

# MC2X8-E

## Industrial cellular router (3G/4G/5G) + WiFi 6 (802.11ax)

### Description:

The MC2X8-E connects components that communicate via Ethernet LAN or serial interfaces to other networks via WLAN or 5G (LTE).

The typical usage area for the MC2X8-E is machine-to-machine communication, locally over WLAN as well as remotely connected over mobile networks (5G).

### Properties:

#### Hardware:

- Processor: iMX8 (NXP)
- Memory: 512MByte DDR4-RAM and 4GB Flash
- WiFi: 802.11ax for 2.4 + 5 GHz WiFi 6
- Cellular: 5G/4G/3G multi-mode
- Navigation: Multi-constellation GNSS
- Ethernet: 2 x Gigabit LAN interface
- Serial: 1 x RS232 or RS485 serial interface
- USB: 1 x USB2 Port also for interface extensions
- IO: 1 x relay switch (dependent on power connector)  
1 x aux input (dependent on power connector)
- Power supply: 10-60V or 802.3af PoE via LAN Port 1
- Housing: Robust aluminum housing with various mounting options

#### Functions:

- Configuration via website, REST-API or by using the MC-Config program.
- Different bridge modes to connect the LAN clients.
  - NAT
  - Single Client NAT
  - Single Client Cloning
  - Level 2 Bridge
  - MWLC Mode
  - VPN (openVPN, Wireguard or IPSec )
- WEP, 802.11i WPA-WPA2-WPA3-AES-TKIP-PSK
- WPA Enterprise 802.1x PEAP LEAP TLS TTLS
- Certificate management for authentication via 802.1x
- SCEP (Simple Certificate Enrollment Protocol)
- MQTT-Client
- Connects worldwide to 3G, 4G or 5G networks
- Precedence selection to prefer LAN over LTE and vice versa
- Serial-Client via TCP or UDP



### Device Options:

#### Mounting:

- 1) side mounting brackets (MC2X8-E-SL...)
- 2) DIN rail mounting clip (MC2X8-E-SC...)

#### Power supply connection:

- 1) 5 pol. M12 connector (MC2X8-E-Sx-M12)
  - always with relay
- 2) 8pol terminal block (MC2X8-E-Sx-WK8)
  - always with relay and auxiliary input

#### Antenna connector WLAN:

- 1) 2 x RP-SMA

#### Antenna connector 5G:

- 1) 4 x LTE antenna SMA

#### Serial Interface:

- 1) 1 x RS232 (Standard)
- 2) 1 x RS485
- 3) 1 x RS422

**Technical data:**

<b>Specification:</b>	
Ethernet	2 x 10/100/1000 MBit Auto MDI/MDIX
Serial	1 x RS232, 300-460,8 KBit/s, RTS, CTS, DSR, DTR or RS485
USB	1 x USB 2.0 to connect printers or USB adapter with various other interfaces
Relay	1 x change-over switch max 1A@24V, max 125VAC
AUX-Input	1 x galv. isolated 10 – 60V
Antenna connectors	2 x RPSMA (WiFi) 4 x SMA (5G)
Sim card slot	1 x Standard/Mini-SIM slot
Power supply	12 – 60 VDC or 802.3af PoE via the LAN Port
Energy consumption	max 15W (4.5W idle)
Operating temperature range	0-60°C
Dimensions	105x125x35mm
Weight	ca. 500g

<b>WLAN-Interface:</b>	
Technologies	802.11 ax WLAN (2.4 + 5 + 6GHz Band) IEEE 802.11-Standards: a/b/g/n/ac/ax Features: OFDMA, 1024QAM, MU-MIMO, TPC/DFS, TWT Frequency: 2,4 GHz, 5 GHz, 6GHz
Antennas:	2 Antennas (2T2R MIMO)
Encoding	WEP (64,128bit) + TKIP/AES
Security	802.11i WPA(2+3) – PSK 802.1x EAP-PEAP, -TLS, -TTLS, -LEAP
Fast Roaming	802.11r + 802.11k
Channels	2,4GHz ETSI 1-13, USA/Canada 1-11 5.0GHz ETSI + USA/Canada 24 (36 – 165) (U-NII-1 + UNII-2A + U-NII-2C+U-NII-3) 6.0GHz 5.945 - 6.425 MHz (EU)

