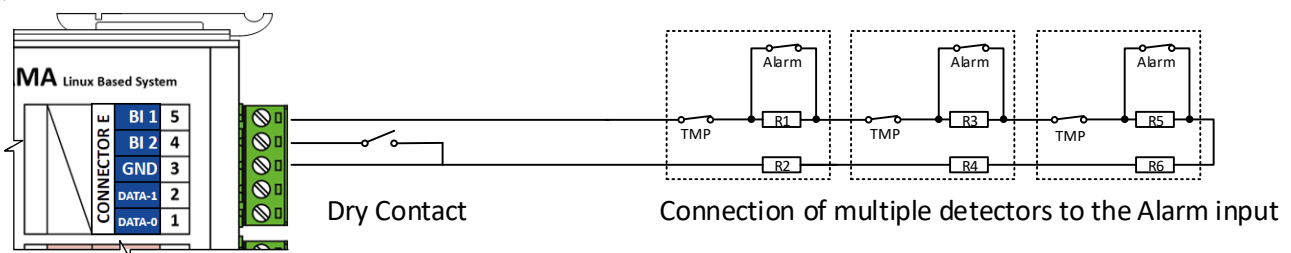
**Description of Terminals and Default LED Functions in PLC GAMA and IO Module**

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION	
NUMBER	LABEL		LED	NOTE
1	DATA-0	BUS1 Wiegand Bus	1	Tx = Red Rx = Green
2	DATA-1			
3	GND	Ground	-	
4	BI2	10-bit Alarm / Digital 5 V Inputs	4	Sabotage Short = Log 1 = Lights
5	BI1		3	

**Technical Parameters of Inputs**

Parameter	Value	Note
Input Voltage	Max. 7 V DC	
Surge Protection	600 W	10 / 1000 µs
Alarm Mode		
Range	From 10 to 30.000 Ω	10-bit resolution
Digital Mode		
Dry Contact	Log. 0: Open	
	Log. 1: Close to Ground	

**Examples of Digital / Alarm Input Connections**



**Example of Connection with Wiegand as a Virtual Reader**

Analytical software on the server detects the license plates of incoming cars in the IP camera image. The detected license plate is sent via LAN to the PLC IPLOG to the agreed TCP server port. From it, the PLC sends the string to the Wiegand input of the access system, which controls the gate.



- ❖ 4x 10-bit Alarms / Digital 5 V Inputs
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains four 10-bit alarm / digital inputs for connecting for example PIR sensors, tampers, pushbuttons, limit switches... The inputs are available in IEC 61131-3 METEL IDE as variables of type BOOL and INTEGER.

PRODUCT NAME	CODE	NOTE
IF-12	0014-0014	4x Input
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
		IF-Slot

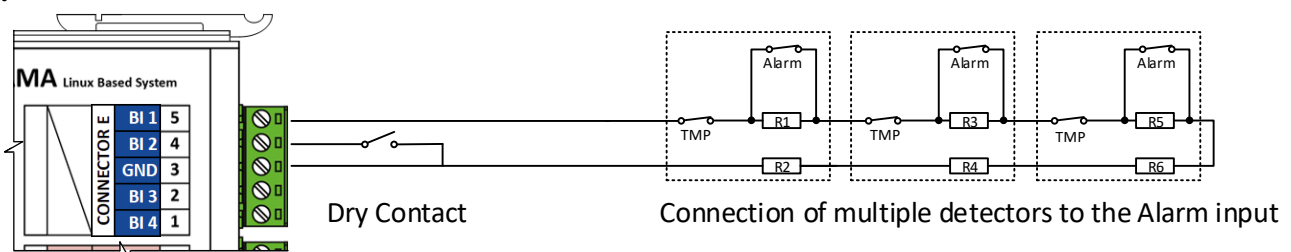
### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	BI 4	10-bit Alarms / Digital 5 V Inputs	4	Sabotage Short = Log 1 = Lights	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	BI 3		3		
3	GND	Ground			
4	BI 2	10-bit Alarms / Digital 5 V Inputs	2	Sabotage Short = Log 1 = Lights	On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	BI 1		1		

### Technical Parameters of Inputs

Parameter	Value	Note
Input Voltage	Max. 7 V DC	
Surge Protection	600 W	10 / 1000 µs
Alarm Mode		
Range	From 10 to 30.000 Ω	10-bit resolution
Digital Mode		
Dry Contact	Log. 0: Open Log. 1: Close to Ground	

### Examples of Digital / Alarm Input Connections



- ❖ 4x Open Collector Outputs
- ❖ Galvanic Isolation
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains four open collector outputs that are able to switch low DC voltage to the connected load. The outputs are available in IEC 61131-3 METEL IDE as BOOL variables.

