SIEMENS

7615

Interface with galvanic separation

OCI412.10

The OCI412.10 serves as an interface with galvanic separation between an LME39/LME7/LMO39 burner control, an LFS1 flame safeguard, or an LMV2/LMV3 burner management system and a communication interface to a building automation system (BAS) or process control system (PLC) (for example). The interface is based on the RS-485 standard.

The OCI412.10 and this Data Sheet are intended for use by OEMs which integrate the interface in their products!

Use

The OCI412.10 is a microprocessor-controlled interface with galvanic separation. The OCI412.10 facilitates the connection of an LME39/LME7/LMO39 or LFS1 via the proprietary BCI communication protocol to a Simatic PLC or the connection of an LMV2/LMV3 via the Modbus RTU communication protocol to a building control system or process control system. The LME39/LME7/LMO39, LFS1, or LMV2/LMV3 functions as a slave to the communication interfaces. The OCI412.10 is designed exclusively for stationary use under the burner hood or in a control panel in connection with the LME39/LME7/LMO39, LFS1, or an LMV2/LMV3.

It offers:

- Visualization of plant states
- Control of plant
- Logging

Supplementary documentation

Type	Designation	Documentation type	Document no.
LFS1	Flame safeguard	Data sheet	N7782
		User documentation	A7782
LME39	Burner control	Data sheet	N7106
		Basic documentation	P7106
LME71	Burner control	Data sheet	N7105
		Basic documentation	P7105
LME72	Burner control	Data sheet	N7105
		Basic documentation	P7105
LME73	Burner control	Data sheet	N7105
		Basic documentation	P7105
LME75	Burner control	Data sheet	N7156
		Basic documentation	P7156
LME76	Burner control	Data sheet	N7156
		Basic documentation	P7156
LMO39	Burner control	Data sheet	N7154
		Basic documentation	P7154

Warning notes

To avoid injury to persons, damage to property or the environment, the following warning notes must be observed!

Do not open, interfere with or modify the unit. Siemens will not assume responsibility for damage resulting from unauthorized interference!

- All activities (mounting, installation and service work, etc.) must be performed by qualified staff
- Before making any wiring changes in the connection area, completely isolate the plant from mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not observed, there is a risk of electric shock hazard
- Ensure protection against electric shock hazard by providing adequate protection for the connection terminals
- After each activity (mounting, installation and service work, etc.), check to ensure that wiring is in an orderly state and that the parameters have been correctly set
- Fall or shock can adversely affect the safety functions. Such units must not be put into operation even if they do not exhibit any damage
- The unit is approved for stationary use only
- All safety instructions, warning notes, and technical notes found in the documentation for the respective burner control / flame safeguard or burner management system apply unchanged to this data sheet

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- The interface is designed for fitting to DIN mounting rails (as per EN 50 022)
- Degree of protection IP40 as per DIN EN 60 529 must be ensured by the burner or boiler manufacturer through adequate installation of the OCI412.10 (e.g. installation under the burner hood or in the control panel)
- Ensure strain relief of the connected cables in compliance with the standards (e.g. DIN EN 60 730 and DIN EN 60 335)
- Ensure that spliced individual wires cannot touch neighboring terminals. Use adequate ferrules
- When making the wiring, protective extra low-voltage (safe separation from mains voltage) must be strictly segregated from extra low-voltage to ensure protection against electric shock hazard
- The connecting cables for the OCI412.10 may only be removed or exchanged when the plant is shut down (all-polar disconnection), since the COM port of the LMV2… / LMV3… does not provide safe separation from mains voltage
- The connecting cables for the OCI412.10 may only be removed or exchanged when the plant is shut down (all-polar disconnection), since the COM interface of the LME39/LME7/LMO39, LFS1, or the LMV2/LMV3 does not ensure safe separation from the mains voltage
- The connecting cable between the LME39/LME7/LMO39, LFS1 or LMV2/LMV3 and the OCI412.10 must be suitable for use under the burner hood or in the control panel

- Cable the plug for connection X20, before you put the plug into the OCI412.10 (danger of contact break)

Installation notes

- The housing of the OCI412.10 is designed for fitting to an M36-DIN mounting rail (as per EN 50022, 35 mm corresponding to 2 modular units)

Disposal notes

The unit contains electrical and electronic components and must not be disposed of together with household waste.
Local and currently valid legislation must be observed.

