

# SOMAT XR CX27C-R

## Industrial Ethernet Gateway

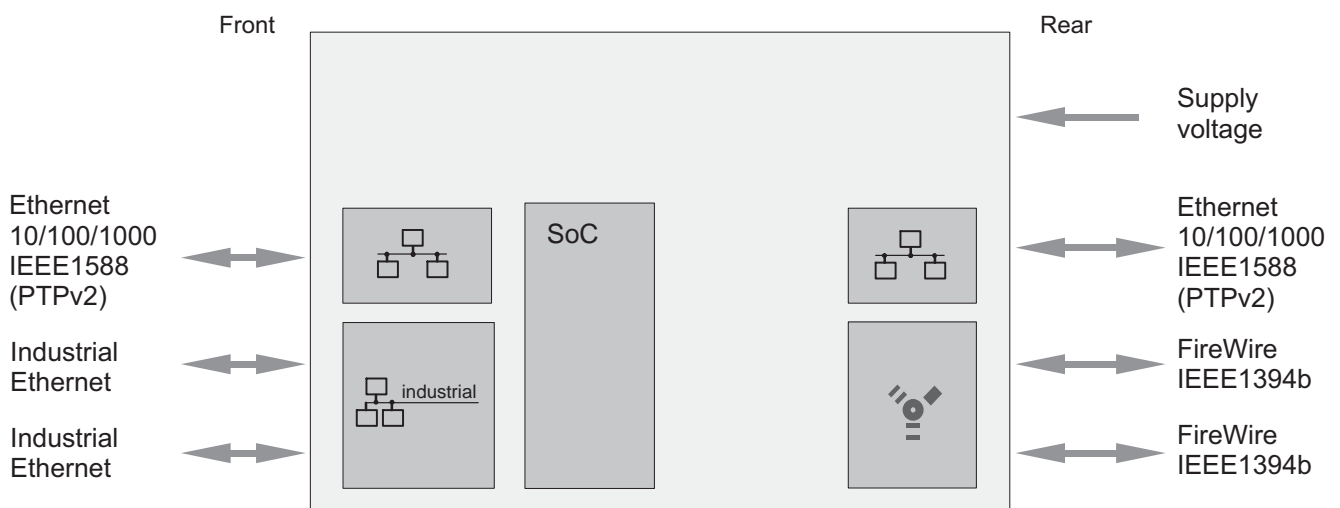
### Special features

- Gateway between SomatXR measurement modules and Ethernet-based fieldbuses
- Integration in real-time industrial Ethernet: EtherCAT or PROFINET IRT
- Parallel measurement data acquisition via standard Ethernet with high data throughput or via xCP-on-Ethernet for integration into MCD software tools
- Synchronization via PTPv2 (IEEE1588:2008), others
- Use in harsh environments (impact, vibration, temperature, condensation, moisture)

Data sheet



### Block diagram



## Specifications for CX27C-R

General specifications		
<b>Interfaces (quantity)</b>		Industrial Ethernet: EtherCAT <sup>1)</sup> or PROFINET IRT (1, in/out) Ethernet Gigabit (2) FireWire (2)
<b>Supply voltage range (DC)</b>	V	10 ... 30, nominal (rated) voltage 24 V
<b>Supply voltage interruption, max.</b> (at 24 V)	ms	5 <sup>2)</sup>
<b>Power consumption</b>	W	< 7
<b>Ethernet</b> (module synchronization, data link)	MBit/s	10 / 100 / 1000
Protocol/addressing	-	TCP/IP (static IP, APIPA or DHCP / IPv4 or IPv6)
Plug connection	-	M12 X-coded (socket), 8 pins <sup>3)</sup>
Max. cable length to module	m	100
<b>FireWire</b> (module synchronization, data link, optional power supply)		IEEE 1394b (HBM modules only)
Max. current from module to module	A	1.5
Male connector	-	ODU MINI-SNAP (socket), 8 pins
Max. cable length between nodes	m	5
Max. number of modules connected in series (daisy chain)	-	12 (= 11 hops) <sup>4)</sup>
Max. number of modules in a FireWire system (incl. hubs <sup>5)</sup> )	-	24
Max. hops in a chain	-	14
<b>Synchronization options</b> FireWire IEEE1394b Ethernet PTPv2 IEEE1588 Ethernet NTP		FireWire-based synchronization Ethernet-based Precision Time Protocol Ethernet-based Network Time Protocol
<b>Nominal (rated) temperature range</b>	°C	-40... +80 dew point resistant
Height-dependent restrictions	-	-
Maximum temperature at 0 m	°C	+80
Maximum temperature at 2500 m	°C	+70
Maximum temperature at 5000 m	°C	+55
<b>Storage temperature range</b>	°C	-40 ... +85
<b>Relative humidity</b>	%	5 ... 100
<b>Protection class</b>		III <sup>6)</sup>
<b>Equipment protection level</b>		IP65/IP67 to EN 60529 (if M12 sockets are plugged in or have a protective cap)
<b>EMC requirements</b>		per EN 61326-1
<b>Mechanical tests</b>		
Vibration		as per MIL-STD202G, method 204D, test condition C
Acceleration	m/s <sup>2</sup>	100
Duration	min	450
Frequency	Hz	5 to 2,000
Impact		as per MIL-STD202G, method 213B, test condition B
Acceleration	m/s <sup>2</sup>	750
Pulse duration	ms	6
Number of impacts	-	18
<b>Operational height, max.</b>	m	5,000
<b>Dimensions, horizontal (H x W x D)</b>	mm	80 x 205 x 140
<b>Weight, approx.</b>	g	1,700