PRODUCT NAME	CODE	NOTE
IF-15	0018-0018	4x Open Collector Outputs
IF-15G	0019-0019	4x Open Collector (Isolated)
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
		IF-Slot

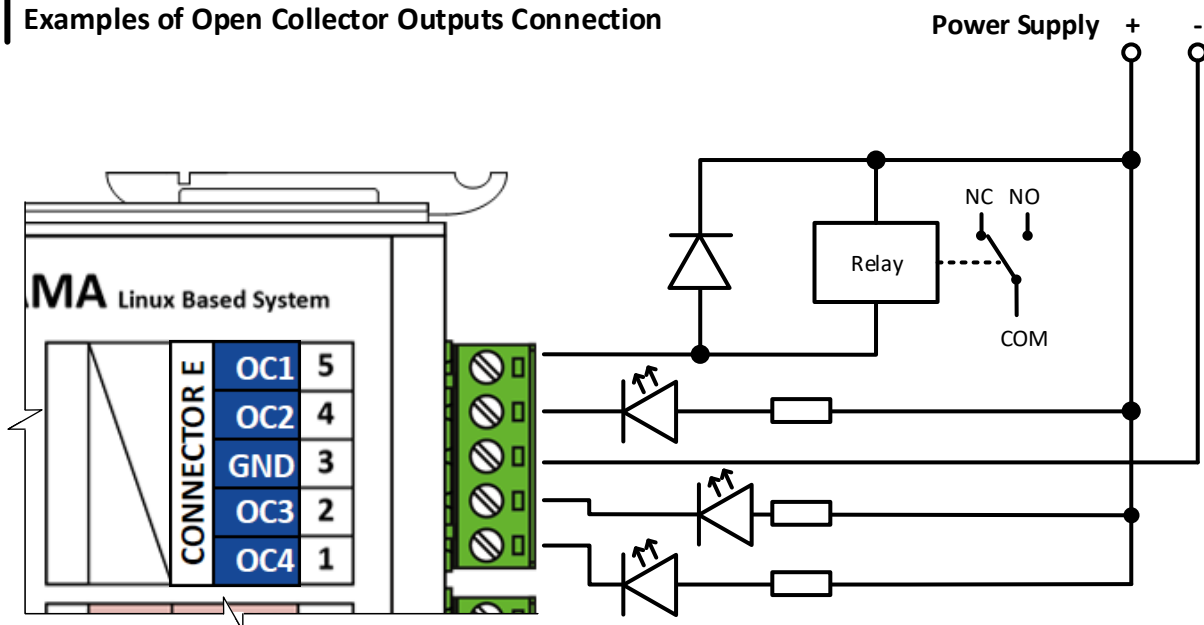
**Description of Terminals and Default LED Functions in PLC GAMA and IO Module**

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	OC4	Open Collector Outputs	4	Closed = Log 1 = Lights	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	OC3		3	Closed = Log 1 = Lights	
3	GND	Ground	-		
4	OC2	Open Collector Outputs	2	Closed = Log 1 = Lights	On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	OC1		1	Closed = Log 1 = Lights	

**Technical Parameters of Open Collector Outputs**

Parameter	Value	Note
Output Type	NPN	Open Collector
Internal Pull-Up	4,7 Ω / 0,5W	Protection 33V Transil
Maximum Load	16 V / 200 mA	Sinking
Switching Frequency	Max. 10 kHz	Duty Cycle 1:1
Surge Protection	600 W	10 / 1000 µs

**Examples of Open Collector Outputs Connection**



- ❖ 1x LoRa Interface for LORA-EP1 Module
- ❖ 1x RS485 with Modbus-RTU
- ❖ Overvoltage Protection 600W (10/1000µs)
- ❖ Galvanic Isolation
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



PRODUCT NAME	CODE	NOTE
IF-18G	0023-0023	1x LoRa, 1x RS485
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot-2 IF-Slot

The IF module contains an interface for connecting the LORA-EP1 module (LoRaWAN End Node) and one RS485 serial interface with Modbus RTU support. Tools for setting serial interface parameters are available in the IEC 61131-3 METEL IDE and in the SSH console.