Technical data

General unit data	Operating voltage X20	AC 24 V ±10 % (PELV) DC 24 V ±20 % (PELV)
	Power consumption	<2 W (typically)
	Safety class	II
	Degree of protection	IP30 (not when installed)
	☞	Note: Degree of protection IP40 must be ensured by the burner or boiler manufacturer through adequate installation of OCI412.10
	Fusing	Internal self-resetting fuse 125 mA (Poly switch)

Cable lengths	• X10 (LME39/LME7/LMO39, LFS1)	Max. 1 m (100 pF/m) For use under the burner hood or in a control panel
	• X10 (LMV2… / LMV3…)	Max. 3 m (100 pF/m) For use under the burner hood or in a control panel
	• X20 (Modbus)	Max. 100 m (100 pF/m)

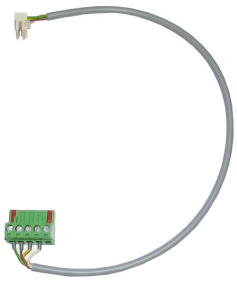
Cable requirements

Cable insulation must be suited for the respective environmental conditions!

• Connector X10 (Molex / Combicon)	5 pins / RM 5.08 mm
• Connector X20 (Molex / Combicon)	5 pins / RM 5.08 mm

Connecting cable

Connecting cable to LMV2/LMV3

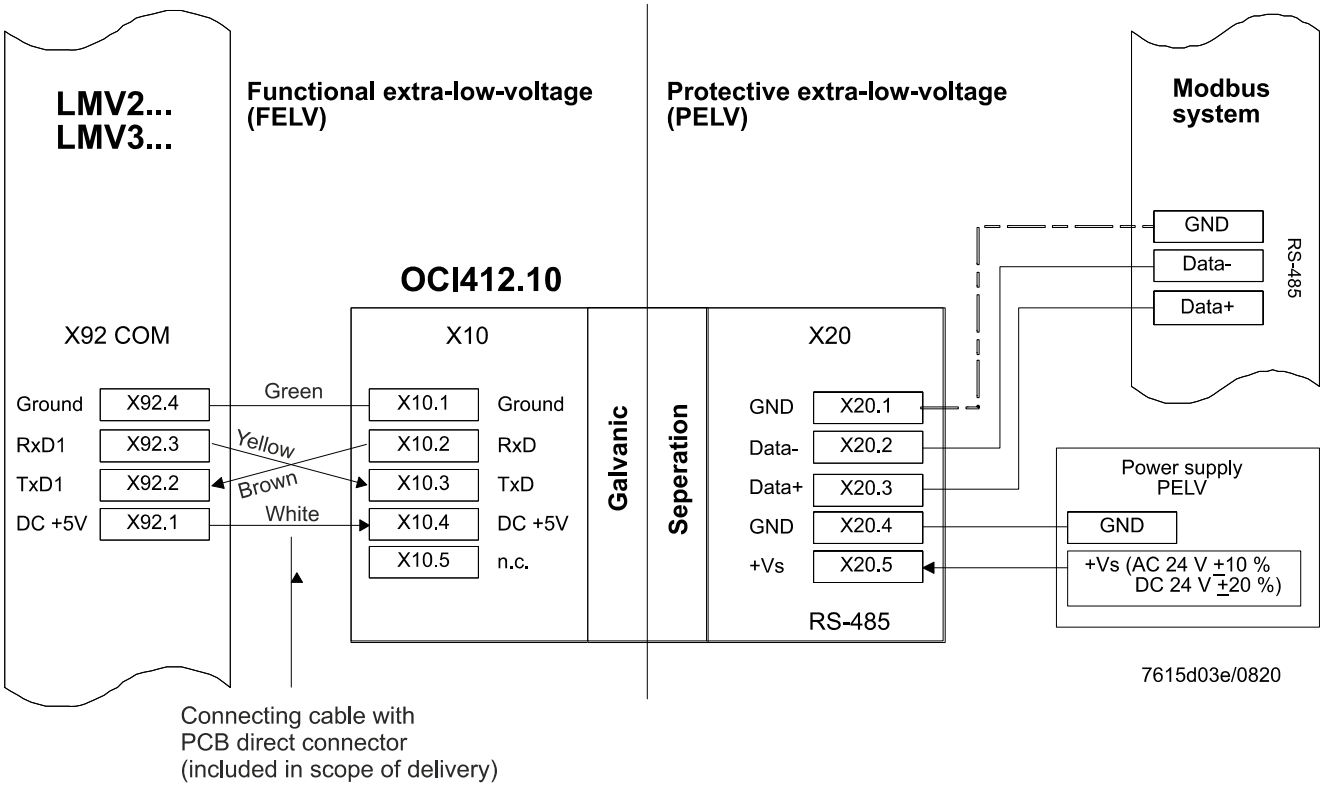


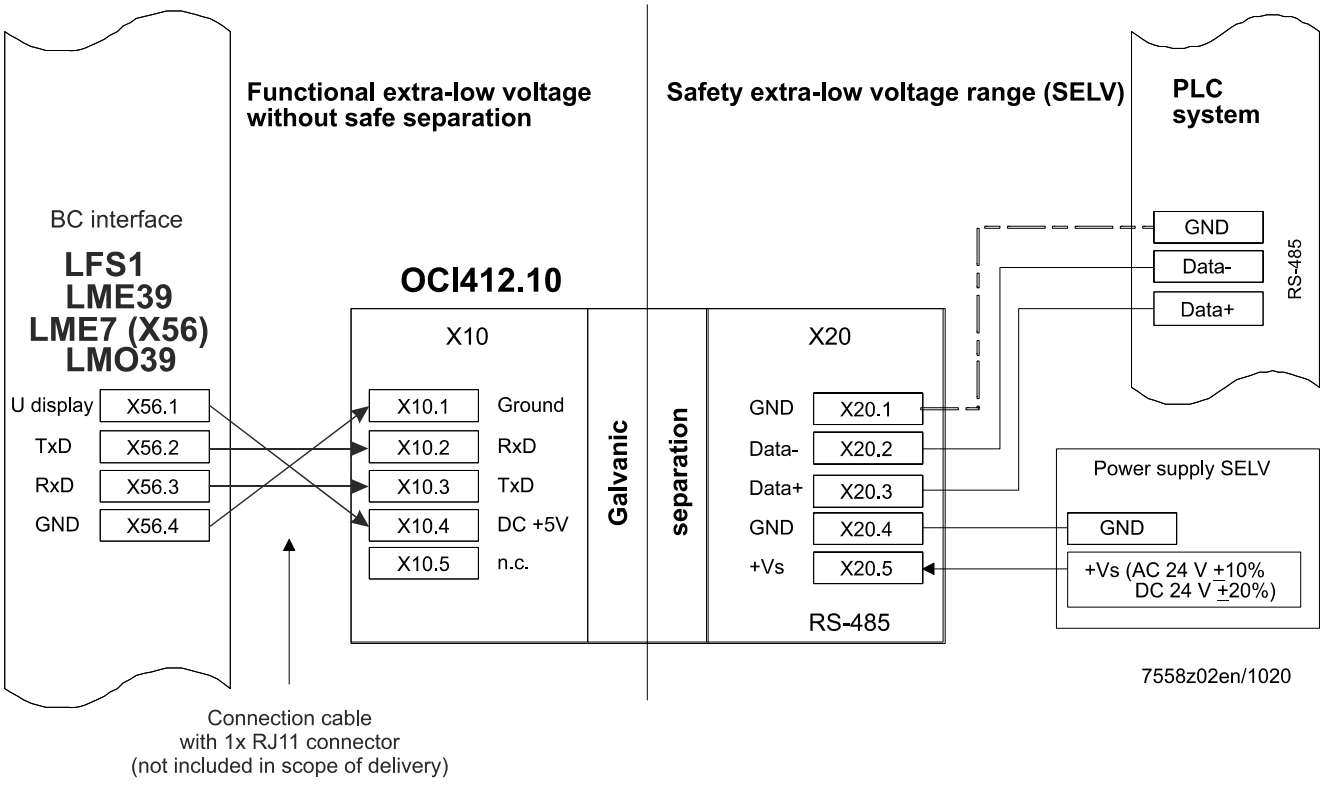
• Included in delivery	
• Length	Ca. 0.3 m
• Connection on OCI412.10	X10
• Connection on LMV2... / LMV3...	X92 COM

