Data sheet

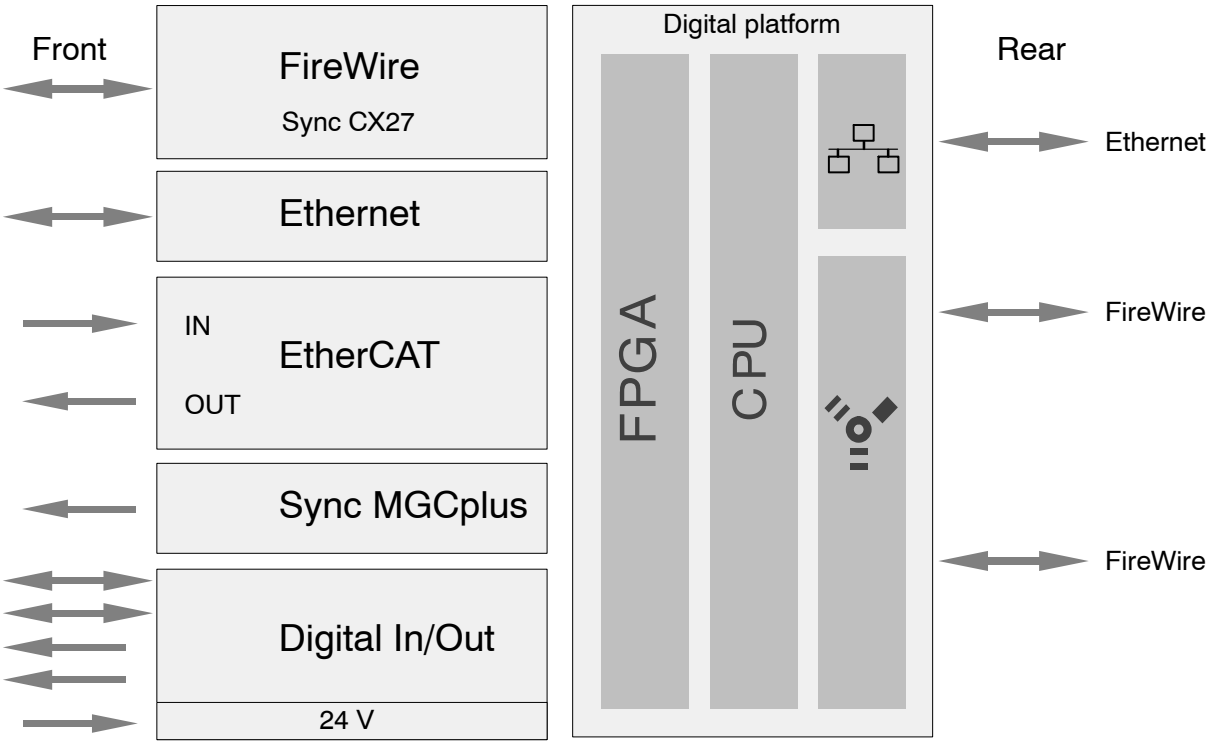
QUANTUM X CX27

Gateway

Special features

- **Gateway module between QuantumX measurement modules and Ethernet/EtherCAT®**
- **1 EtherCAT real-time fieldbus (IN/OUT)**
- **2 Ethernet TCP/IP (front/rear)**
- **2 digital I/Os each**
- **External synchronization via EtherCAT® and NTP**

Block diagram



Specifications

General specifications		
Interfaces (number)		EtherCAT (1) (IN/OUT) Ethernet (2) FireWire (2)
Supply voltage range (DC)	V	10 ... 30, nominal (rated) voltage 24V
Power consumption (at 24V)	W	< 7
Ethernet (data link)		10Base-T / 100Base-TX
Protocol/addressing	–	TCP/IP (direct IP address or DHCP)
Connection	–	8P8C plug (RJ-45) with twisted pair cable (CAT-5)
Max. cable length to module	m	100
FireWire (module synchronization, data link, optional supply voltage)		IEEE 1394b (HBM modules only)
Baud rate	MBaud	400 (approx. 50 MByte/s)
Max. current from module to module	A	1.5
Max. cable length between the nodes	m	5
Max. number of modules connected in series (daisy chain)	–	12 (=11 hops)
Max. number of modules in a FireWire system (including hubs[1], backplane)	–	24
Max. chain of hops[2]	–	14
Synchronization options EtherCAT FireWire NTP IRIG–B (B000 bis B007; B120 bis B127)		FireWire (automatically, recommended) via CX27 CX27 to CX27 via front sockets via Ethernet via MX440A- or MX840A input channel
Protection class		III
Degree of protection		IP20
Mechanical tests[3]		
Vibration (30 min)	m/s^2	50
Shock (6 ms)	m/s^2	350
EMC requirements		according to EN61326
Nominal (rated) temperature range	°C [°F]	–20 °C ... +60 °C [–4 ... +140]
Operating temperature range (no dewing allowed/module not dew-point proof)	°C [°F]	–20 °C ... +65 °C [–4 ... +149]
Storage temperature range	°C [°F]	–40 °C ... +75 °C [–40 ... +167]
Rel. humidity	%	5 ... 95 (non condensing)
Weight, approx.	g	1200
Dimensions, horizontal (H x W x D)	mm	52.5 x 200 x 122 (with case protection) 44 x 174 x 119 (without case protection)

