Data sheet

QUANTUM X

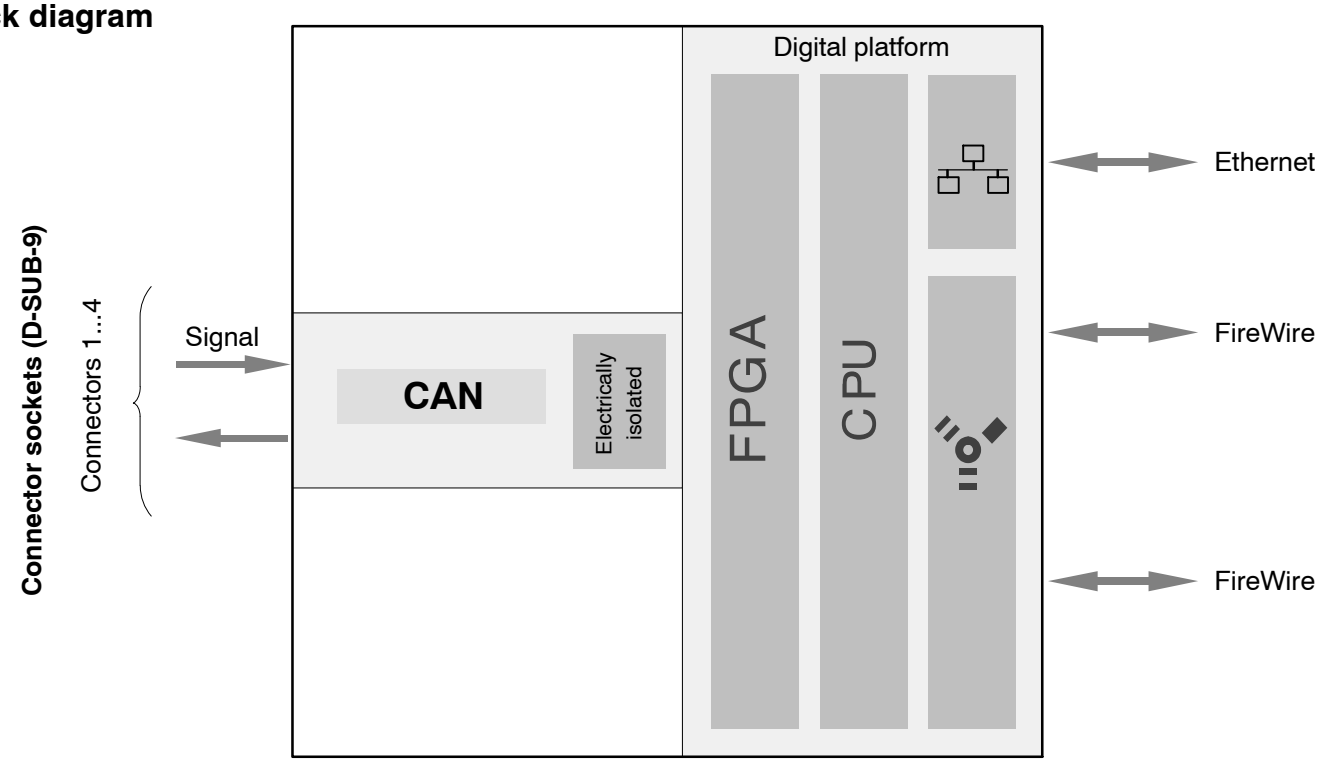
MX471

CANbus
in- and outputs

Special features

- **Four individually configurable channels (electrically isolated)**
- **Input: acquiring messages**
- **Output: sending system signals**
- **CAN 2.0A/B**
- **CCP / xCP–on–CAN**
- **CAN database creation (DBC)**

Block diagram



HBM

Specifications MX471

General Specifications		
Number of CAN ports		4, electrically isolated
Supported protocol		CAN 2.0A (1−Bit−Identifier) CAN 2.0B (29−Bit−Identifier ("extended format") CAN Calibration Protocol CCP eXtended Calibration Protocol (xCP−on−CAN)
Bus link		two wire, according to ISO11898−2
Transducer connection		D-SUB-9
Supply voltage range (DC)	V	10 ... 30 (24 V nominal (rated) voltage)
Supply voltage interruption		max. 5 ms at 24 V
Power consumption	W	< 6
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. number of hops[2]	–	14
Synchronization options EtherCAT NTP IRIG−B (B000 to B007; B120 to B127)		FireWire (automatically, recommended) via CX27 via Ethernet via MX440A- or MX840A input channel
Nominal (rated) temperature range	°C [°F]	−20 .. +60 [−4 ... +140]
Operating temperature range	°C [°F]	−20 ... +65 [−4 ... +149]
Storage temperature range	°C [°F]	−40 ... +75 [−40 ... +167]
Rel. humidity	%	5 ... 95 (non condensing)
Protection class		III
Degree of protection		IP20 per EN60529
Mechanical tests[3]		
Vibration (30 min)	m/s^2	50
Shock (6 ms)	m/s^2	350
EMC requirements		per EN 61326
Dimensions, horizontal (W x H x D)	mm	52,5 x 200 x 122 (with case protection)
	mm	44 x 174 x 119 (without case protection)
Weight, approx.	g	850[4]

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 50 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 350 m/s^2 for 6 ms, half sine pulse shape, with 3 shocks in each of the 6 possible directions.

4) without case protection: 660 g

Specifications (continue)

CANbus										
Bus termination resistor (internal, selectable)	Ω	ca. 120								
Baud rates	kBit/s	1000	800	500	250	125	100	50	20	10
Permissible cable lengths	m	25	50	100	250	500	600	1000	2500	5000
Input value per connector (node)										
Max. measuring rate (measurements/second) 32-bit floating point, CAN standard frame	1/s	9600								
Max. number of input signals		128								
CAN signal types for input signal		standard, mode-dependent, mode-signal								
Parameterization		via *.dbc-File								
CCP / xCP-on-CAN Input										
Supported protocols CCP xCP-on-CAN		 Version 2.1 Version 1.5								
Parameterization		*.dbc File required step using CANape from Vector Informatik (read A2L file, generate dbc file)								
Output value per connector (node)										
Max. number of output signals		200								
CAN signal types for output signals		one signal per PDO, float								
Max. data rate	1/s	4800								

Specifications NTX001 power pack

NTX001		
Nominal (rated) input voltage (AC)	V	100 ... 240 (± 10 %)
No-load power consumption at 230 V	W	0.5
Nominal (rated) loading U_A I_A	 V A	 24 1.25
Static output data U_A I_A U_{Br} (output ripple voltage; peak to peak))	 V A mV	 24 ± 4% 0 ... 1.25 ≤ 120
Current limiting, typically from	A	1.6
Isolation primary – secondary		electrical, by optical coupler and converter
Creepage and clearance distances	mm	≥ 8
High-voltage test	kV	≥ 4
Ambient temperature	°C	0 ... +40
Storage temperature	°C	–40 ... +70

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	Fitting panel for mounting of QuantumX modules using case clips (1-CASECLIP), lashing strap or cable tie. Basic fastening by 4 screws	1-CASEFIT

Hottinger Baldwin Messtechnik GmbH

Im Tiefen See 45 · 64293 Darmstadt · Germany
Tel. +49 6151 803-0 · Fax: +49 6151 803-9100
Email: info@hbm.com · www.hbm.com

measure and predict with confidence

B3089-3.0 en