<b>EtherCAT</b>		
<b>Function</b>		EtherCAT client
<b>Interfaces</b>		100Base-TX Ethernet (switched) with 2x M12 D-coded (socket), 4 pins <sup>3)</sup>
<b>Cable length (max.)</b>	m	100
<b>Cable type (min. requirement)</b>		Standard Cat 5, shielded
<b>EtherCAT communication</b>		
Max. number of cyclical process data (PDOs) at 1200 Hz update rate		199
at 2400 Hz update rate		100
at 4800 Hz update rate		30
Minimum latency from MX input to EtherCAT	µs	1000
Process data configuration		Service Data Objects (SDO), Device Description File (DDF)
Profile		CANopen DS404 plus enhancements
Services		SDO read, write, information
Used IP core		Beckhoff ET1810
<b>EtherCAT master layout</b>		Distributed clock, automatic / manual address assignment
<b>Workflow</b>		The free MX Assistant software can be used to parameterize the input channels of the measurement modules (MX), activate them for isochronous real-time operation, and assign them to the fieldbus (automatic mapping or manual). Generation of description file (*.esi) and import in PLC controller software.
<b>Client synchronization</b>		
Time distribution / Distributed Clock (DC)		Yes, default = on
Variation of the system time	µs	1
Sync manager, sampling rates		3
<b>PROFINET IRT / RT</b>		
<b>Function</b>		PROFINET device
<b>Interfaces</b>		100Base-TX Ethernet (switched) with 2x M12 D-coded (socket), 4 pins <sup>3)</sup>
<b>Cable length (max.)</b>	m	100
<b>Cable type (min. requirement)</b>		Standard Cat 5, shielded
<b>PROFINET communication</b>		
Max. number of cyclical process data (PDOs)		199 (2048 bytes of process data [input])
Max. number of slots/subslots (cycle)		32/199 (≥500 µs) 32/180 (250 µs)
Minimum cycle time	µs	250 (IRT)
Minimum latency from MX input to PROFINET	µs	1500
PROFINET specification		V2.3
Conformity classes		B, C
Media Redundancy Protocol (MRP)		supported
Process data configuration		MX Assistant, GSDML
Diagnosis		Status byte
<b>Workflow</b>		The free MX Assistant software can be used to parameterize the input channels of the measurement module (MX), activate them for isochronous real-time operation, and assign them to the fieldbus. Generate description file (*.gsdml) and import in PLC controller software.

Ethernet		
Data rate, max.	Measured values/s	2,000,000
<b>xCP-on-Ethernet</b>		
Function		xCP-on-Ethernet client
Protocol version		1.4
DAQ events		6 (10 Hz ... 5 kHz)
Max. number of signals		199
Workflow		The free MX Assistant software can be used to parameterize the input channels of the measurement modules (MX), activate them for isochronous real-time operation, and assign them to the xCP outputs. Generate description file (*.a2l) and load into MCD software.

- 1) EtherCAT is a registered brand and patented technology, licensed by Beckhoff Automation GmbH, Germany
- 2) Uninterruptible power supply (UPS) available as accessory for longer interruptions
- 3) Tighten plug with a torque of max. 2 Nm.
- 4) Hop: Transition from module to module or signal conditioning/distribution via IEEE1394b FireWire (hub, backplane)
- 5) Hub: IEEE1394b FireWire node or distributor
- 6) The DC voltage supply must meet the requirements of IEC 60950-1 on a SELV voltage supply.

Subject to modifications.  
 All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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