1) Hub: FireWire node or distributor

2) Hop: Transition from module to module/signal conditioning

3) Mechanical stress is tested according to European Standard EN60068–2–6 for vibrations and EN60068–2–27 for shock. The equipment is subjected to an acceleration of 25 m/s^2 in a frequency range of 5...65 Hz in all 3 axes. Duration of this vibration test: 30min per axis. The shock test is performed with a nominal acceleration of 200 m/s^2 for 11 ms, half sine pulse shape, with shocks in each of the 6 possible directions.

Specifications

EtherCAT		
Function		EtherCAT Slave
Interfaces		IEEE 802.3, 100BASE–TX
Input/Output		RJ45 socket, shielded
Cable length (max.)	m	100
Cable type (min. requirement)		Standard CAT5, shielded
EtherCAT communication		
Max. number of cyclical process data (PDOs)		199 (at 1200 Hz update rate) 100 (at 2400 Hz update rate) 30 (at 4800 Hz update rate)
Process data configuration		SDO[4], DDF[5] or EEPROM
Profile		CANopen DS404 plus add-ons
Services		SDO read, write, information
Used ASIC		ET1100, Beckhoff
Slave synchronization		
Distributed clock (DC)		Yes, default=On
System time variation	µs	1
Sync manager, sample rates	Number	3
Miscellaneous		
TCP/IP tunnel		EoE (Ethernet over EtherCAT)

[4] Service Data Objects
[5] Device Description File (XML)

Real Time Clock		
Clock drift		max. 1.2 minutes per month
Time zone (factory settings)		UTC (Universal Time, Coordinated)
Ethernet		
Data rate, max.	Measured values/s	400.000
Digital I/Os		
Number of combined inputs/outputs		4 2 inputs (clamps 1 and 2) 2 outpust (clamps 3 and 4)
Type of connection		screw terminals
LEDs (number)		
input / output state		4
24V-display		1
Cable length (max.)	m	30
Cable type (required with interference)		shielded
Update rate	1/s	19200
Status change of inputs		detection by interrupt
24V voltage input	V	5.5 ... 42
Input signal range		
max. permissible input level	V	42
threshold (average value)	V	2.5
hysteresis	V	approx. 1
Input resistance (nominal)	kΩ	6.9
Output with supply via 24V input		
minimal level, active High, at 100mA load	V	(24V-input voltage value) – 1
nominal current rating	mA	100
short-circuit current (typ.)	mA	700
Internal supply U_{INT}		
voltage (at 10 mA / 0 mA)	V	5.1 min. / 5.9 max.
maximal current rating	mA	10
Output with supply with U_{INT}		
minimal level, at 1mA load current	V	4.5
maximal level, no current	V	5.5
maximal current rating	mA	1

Accessories, to be ordered separately

Article	Description	Order no.
AC/DC power pack / 24 V	Input: 100 ... 240 V AC (±10 %), 1.5 m cable Output: 24 V DC, max. 1.25 A, 2 m cable with ODU plug	1-NTX001
3 m cable – QuantumX supply	3 m cable for voltage supply of QuantumX modules; suitable plug (ODU Medi-Snap S11M08-P04MJGO-5280) at one end and exposed wires at the other.	1-KAB271-3
Ethernet cross over cable	Ethernet cross over cable for direct operation between a PC or Notebook and a modul / device, length 2 m, type CAT5+	1-KAB239-2
FireWire IEEE PC-Card	FireWire IEEE 1394b PC-Card (PCMCIA adapter) to connext QuantumX modules to a Notebook or a PC	1-IF001
3 m FireWire cable, PC to module	FireWire cable connector from PC to first module. For data transmission from QuantumX modules to PC. Fitted with suitable plugs at both ends. Length: 3 m.	1-KAB275-3
FireWire cable, (module to module)	FireWire cable connector between QuantumX modules, fitted with suitable plugs at both ends. Lengts 0.2 m/2 m/5 m. Note: Voltage can also be supplied to the QuantumX modules via the cable (max. 1.5 A, from source to last acceptor).	1-KAB269-0.2 1-KAB269-2 1-KAB269-5
Connecting elements for QuantumX modules	Connecting elements (clips) for QuantumX modules; set comprising 2 case clips including assembly material for fast connection of 2 modules.	1-CASECLIP
Connecting elements for QuantumX modules	Connecting elements (clips) for QuantumX modules xxxxx	1-CASEFIT

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