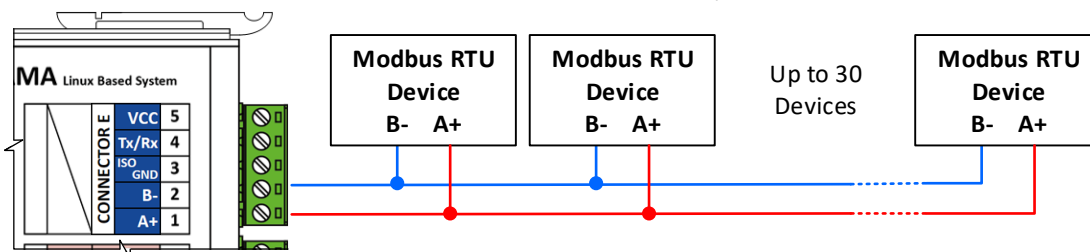
### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED	NOTE	
1	A+	BUS1 RS485 bus with Modbus RTU Support	1	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	B-				
3	ISO GND	Ground	-		
4	Tx/Rx	LoRa Interface	2	Tx = Red Rx = Green	On IPLOG-GAMA, LEDs 1-4 are User Programmable
5	VCC				

### MODBUS RTU Communication Bus Connection

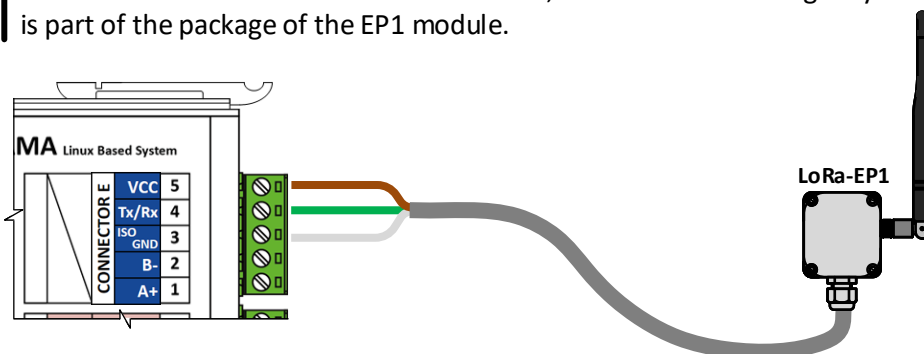
Universal RS485 interface with MODBUS-RTU protocol. If the IF module is used on an IPLOG PLC, it supports the connection of up to 30 MODBUS SLAVE devices (IO modules and sensors) with a communication speed of up to 115.2 kbps. Devices from various manufacturers can be connected to the MODBUS BUS.

**IF-18G in PLC IPLOG-GAMA** - set as Modbus RTU Master or Modbus RTU Slave (Modbus RTU Master is another device on the bus)



### Connection to LoRa-EP1

The IF module also contains an interface for power supply and data communication with the LoRaWAN End Node module LoRa-EP1. For connection, we recommend using only the original 3m long cable, which is part of the package of the EP1 module.



- ❖ 2x 10-bit Alarms / Digital 5 V Inputs
- ❖ 1x Relay Output
- ❖ Operating Range -40°C to +70°C
- ❖ Operating Range of Components -40°C to +85°C



The IF module contains two 10-bit alarm / digital inputs for connecting eg PIR sensors, tampers and buttons and one relay output. Inputs and outputs are available in IEC 61131-3 METEL IDE as variables of type BOOL and INTEGER.

