

RTU7M – Communication Cards and Modules

General Description

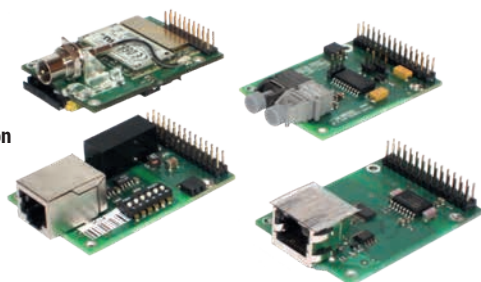
The communication cards serve for ensuring the communication of the RTU7M with the master system and for communication with slave units. These cards contain several communication interfaces and they have the direct support of many industrial communication protocols and services. The cards also support various company protocols.

We produce two principally different versions of the cards. The first version labeled as COMIO4 contains a 32-bit processor and the second version labeled as COMIO-PC3 contains a built-in PC with operating system on the basis of OS LINUX.

Both types of communication cards have some interfaces defined as fixed and some as optional. Optional interfaces can be fitted with modules CIOMOD and configured according to the demands of the stated application. It is necessary to separately specify these modules in orders. You can see the available options in the table below. Communication parameters are set via the web interface or configuration SW User Center.

The firmware and OS, which is digitally signed for the PC3 version, can be upgraded remotely. The RTU7M system has user-programmable logic (function blocks) available, in the case of the PC3 version, also in accordance with the IEC 61131-3 standard.

Examples of communication modules



Supported communication protocols and services

IEC 60870-5-101	DCON	RADIUS
IEC 60870-5-104	DLMS	Syslog
IEC 60870-5-103	SQL	SNMP
IEC 61850	OPC UA	NTP
DNP3.0	HTTPS	SSH
Modbus TCP/RTU	IPSec	SCEP
HioCom2	OpenVPN	RBAC
IEC 62351-3	NAT	Firewall

The license policy for the use of individual supported protocols can be found at www.rtu.cz in the section Products/RTU support SW.

Communication card COMIO4

This card is fitted with four communication interfaces, which provide the user with freedom during the selection of a suitable communication protocol and the interface. The card can also be used as a communication converter or a data concentrator for slave units.



Cards COMIO4 and COMIO-PC3

Table of standard combinations for individual interfaces of COMIO4 cards

Card	COMIO4-1ETH	COMIO4-2ETH	COMIO4-CIR	COMIO4-O
Communication interface COM1	Position for module CIOMOD-232/485 UMTS/GSM/(E)GPRS	Position for module CIOMOD-232/485/UMTS/GSM/(E)GPRS/GPS2	Position for module CIOMOD-OPT	Position for module CIOMOD-232/485/OPT UMTS/GSM/(E)GPRS
Communication interface COM2	Switchable RS-232/422/485			Fixed optical interface OPT
Communication interface COM3	Position for module CIOMOD-232/485	Ethernet 10/100 Mbps	Position for module CIOMOD-OPT	Position for module CIOMOD-232/485-OPT
Communication interface COM4	Ethernet 10/100 Mbps			
Supported com. protocols	MODBUS, HIOCom2, IEC 60870-5-101, IEC 60870-5-103, IEC 60870-5-104, DNP3 Server, HTTP			
Memory	FLASH 64 Mbit, MRAM 256 kbit, optionally MicroSD card			
Consumption	1.5 W			
Position in bus	Any, recommended 2 or 3			

Note: other combinations can be supplied according to the demands of customer after consultation with product manager.

Communication Card COMIO-PC3

This card is also equipped with several communication interfaces and offers wider possibilities than the COMIO4 card thanks to higher intelligence and power. This includes, for example, the ability to manage a large number of subordinate units, the use of special protocols for secure communication, or in the case of special requirements, this card can offer customer modifications for communication options, such as the implementation of other standard and special protocols, etc.

In addition to basic communication functions, this card can also be used as a communication converter and a communication concentrator (can be used simultaneously). The communication protocols for communicating with slave devices may differ from the communication protocol for communicating with superior systems. The COMIO-PC3 card contains a backup real-time RTC circuit and an internal temperature sensor. The communication interface can be extended via the ESW2 or ESW3 card, which are then internally connected to the COMIO PC3 card and offer physical separation of the two networks.

