

GSM-1000-BMX HMI, Server, Gateway with controls function

General description

Vector GSM-1000-BMX is a programmable HMI-Server which supports up to 1000 software objects.

The GSM-1000-BMX can be used to control a wide range of HVAC applications or as a server, router or gateway to integrate external devices via BACnet/IP, BACnet Ethernet, BACnet MS/TP and Modbus Serial.

Meanwhile it also provides advanced functionality such as supervision, data logging, alarming, scheduling and network management functions with internet connectivity and web-serving capabilities.



Application / Operational area

The Vector GSM-1000-BMX is designed as a high power server for connection to Ethernet bus systems. The device is designed for control and regulation of building services. Via the integrated Ethernet bus system, the integration in modern buildings is used efficiently in central as well as in decentralized information focuses. Across the broad range of connectable Vector communicating devices, the scalable controllers can be extended at any time concerning the individual project requirements. About the free programmability a maximum of flexibility and comfort is guaranteed. As a result, the projects are ideally suited to the particular requirements both in the modernization of existing installations as well as for implementing current and future automation projects.

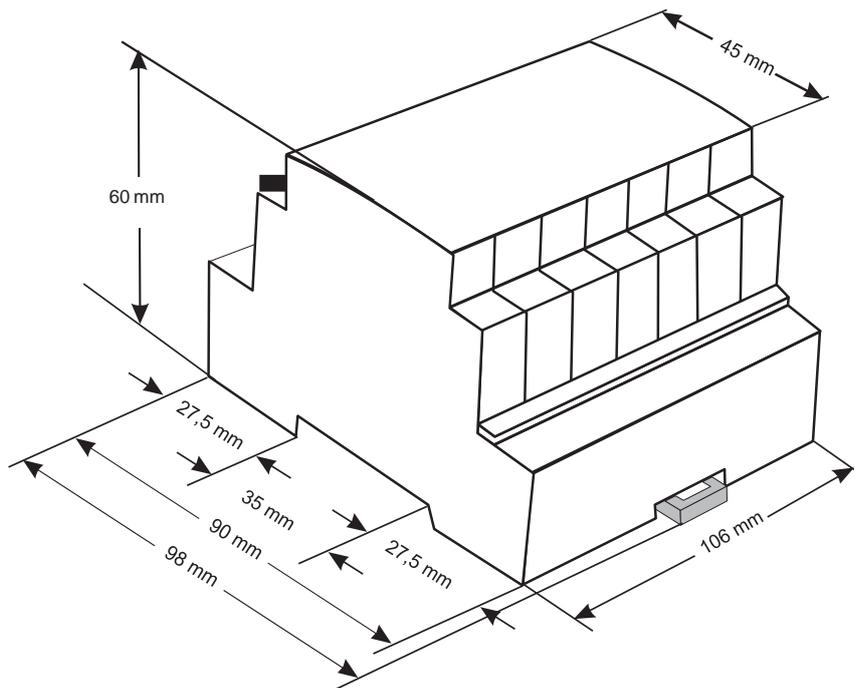
BACnet®

The GSM-1000-BMX is a Native BACnet device. It supports the BACnet protocol acc. to the ANSI/ASHRAE Standard with up to 1000 BACnet objects. This way, the GSM-1000-BMX communicates directly with other BACnet elements via Ethernet. GSM-1000-BMX uses BACnet/IP as hardware layer. It supports the BBMD functionality (BACnet Broadcast Management Device) and the specification B-BC (BACnet Building Controller). GSM-1000-BMX can be used both as BACnet-Client and as BACnet-Server. It supports Data Sharing, Alarm and Event Management, Scheduling, Trending, Device and Network Management.

Ordering

Model	Stock code	Description
GSM-1000-BMX	40-12 0002	Support BACnet MS/TP, BACnet IP and Modbus Serial protocols
FXL with Dongle	40-12 0003	Optional software development kit with dongle key

Dimensions



GSM-1000-BMX Protocol Implementation Conformance Statement (PICS)

Vendor Name: Vector Controls

Product Name: GSM-1000-BMX

Product description:

GSM-1000-BMX Native BACnet Controllers are freely programmable building automation controllers.