Environmental conditions	**Storage**	DIN EN 60721-3-1
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Transport	DIN EN 60721-3-2
	Climatic conditions	Class 2K2
	Mechanical conditions	Class 2M2
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Operation	DIN EN 60721-3-3
	Climatic conditions	Class 3K3
	Mechanical conditions	Class 3M3
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Installation altitude	Max. 2,000 m above sea level

Attention!
Condensation, formation of ice and ingress of water are not permitted!
If this is not observed, there is a risk of loss of safety functions and a risk of electric shock.

Connection diagram





Example: Connection table for X20 (RS-485) to D-SUB 9 (RS-485) or Simatic Modbus / USS modules

OCI412.10 connection X20	General description	D-SUB 9 plug (RS-485)	Simatic ET200s 1SI Modbus / USS modules 6ES7138-4DF01-0AB0 6ES7138-4DF11-0AB0
X20 Pin 1	GND (Data)	Pin 5	Pin 8
X20 Pin 2	Data-	Pin 8	Pin 1
X20 Pin 3	Data+	Pin 3	Pin 2
X20 Pin 4	GND (power supply, PELV)		
X20 Pin 5	+Vs (AC 24 V ±10% DC 24 V ±20%)		

Operating elements

Switch OCI412.10

Switch no.	Alternative designation	Function (switch position ON)	As supplied
1	R1 [1])	RS-485, bus terminator 120 Ω (between Data+ and Data-)	OFF
2	R2 [1])	RS-485, 820 R-resistor against 5 V (Data+ against 5 V)	OFF
3	R3 [1])	RS-485, 820 R-resistor against GND (Data- against GND)	OFF
4	S1	Reserved	OFF
5	S2	Reserved	OFF
6	S3	Reserved	OFF
7	S4	Reserved	OFF
8	S5	Reserved	OFF

[1]) Terminators

The terminators can be switched via switches no. 1 through 3 and are of importance only when the interface is installed at the end of the RS-485 line. The 120 Ω resistor (switch no. 1) serves as a bus terminator. In principle, a terminator must be fitted at both ends of the line. Its resistance must correspond to the characteristic impedance of the line. The resistance of the OCI412.10 corresponds to that of a typical RS-485 application. If not sufficient, an additional adequate resistor must be fitted. The characteristic impedance depends on the type of cable. In bus mode, terminators must not be connected to RS-485 modules located somewhere else on the line. The pull up and pull down resistors (switches no. 2 and 3) of 820 Ω each generate a defined level, when all users on the line are switched to reception (high-impedance).

Indication of operating states via LEDs

LED color	Description
Red, flashing fast	Internal error OCI412.10
Orange, steady	Standby (X10.4, without voltage)
Green, steady	Standby (LME39/LME7/LMO39, LFS1, and LMV2/LMV3 connected and ready for operation)
Green, flashing	Communication Modbus

Dimensions in mm

OCI412.10