Table of Standard Combinations for Individual Interfaces of COMIO-PC3 Cards

Card	COMIO-PC3	COMIO-PC3-LTE
Communication interface COM1	Ethernet 10/100 Mbps, isolation 3 kV AC/1 min. (NET1)	Module CIOMOD with LTE modem
Communication interface COM2	Ethernet 10/100 Mbps, isolation 3 kV AC/1 min. (NET2)	Ethernet 10/100 Mbps isolation 1.5 kV AC/1 min. (NET2)
Communication interface COM3	Console RS-232 (RJ11)	Switchable RS-232/422/485 isolation 2.5 kV DC/1 min.
Communication interface COM4	Switchable RS-232/422/485 isolation 2.5 kV DC/1 min.	Switchable RS-232/422/485 power supply +5 V / 0,3 A isolation 2.5 kV DC/1 min.
Communication interface COM5	Switchable RS-232/422/485 power supply +5 V / 0,3 A isolation 2.5 kV DC/1 min.	–
Supported communication protocols	All mentioned on previous page in the list of Supported communication protocols and services	
Memory	FLASH 8 GB, RAM 256 MB, optionally MicroSD	
Other functions	Thermal sensor, RTC	
Consumption	3.5 W	4.5 W
Position in bus	Any, recommended 2 or 3	

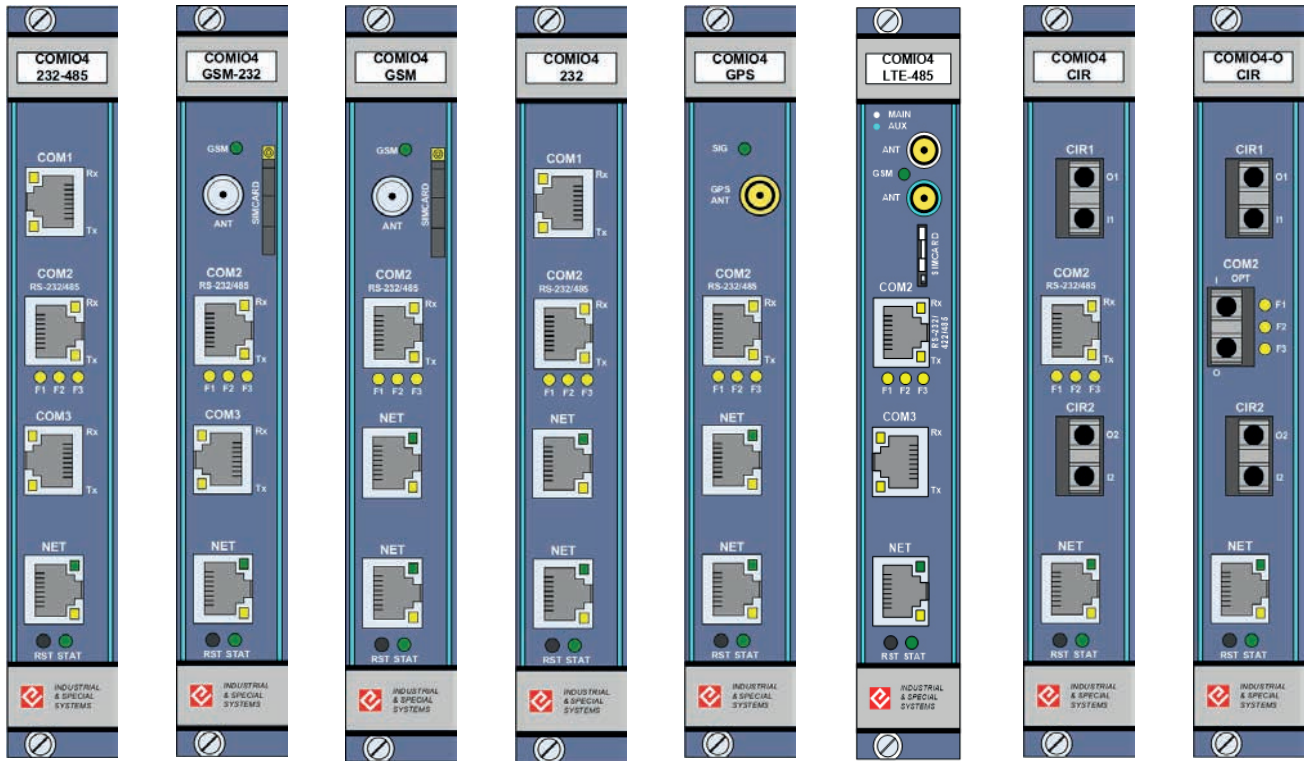
Communication Interface Expansion Cards

Interface	10/100BaseT(X)	10/100/1000BaseT(X)	SFP slot 100Base-FX	SFP slot 1000Base-X/SERDES
Modul ESW2	2		2	
Modul ESW3		4		2