PRODUCT NAME	CODE	NOTE
IF-21	0025-0025	2x Input, 1x Relay Output
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
		IF-Slot

### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED		NOTE
1	COM	Normally Open Contact	1	Activated = Lights	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	NO				
3	GND	Ground	-		
4	BI2	10-bit Alarms / Digital 5 V Inputs	4	Sabotage Short = Log 1 = Lights	
5	BI1		3		

### Technical Parameters of Inputs

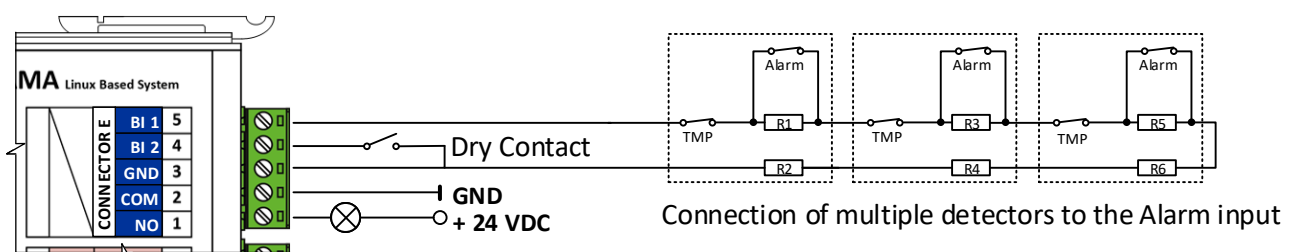
Parameter	Value	Note
Input Voltage	Max. 7 V DC	
Surge Protection	600 W	10 / 1000 μs
Alarm Mode		
Range	From 10 to 30.000 Ω	10-bit resolution
Digital Mode		
Dry Contact	Log. 0: Open / Log. 1: Close to Ground	

### Technical Parameters of the Output Relay

Parameter	Value	Note
Contact Type	NO <sup>(1)</sup>	NO is Factory Settings
Max. Load	0.5 A / 120 VAC	Resistive Load
	1 A / 24 VDC	Resistive Load
Electrical Lifetime	3,000,000 Operations	
Isolation Voltage	1.000 Vrms / 1 min.	Terminals to Electronic or Case

<sup>(1)</sup> On the PCB board of the IF module is jumper that can change the function of the relay from NO to NC.

### Example of Connection





- ❖ 2x 24 V Digital Inputs
- ❖ 1x Relay Output
- ❖ Operating Range  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- ❖ Operating Range of Components  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$



The IF module contains two 24 V digital inputs that can be connected to external devices such as sensors, switches, pushbuttons, door contacts, etc. and one relay output. Inputs and outputs are available in IEC 61131-3 METEL IDE as BOOL variables.

PRODUCT NAME	CODE	NOTE
IF-22G	0026-0026	2x DI Input, 1x Relay Output
To order use the online configurator at <a href="http://www.iplog.eu">www.iplog.eu</a> .		
Compatible with	IF-Slot 1	IF-Slot 2
		IF-Slot

### Description of Terminals and Default LED Functions in PLC GAMA and IO Module

PIN		DESCRIPTION	DEFAULT SETTING OF THE LED FUNCTION		
NUMBER	LABEL		LED		NOTE
1	COM	Normally Open Contact	1	Activated = Lights	On IPLOG-GAMA, LEDs 1-4 are User Programmable
2	NO				
3	GND	Ground	-		
4	DI2	24 V Digital Inputs	4	Log. 0: $-30\text{ V}$ up $5\text{ V}$	
5	DI1		3	Log. 1: $+15\text{ V}$ up $30\text{ V}$	

### Technical Parameters of Inputs

Parameter	Value	Note
Input Voltage DC / AC	Log. 0: $-30\text{ V}$ to $5\text{ V}$	
	Log. 1: $+15\text{ V}$ to $30\text{ V}$	Max. $50\text{ V} / 1\text{ s}$
Digital Input Type	2 (24 VDC)	IEC 61131-2
Input Current	12 mA at 24 VDC	
Galvanic Isolation	$2.500\text{ V}_{\text{RMS}}$	DIx / CPU
	$1.000\text{ V}_{\text{RMS}}$	Between Groups of DI
Surge Protection	600 W	$10 / 1000\ \mu\text{s}$
Max. Counting Frequency	20 kHz	Duty Cycle 1:1

### Technical Parameters of the Output Relay

Parameter	Value	Note
Contact Type	NO <sup>(1)</sup>	NO is Factory Settings
Max. Load	0.5 A / 120 VAC	Resistive Load
	1 A / 24 VDC	Resistive Load
Electrical Lifetime	3,000,000 Operations	
Isolation Voltage	$1.000\text{ V}_{\text{rms}} / 1\text{ min.}$	Terminals to Electronic or Case

<sup>(1)</sup> On the PCB board of the IF module is jumper that can change the function of the relay from NO to NC.

### Example of Connection

