QUANTUMX

MX471B

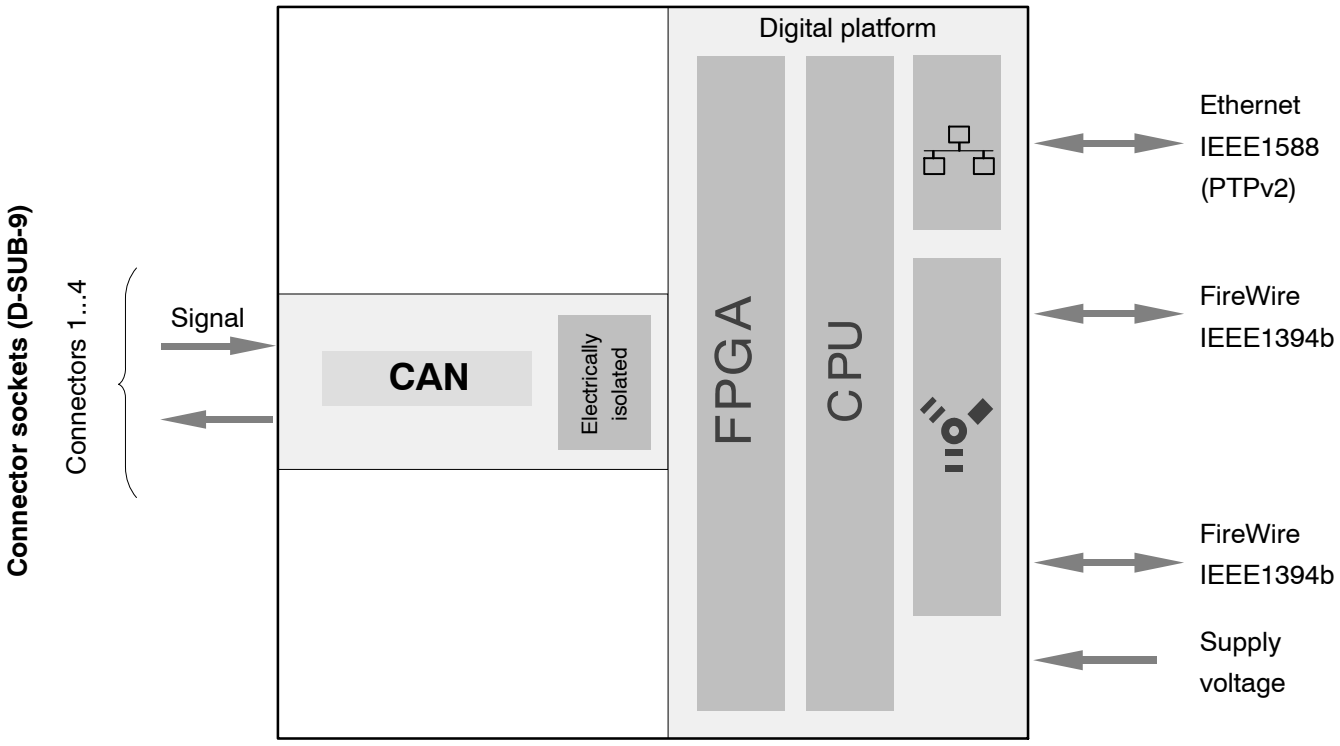
CANbus
in- and outputs

Data sheet

Special features

- **Four individually configurable channels (electrically isolated)**
- **Receive: raw or decoded (DBC)**
- **Transmit: sensor signals or gateway**
- **Routing: receive, change data type and compilation, transmit**
- **CAN 2.0 A/B**
- **CCP-J1939 / xCP–on–CAN**
- **J1939 (via catman®Easy/AP)**

Block diagram



HBM

Specifications MX471B

General Specifications		
Number of CAN ports		4, electrically isolated
Supported protocol		CAN 2.0A (11−Bit−Identifier) CAN 2.0B (29−Bit−Identifier (”extended format”) CAN Calibration Protocol CCP eXtended Calibration Protocol (xCP−on−CAN) SAE J1939
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. (at 24 V)	ms	5[1)]
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
Synchronization options FireWire IEEE1394b Ethernet PTPv2 IEEE1588 Ethernet NTP		 FireWire based synchronization Ethernet based Precision Time Protocol Ethernet based Network Time Protocol
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 (optical: 100)
Max. number of modules connected in series (daisy chain)	–	12 (=11 Hops[2)])
Max. number of modules in a FireWire system (including hubs[3)], backplane)	–	24
Max. number of hops	–	14
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[4)]
Degree of protection		IP20 per EN 60529
Mechanical tests[5)]		
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[6)]

1) Uninterruptible Power Supply (UPS) for longer Interruptions available as Accessories
2) Hop: Transition from module to module/signal conditioning
3) Hub: FireWire node or distributor
4) The DC voltage supply must meet the requirements of IEC 60950−1 on a SELV voltage supply.
5) 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.
6) without case protection: 660 g

Specifications MX471B (continue)