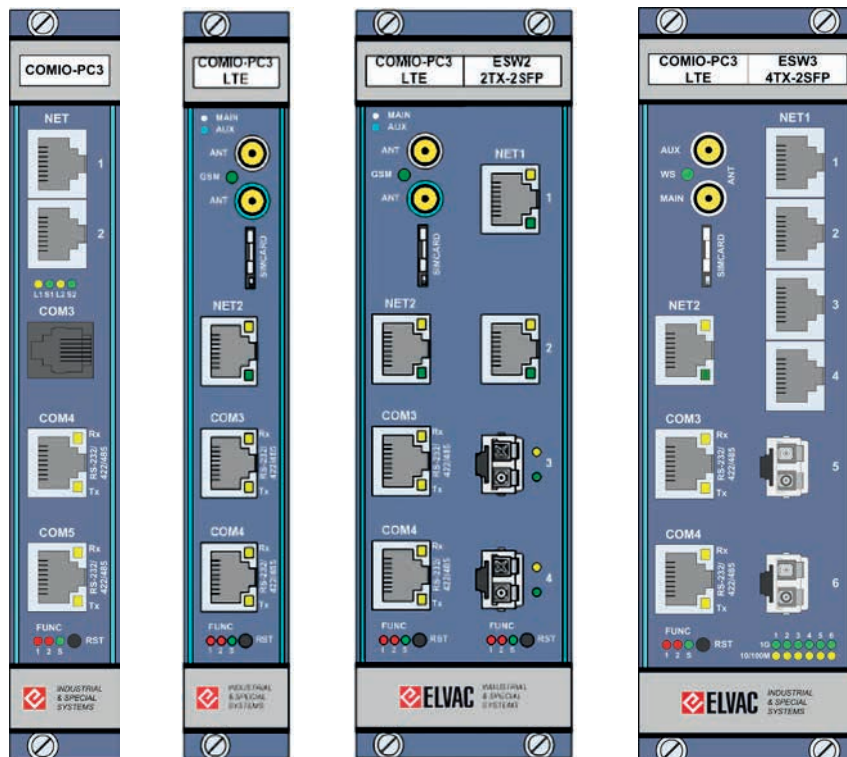
Technical Specification of CIOMOD Modules

Module	CIOMOD-GSM4	CIOMOD-GSM5	CIOMOD-GSM8	CIOMOD-LTE1	CIOMOD-LTE2
Communication interface	UMTS Dual-Band GSM Dual-band GPRS Class 12 EDGE Class 12 HSDPA Cat. 8 HSUPA Cat. 6	UMTS Dual-Band GSM Dual-band GPRS Class 12 EDGE Class 12 HSDPA Cat. 8 HSUPA Cat. 6	LTE Penta-band UMTS Dual-band GSM Dual-band LTE UE Cat. 1 HSDPA Cat. 24 HSUPA Cat. 6 GPRS Class 12 EDGE Class 12	GSM Quad-band LTE Cat. 1bis	GSM Dual-band LTE Cat. 1bis
Antenna connector	FME	FME	2 x SMA	1 x SMA	1 x SMA
Max. consumption	1 W	1 W	1 W	1 W	1 W

Module	CIOMOD-OPT	CIOMOD-232	CIOMOD-485	CIOMOD-GPS2
Communication interface	Optical interface	RS-232 (isolation 2 kV AC for 1 min.)	RS-485 (isolation 2 kV AC for 1 min.)	GPS antenna GPS/QZSS GLONASS
Connector	SC	RJ45	RJ45	SMA
Max. communication speed	–	230.4 kbps (460.8 kbps)	230.4 kbps (921.6 kbps)	–
Signals	RxD, TxD	RxD, TxD, RTS, CTS	A, B, (+5 V)	–
Max. consumption	1 W	1 W	1 W (2 W)	0.5 W



Front panels with connectors of cards COMIO4



Front panels with connectors of cards COMIO-PC2 and PC3

Modular RTU