



## MX200 - Series (Compact)

Processor modules of the MX200 series combine outstanding environmental robustness with very compact dimensions.

Thanks to an integrated power supply unit, which can also provide the I/O module power supply and integrated communication interfaces, complete basic system can be implemented on only 2 module widths. The industrial processors used with scalable clock frequencies offer sufficient CPU performance for small to medium-sized applications.

Machine control, simple motion control, a wide range of communication tasks or condition monitoring can be implemented easily and cost efficiently with this platform. Different programs can be executed virtually in parallel thanks to the real-time multi-tasking. If the CPU performance has to be increased, applications can be transferred easily to more powerful CPU models thanks to the standard programming model.

The generous thermal design and special coating processes enable fan-free use in extreme operating conditions from -30 to +60 °C.

- Industrial Processor at up to 433 MHz
- Priority scheduled Multitasking
- 256 MB RAM
- 512 kB remanent memory (Retain)
- 64 MB internal memory device<sup>1)</sup>
- CompactFlash card slot for removable media
- Front side PC-Card slot
- 2x Ethernet 10/100 Mbit/s
- 1x RS232, 1x RS232/RS422/RS485, 1x USB 2.0
- CAN/CANopen
- Integrated power supply for I/Os

| Item     | Device | Item No.    |
|----------|--------|-------------|
| MX207    |        | 00031492-00 |
| MX213    |        | 00031491-00 |
| MX213 CC |        | 00031494-00 |
| MX213    | CF 2GB | 00031491-02 |
| MX213 CC | CF 2GB | 00031494-02 |
| MX213    | CF 4GB | 00031491-03 |
| MX213 CC | CF 4GB | 00031494-03 |
| MX220    |        | 00031490-00 |
| MX220 CC |        | 00031493-00 |
| MX220    | CF 2GB | 00031490-02 |
| MX220 CC | CF 2GB | 00031493-02 |
| MX220    | CF 4GB | 00031490-03 |
| MX220 CC | CF 4GB | 00031493-03 |

|                                   | MX207   | MX213  | MX220   |
|-----------------------------------|---|--|---------|
| <b>Processor</b>                  |   |  |         |
| Architecture                      | x86 / AMD LX  |  |         |
| CPU                               | Industrial Low Voltage  |  |         |
| Clock frequency                   | 266 MHz   | 266 MHz  | 433 MHz |
| Processor Cores                   | 1   |  |         |
| Hyper-Threading                   | -   |  |         |
| Multitasking                      | Yes   |  |         |
| Realtime-SMP / Core reservation   | -   |  |         |
| <b>Memory</b>                     |   |  |         |
| Main memory / partitions          | 256 MB / Yes  |  |         |
| Ramdisk                           | Yes   |  |         |
| Retentive memory (Retain)         | 512 kB NVRAM  |  |         |
| Mass storage integrated           | 64 MB <sup>1), 2)</sup>   |  |         |
| Mass storage removable            | -   | Compact Flash <sup>3)</sup> (via side cover)   |         |
|                                   | -   | PC-Card front side (16/32/64 MB) <sup>3)</sup> |         |
| <b>Interfaces</b>                 |   |  |         |
| I/O Subsystem                     | Bachmann M1 Backplane Interface   |  |         |
|                                   | Process Image Controller integrated   |  |         |
|                                   | Cyclic process images and on-event single channel access  |  |         |
|                                   | Synchronisation pulse for I/O & field busses  |  |         |
| Ethernet                          | 1x 10/100 Base-Tx (RJ45)  | 2x 10/100 Base-Tx (RJ45)                       |         |
|                                   | AutoNegotiation, AutoCrossing   |  |         |
| Serial ports / COM                | -   | 1x RS232 (D-SUB-9 m)                           |         |
|                                   | 1x RS232/RS422/RS485 (D-SUB-9 m)  |  |         |
| USB                               | 1x USB 2.0 (type-A f)   |  |         |
| CAN                               | 1x CAN / CANopen / J1939 (D-SUB-9 m) isolated; up to 1Mbit/s  |  |         |
| Operating Modes                   | CAN Master, CAN IO Device   |  |         |
| <b>Indication &amp; Operation</b> |   |  |         |
| Status indications                | 3x LED für CPU status (RUN / INIT / ERR)  |  |         |
|                                   | 2x LED for status and link speed per ETH port   |  |         |
| Operating elements                | 2x 16-position rotary switch (Hex-switch)<br>for operation mode, programming, boot mode, address setting etc. |  |         |
| <b>Programming</b>                |   |  |         |
| Generic build target              | Yes, across all model families  |  |         |
| Languages                         | IEC 61131-3, C/C++, MATLAB®/Simulink® <sup>4)</sup>   |  |         |
| Functional modules                | Yes (MotionControl, Camming, CNC, adaptive temperature control ...) <sup>4)</sup>                             |  |         |
| <b>Monitoring</b>                 |   |  |         |
| Processor temperature             | Yes   |  |         |
| Processor load                    | Yes   |  |         |
| Runtime behaviour                 | Yes, cycle monitoring & watchdog  |  |         |
| Network load                      | Yes   |  |         |
| Memory protection                 | Yes, per partition  |  |         |
| Supply voltage                    | Yes, with interrupt signal  |  |         |
| <b>Subsystems</b>                 |   |  |         |
| Real time clock                   | Yes (rechargeable battery buffered RTC for time/date),<br>sync capability over IEEE 1588, SNTP                |  |         |