<b>5G-Interface:</b>																			
Module:	Quectel RM520N-GL																		
Technologies / Bands	<table border="1"> <tr> <td rowspan="2">5G NR</td> <td>NSA</td> <td>n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79</td> </tr> <tr> <td>SA</td> <td>n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79</td> </tr> <tr> <td rowspan="3">LTE</td> <td>LTE-FDD</td> <td>B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71</td> </tr> <tr> <td>LTE-TDD</td> <td>B34/B38/B39/B40/B41/B42/B43/B48</td> </tr> <tr> <td>LAA</td> <td>B46 (only support 2 × 2 MIMO)</td> </tr> <tr> <td>UMTS</td> <td>WCDMA</td> <td>B1/B2/B4/B5/B8/B19</td> </tr> <tr> <td>GNSS</td> <td></td> <td>GPS/GLONASS/BeiDou (Compass)/Galileo</td> </tr> </table>	5G NR	NSA	n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79	SA	n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79	LTE	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71	LTE-TDD	B34/B38/B39/B40/B41/B42/B43/B48	LAA	B46 (only support 2 × 2 MIMO)	UMTS	WCDMA	B1/B2/B4/B5/B8/B19	GNSS		GPS/GLONASS/BeiDou (Compass)/Galileo
	5G NR		NSA	n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79															
		SA	n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/n26/n28/n29/n30/n38/n40/n41/n48/n66/n71/n75/n76/n77/n78/n79																
	LTE	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71																
		LTE-TDD	B34/B38/B39/B40/B41/B42/B43/B48																
		LAA	B46 (only support 2 × 2 MIMO)																
	UMTS	WCDMA	B1/B2/B4/B5/B8/B19																
GNSS		GPS/GLONASS/BeiDou (Compass)/Galileo																	
Antennas:	Up to 4 Antennas																		
GNSS	GPS, GLONASS, BeiDou, Galileo																		
Data rates (max.)	<table border="1"> <thead> <tr> <th>Mode</th> <th>Data rate</th> </tr> </thead> <tbody> <tr> <td>5G SA Sub-6</td> <td>DL 2.4 Gbps; UL 900 Mbps</td> </tr> <tr> <td>5G NSA Sub-6</td> <td>DL 3.3 Gbps; UL 600 Mbps</td> </tr> <tr> <td>LTE</td> <td>DL 1.6 Gbps; UL 200 Mbps</td> </tr> <tr> <td>WCDMA</td> <td>DL 42 Mbps; UL 5.76 Mbps</td> </tr> </tbody> </table>	Mode	Data rate	5G SA Sub-6	DL 2.4 Gbps; UL 900 Mbps	5G NSA Sub-6	DL 3.3 Gbps; UL 600 Mbps	LTE	DL 1.6 Gbps; UL 200 Mbps	WCDMA	DL 42 Mbps; UL 5.76 Mbps								
	Mode	Data rate																	
	5G SA Sub-6	DL 2.4 Gbps; UL 900 Mbps																	
	5G NSA Sub-6	DL 3.3 Gbps; UL 600 Mbps																	
	LTE	DL 1.6 Gbps; UL 200 Mbps																	
WCDMA	DL 42 Mbps; UL 5.76 Mbps																		

**Order codes:**

	<b>Option</b>	<b>Order code</b>
<b>Housing</b>		
	Housing with mounting brackets	MC2X8-E-SL....
	Housing with DIN-rail-clip	MC2X8-E-SC....
<b>Power supply connection</b>		
	M12 connector	MC2X8-E-Sx-M12....
	8pol. Weidmüller terminal block	MC2X8-E-Sx-WK8....
<b>IO-Option</b>	optional, if not included in connector	
	Relay	MC2X8-E-Sx-.....-REL
	Aux-Input	MC2X8-E-Sx-.....-INP
<b>Serial</b>	Standard: 1 x RS232	MC2X8-E-Sx-....
	1 x RS422	MC2X8-E-Sx-xx-RS422
	1 x RS485	MC2X8-E-Sx-xx-RS485