BACnet Standardized Device Profile (Annex L)

BACnet Building Controller (B-BC)

Supported BACnet® Interoperability Blocks (BIBB)

Data sharing

BIBB	Type	Name
DS-RP-A	Data sharing	ReadProperty-A
DS-RP-B	Data sharing	ReadProperty-B
DS-RPM-A	Data sharing	ReadPropertyMultiple-A
DS-RPM-B	Data sharing	ReadPropertyMultiple-B
DS-WP-A	Data sharing	WriteProperty-A
DS-WP-B	Data sharing	WriteProperty-B
DS-WPM-B	Data sharing	WritePropertyMultiple-B
DS-COV-A	Data sharing	COV-A
DS-COV-B	Data sharing	COV-B
DS-COVP-B	Data sharing	COVP-B
DS-COVU-A	Data sharing	COV-Unsolicited-A
DS-COVU-B	Data sharing	COV-Unsolicited-B

Alarm and Event

BIBB	Type	Name
AE-N-I-B	Alarm and Event	Notification Internal-B
AE-N-E-8	Alarm and Event	Alarm and Event-Notification External-B
AE-ACK-B	Alarm and Event	Alarm and Event-ACK-B
AE-ASUM-B	Alarm and Event	Alarm and Event-Alarm Summary-B
AE-ESUM-B	Alarm and Event	Alarm and Event EnrollmentSummary-B
AE-INFO-B	Alarm and Event	Alarm and Event-Information-B

Scheduling

BIBB	Type	Name
SCHED-I-B	Scheduling	Internal-B
SCHED-E-B	Scheduling	External-B

Trending

BIBB	Type	Name
T-VMT-I-B	Trending	Viewing and Modifying Trends Internal-B
T-VMT-E-B	Trending	Viewing and Modifying Trends External-B
T-ATR-B	Trending	Automated Trend Retrieval-B

Device Management

BIBB	Type	Name
DM-DDB-A	Device Management	Dynamic Device Binding-A
DM-DDB-B	Device Management	Dynamic Device Binding-B
DM-DOB-B	Device Management	Dynamic Object Binding-S
DM-DCC-B	Device Management	DeviceCommunicationControl-B
DM-PT-A	Device Management	Private Transfer-A
DM-PT-B	Device Management	Private Transfer-S
DM-TS-A	Device Management	TimeSynchronization-A
DM-TS-B	Device Management	TimeSynchronization-B
DM-UTC-A	Device Management	UTCTimeSynchronization-A
DM-UTC-B	Device Management	UTCTimeSynchronization-B
DM-ATS-A	Device Management	AutomaticTimeSynchronization-A
DM-RD-B	Device Management	ReinitializeDevice-B
DM-BR-B	Device Management	Backup and Restore-B
DM-R-B	Device Management	Restart-B
DM-LM-B	Device Management	List Manipulation-B
DM-OCD-B	Device Management	Object Creation and Deletion-B

Network Management

BIBB	Type	Name
DM-DDB-A	Network Management	Connection Establishment-A
DM-DDB-B	Network Management	Connection Establishment-B
DM-DOB-B	Network Management	Router Configuration-A
DM-DCC-B	Network Management	Router Configuration-B

Segmentation Capability

Segmented requests supported Window Size: 5
 Segmented responses supported Window Size: 5

Supported standard Object types

Object type	Dynamically creatable/deletable
Device	
Analog input	
Analog output	
Analog value	
Binary input	
Binary output	
Binary value	
Multi-state input	
Multi-state output	
Multi-state Value	
Calendar	Yes
Command	
Event Enrolment	Yes
File	Yes
Loop	
Notification class	Yes
Program	
Schedule	Yes
Trend log	Yes
Accumulator	
Pulse Convertor	

Data Link Layer Options:

- BACnet IP, (Annex J), Foreign Device
- MS/TP master (Clause 9), baud rate(s): 2400, 4800, 9600, 19200, 38400, 57600, 76800, 115200, 153600, 230400, 307200, 460800, 500000, 614400, 1152000
- Point-To-Point, EIA 232 (Clause 10), baud rate(s): 9600, 19200, 38400, 57600, 115200
- Point-To-Point, modem, (Clause 10), baud rate(s): 9600, 19200, 38400, 57600, 115200

Device Address Binding:

Is static device binding supported? (This is currently necessary for two-way communication with MS/TP slaves and certain other devices.) Yes No

Networking Options:

- Router (Clause 6) between BACnet/IP network, MS/TP networks and PTP networks
 - Annex H, BACnet Tunneling Router over IP
 - BACnet/IP Broadcast Management Device (BBMD)
- Does the BBMD support registrations by Foreign Devices? Yes No

Character Sets Supported:

Indicating support for multiple character sets does not imply that they can all be supported simultaneously.