|  | MX207   | MX213  | MX220           |
|--|---|--|-----------------|
| <b>Energy Supply</b>                         |   |  |                 |
| Supply voltage                               | 24 VDC (18 to 34 V)   |  |                 |
| Connector terminal for socket                | KZ 51/03 RM 5.08; 3-pol.  |  |                 |
| Polarity reversal protection                 | Yes   |  |                 |
| Isolation of supply                          | Yes   |  |                 |
| Voltage interruptions immunity (IEC 61131-2) | PS2   |  |                 |
| Rated power consumption without I/O          | 8 W<br>(+5 V / 1400 mA,<br>+15 V / 30 mA,<br>-15 V / 30 mA)   | 9,5 W<br>(+5 V / 1700 mA,<br>+15 V / 30 mA,<br>-15V / 30 mA) |                 |
| Rated power consumption with I/O             | 33.6 W  |  |                 |
| Rated power output for I/O                   | 18.25 W   | 16.75 W  |                 |
| Maximum currents for I/O                     | +5 V / 2800 mA; +15 V / 250 mA; -15 V / 200 mA <sup>5)</sup>  |  |                 |
| <b>Electrical Safety</b>                     |   |  |                 |
| Protection class (DIN EN 61140)              | III   |  |                 |
| Protection type (IEC 60529)                  | IP20  |  |                 |
| <b>Environmental Conditions</b>              |   |  |                 |
|  | Standard  |  | ColdClimate (❄) |
| Operating temperature                        | -30 to +60 °C fanless   |  |                 |
| Relative air humidity, operation             | 5 to 95 % without condensation  | 5 to 95 % with condensation                                  |                 |
| Storage temperature                          | -40 to +85 °C   |  |                 |
| Relative air humidity, storage               | 5 to 95 % without condensation  | 5 to 95 % with condensation                                  |                 |
| Maximum operating altitude                   | 2000 m above sea level (with derating up to 4500 m)   |  |                 |
| Pollution degree (IEC 60664-1)               | 2 (without condensation)  | 2  |                 |
| <b>Approvals/Certificates</b>                |   |  |                 |
| Product safety                               | CE, cULus, CCC  |  |                 |
| Maritime                                     | DNV, LR, ABS, BV, NK, KR, RINA  |  |                 |
| <b>Dimensions</b>                            |   |  |                 |
| Number of slots / module units               | 2   |  |                 |
| Width x Height x Depth                       | 110 x 119 x 61 mm   |  |                 |
| Weight / Mass                                | Approx. 660 g   | Approx. 675 g  |                 |
| <b>System Requirements</b>                   |   |  |                 |
| Backplane                                    | BS2xx, BS2xx/S, BS2xx/E   |  |                 |
| Software                                     | Minimum version MxCCore V3.80 (M-Base V3.80) from M-Base V3.80; recommended <sup>6)</sup> MxCCore V4.30 |  |                 |