CANbus												
Bit rates	kBit/s	1,000	800	666,6	500	400	250	125	100	50	20	10
Permissible cable lengths	m	25	50	80	100	100	250	500	600	1,000	2,500	5,000
Formats		Motorola, Intel										
Bus termination resistor (internal, can be activated via software)	Ω	appr. 120										
Max. Number of Signals per modul (decoding and sending)	1/s	100.000										
Receive decoded signals												
Max. number of input signals pro port		128										
CAN signal types for input signal		standard, mode-dependent, mode-signal										
Parameterization		Manual or parametrization (*.dbc)										
Receive raw data stream												
Max. Number of input signals		Unlimited – all bus data										
Parameterization		catman®Easy/AP										
CCP / xCP–on–CAN Input												
Supported protocols CCP xCP–on–CAN		 Version 2.1 Version 1.1										
Parameterization		*.dbc File required step using CANape from Vector Informatik (read A2L file, generate dbc file)										
Receive SAE J1939 signals												
Parameterization		catman®Easy/AP, integriated signal database										
Signals send per CAN Port												
Signal sources		Sensor signals/measured values (MX inputs), CAN signal inputs (e.g. for implementing a CAN–to–CAN gateway and modifying data types), Real–time signals (e.g. matrix calculation result, PID controller, RMS value, peak values)										
Parameterization		In MX Assistant software, use drag and drop to copy signals to CAN port and manually parameterize the CAN ID and data types. Then use MX Assistant to create database (*.dbc file)										
Max. number of meassages (IDs)		128										
Max. numbers of signals per meassage		several signals per message (ID)										
Data type		free configuration of data types: – floating point (32, 64) – integer / fix point (1...64 bit)										
Max. data rate per CAN measage	1/s	1,200										

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 [–40 ... +104]
Storage temperature	°C	–40 ... +70 [–40 ... +158]

Accessories MX471B, to be ordered separately

MX471B accessories		
Article	**Description**	**Order No.**
Power		
AC-DC power supply / 30 W	Input : 100 ... 240 V AC (±10%), 1.5 m cable Output: 24 V DC, max. 1.25 A, 2 m cable with ODU connector	1-NTX001
3m cable – QuantumX supply	3 m cable for voltage supply of QuantumX modules; Suitable plug (ODU Medi-Snap S11M08-P04MJGO-5280) on one side and open strands on the other end.	1-KAB271-3
Communication		
Ethernet cross over cable	Ethernet cross over cable for direct operation between a PC or Notebook and a module / device, length 2 m, type CAT5+	1-KAB239-2
IEEE1394b FireWire cable (module-to-module)	FireWire connection cable for QuantumX or SomatXR-modules; with matching plugs on both sides. Length 0.2 m/2 m/5 m Note: The cable enables modules to be supplied with power (max. 1.5 A, from the source to the last drain).	1-KAB272-0.2 1-KAB272-2 1-KAB272-5
IEEE1394b IEEE1394b FireWire IEEE ExpressCard	FireWire IEEE 1394b ExpressCard (ExpressCard/34) to connect QuantumX modules to a notebook or PC	1-IF002
IEEE1394b FireWire cable PC-to-module	Firewire connection cable between module and PC. With matching plugs on both sides; Length: 3 m. No voltage supply of the modules possible via KAB293.	1-KAB293-5
Mechanic		
Connecting elements for QuantumX modules	Connecting elements (clips) for QuantumX modules; Set comprising 2 case clips including mounting 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
QuantumX Backplane (Standard)	QuantumX Backplane – Standard for a maximum of 9 modules; General: – Mounting on wall or control cabinet (19") - Connection of external modules by FireWire possible; - Power supply: 24 V DC / max. 5 A (150 W);	1-BPX001
QuantumX Backplane (Rack)	QuantumX Backplane – Rack for maximum 9 modules; - 19" rack mounting with handles left and right; - Connection of external modules via FireWire possible; - Power supply: 24 V DC / max. 5 A (150 W).	1-BPX002

Accessories, to be ordered separately (continued)

MX471B accessories		
Article	**Description**	**Order No.**
Software and product packages		
catman®AP 	Complete package including catman®Easy functionality plus additional modules such as integration of video cameras (EasyVideoCam), complete post-process analysis (EasyMath), automation of recurring processes (EasyScript), offline preparation of measurement projects (EasyPlan) as well as additional functions such as calculating electrical power, special filters, frequency spectrum, etc. More details at www.hbm.com\catman\	1-CATMAN-AP
catman®Easy 	The basic software package for measurement data acquisition comprises convenient channel parameterization using TEDS or the sensor database, measurement job parameterization, individual visualization, data storage and reporting.	1-CATMAN-EASY
catman®PostProcess 	Post Process edition for visualization, preparation and analysis of measurement data, including many mathematical functions, data export and reporting.	1-CATEASY-PROCESS
LabVIEW™-Treiber[1)]	Universal driver from HBM for LabVIEW™.	1-LabVIEW-DRIVER

[1)] More drivers and partners at www.hbm.com\quantumX\

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