- ANSI X3.4
- UTF-8

Technical specifications

Power supply	Power requirements	U (typ.) = 24 V DC (19...30 V DC) I (typ.) = approx. 160 mA
	Power consumption	Max. 4 VA
	Max. back-up fuse	1.75 A
Microprocessor and memory	CPU	PowerPC, 220 MHz
	RAM memory	128 MB
	NV-RAM Battery buffered	2 MB
	Flash memory	2 GB microSD card
	Clock	battery buffered real time clock
	Watchdog	Hardware-Watchdog
Interfaces	Fast ethernet	2 x 10/100 BaseT (RJ45) with LED display
	RS232	1 x RS232, connection via RJ45 with LED display
	RS485	1 x RS485, galvanically decoupled with LED display Removable spring terminals Nominal wire 1.5 mm ²
	USB	1 x USB 2.0
Ratings	CSA	
	FCC	Part 15 class A
	CE	
	BACnet	BTL, AMEV, WSPcert
Enclosure	Dimensions (W x D x H)	106 mm x 60 mm x 90 (98) mm
	Material	Plastic
	Mounting	On Standard mounting rail 35 mm
	Protection class	IP 20
	Cooling	No fan; by convection
	Temperature range	0...50°C
	Connection	Removable spring terminals Nominal wire 1.5 mm ²
	Mounting position	Optional



Safety guidelines

Handling with this equipment may take place only through trained personnel, who is entitled to implement work on electrical system. The devices may not be used in connection with devices which serve directly or indirectly human health or life-securing purposes or which can arise danger for humans, animals or material assets.

The device must be set out of service, if a safe operation (e.g. visible damages) is no longer possible. With an interference into the equipment the warranty claim expires!

Electrical connection

The devices are appropriate for the operation at low voltage. During the electrical connection of the devices, the technical data of the devices are valid.

The devices must be operated during a constant operating voltage. Current/voltage peaks when switching on/off of the supply voltage must be avoided on site. Only "class 2" power supplies are allowed.

The supply- and signal lines must be connected and laid according the current state of the art. In particular possible interference couplings have to be avoided by parallel running foreign lines with the transfer of sensor lines.

The following warning notice is attached to the product as a sticker. When installing the product, the sticker has to be attached in close proximity to the product.

	To avoid electrical shock, the power supply of this device must come from certified class 2 power source.
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Mounting advices

The assembly is to be implemented after installation standards by trained personnel. The assembly of the devices takes place on standard (norm) DIN rail 35 mm in cabinets.

When defining the assembly place it should be noted that the borders of the operating temperatures are not exceeded.

For the assembly in intermediate ceilings suitable housings have to be planned. If necessary, inspection openings have to be planned.

When assembling it is important to be certain, that the open parts of the device are free from pollution - in particular the device can be destroyed by penetration of metal chips.

Note:

By using screw terminals the maximum torque of the screw terminals may not exceed 0.4 Nm. The exceeding of the max. torque can lead to the destruction of the terminal. Thus the electrical contact at the terminal cannot be ensured no more.

Software

The device is delivered without a loaded program. A suitable program for the purpose must be loaded by trained personnel.

Commissioning

A condition for commissioning is the normal installation of all electrical supply-, switch- and measuring- lines. Before switching on the operating voltage the correct connection has to be assured. During commissioning, all sensors which are connected to the system must be adapted by manual adjustment to the local conditions.

Service / Maintenance

The GSM-1000-BMX is maintenance-free.

Set parameters are filed in flash memory and are saved during power blackout.

The used battery in the GSM-1000-BMX serves to maintain the system time. The battery has to be replaced in regular intervals. Only with regular exchange a faultless operation of the control system is guaranteed.

The battery life is max. 4 years, if the GSM-1000-BMX is stored at room temperature. We recommend to replace the battery every 3 years.

Battery replacement must be executed by qualified personnel.

Disposal of batteries

Old batteries may not be disposed in the household waste. Enter the batteries for disposal at an appropriate waste collection point. Do NOT burn batteries or place them in the normal trash. They could explode or burst explosively. Please store the batteries which have to be disposed carefully to avoid short-circuits, compression or destruction of the battery case. For disposal, local and state regulations must be observed.