1) Hardware revision ≤KR15x.000: 16 MB internal memory device on MX213 and MX220

2) By default 13 MB used for system software at shipping

3) Memory card not included if not mentioned explicitly in order text

4) May include additional costs

5) Total power max. according to "Rated power output for I/O"

6) Access to the 64 MB internal memory device is significantly slower with older versions than M-Base V4.30  
For details on shock and vibration robustness, EMC robustness and interference see User manual M-BASE

If not stated differently provided technical data is valid for ≥KR180.000

| Order Codes     |             |   |
|-----------------|-------------|---|
| Item            | Item No.    | Description   |
| MX207           | 00031492-00 | CPU module MX207 (266MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 1x Eth100; 1x CAN/CANopen; 1xRS232/422/485; 1xUSB2.0; I/O-supply 18W                                |
| MX213           | 00031491-00 | CPU module MX213 (266MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1xRS232; 1xRS232/422/485; 1xUSB2.0; I/O-supply 17W; CF-Slot              |
| MX213 CC        | 00031494-00 | Like MX213; ColdClimate (❄)   |
| MX213/CF 2GB    | 00031491-02 | CPU module MX213 (266MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1xRS232; 1xRS232/422/485; 1xUSB2.0; I/O-supply 17W; CF-Slot, 2GB CF-Card |
| MX213/CF 2GB CC | 00031494-02 | Like MX213/CF 2GB; ColdClimate (❄)  |
| MX213/CF 4GB    | 00031491-03 | CPU module MX213 (266MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 2x Eth100; 1xRS232; 1x CAN/CANopen; 1xRS232/422/485; 1xUSB2.0; I/O-supply 17W; CF-Slot, 4GB CF-Card |
| MX213/CF 4GB CC | 00031494-03 | Like MX213/CF 4GB; ColdClimate (❄)  |
| MX220           | 00031490-00 | CPU module MX220 (433MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1xRS232; 1xRS232/422/485; 1xUSB2.0; I/O-supply 17W; CF-Slot              |
| MX220 CC        | 00031493-00 | Like MX220; ColdClimate (❄)   |
| MX220/CF 2GB    | 00031490-02 | CPU module MX220 (433MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 2x Eth100; 1xRS232; 1x CAN/CANopen; 1xRS232/422/485; 1xUSB2.0; I/O-supply 17W; CF-Slot, 2GB CF-Card |
| MX220/CF 2GB CC | 00031493-02 | Like MX220/CF 2GB; ColdClimate (❄)  |
| MX220/CF 4GB    | 00031490-03 | CPU module MX220 (433MHz) SingleCore; 256MB DRAM; 512kB nvRAM; 64MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1xRS232; 1xRS232/422/485; 1xUSB2.0; I/O-supply 17W; CF-Slot, 4GB CF-Card |
| MX220/CF 4GB CC | 00031493-03 | Like MX220/CF 4GB; ColdClimate (❄)  |
| Accessories     |             |   |
| KZ 51/03 B      | 00012052-00 | Supply connector: Terminal 03-pins pitch 5.08; cage clamp terminal with labeling strips   |
| CF200/2GB       | 00013163-00 | Compact Flash Card 2 GB UDMA  |
| CF200/4GB       | 00016586-00 | Compact Flash Card 4 GB UDMA  |
| CF200/8GB       | 00016587-00 | Compact Flash Card 8 GB UDMA  |
| K-CAN/xm        |             | Cabel CAN with x m length (x = any below 30 m)<br>male <> female, no terminating resistor   |
| K-CAN/0,5m      | 00008684-03 | Cable CAN with 0.5 m length   |
| K-CAN/1,0m      | 00008684-08 | Cable CAN with 1.0 m length   |
| K-CAN/2,0m      | 00008684-04 | Cable CAN with 2.0 m length   |
| K-CAN/5,0m      | 00008684-06 | Cable CAN with 5.0 m length   |
| S-CAN/1B        | 00009383-00 | Connector CAN-terminator, 37 mm high, 120 Ω, female   |