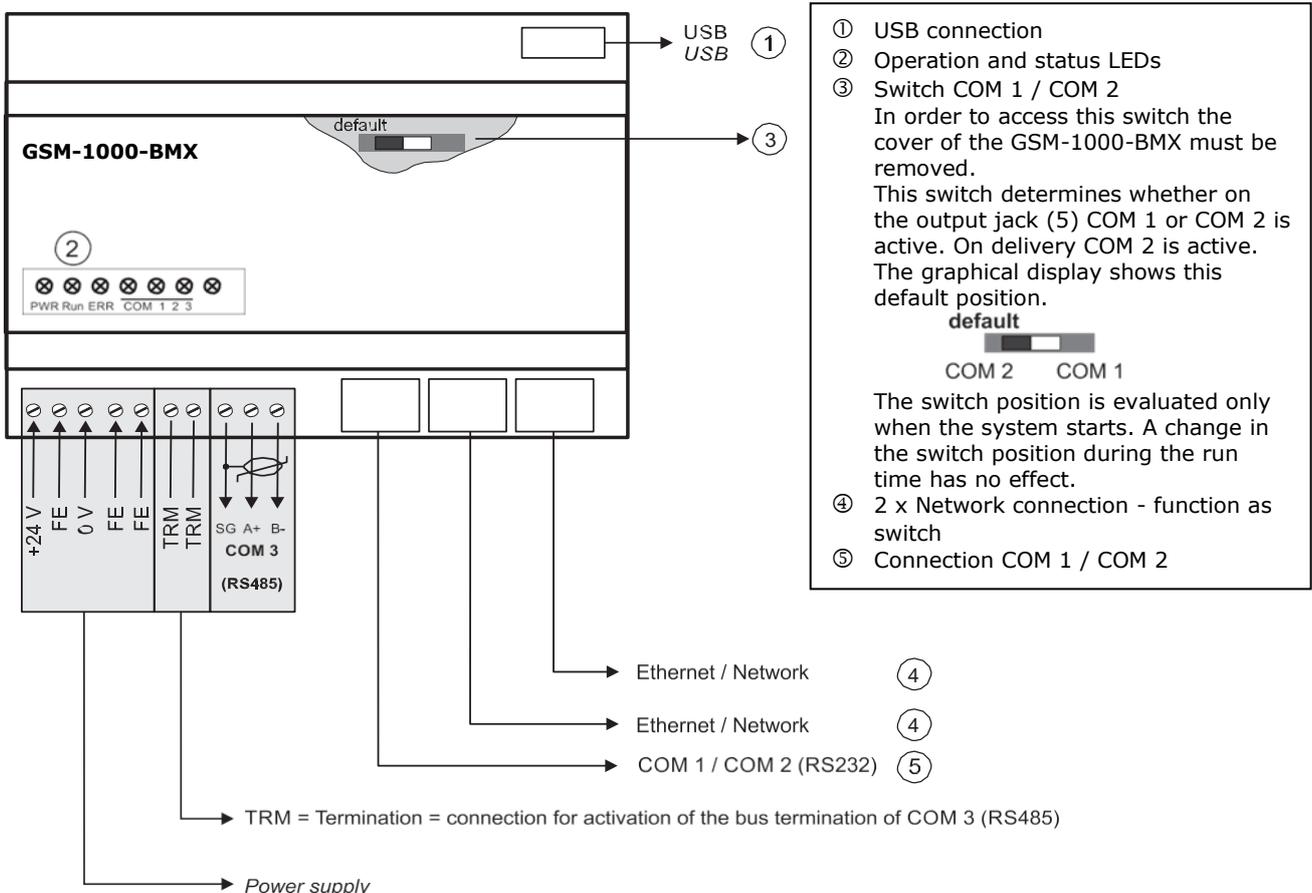
Connection options

The GSM-1000-BMX is appropriate for the application in the building technology environment.

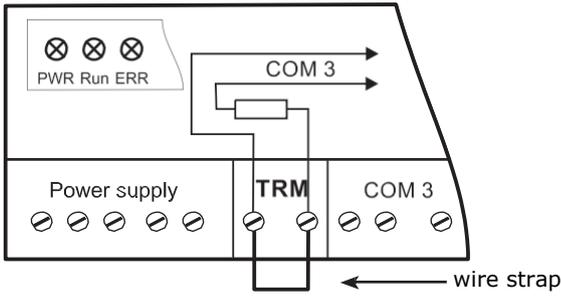
With its extensive features of standard communication interfaces and protocols, the GSM-1000-BMX is also able to link a large variety of external devices besides Vector's.

Available as interfaces are the serial interfaces (RS232 and RS485), as well as connections for the Ethernet network.

Terminal configuration / Display and control elements



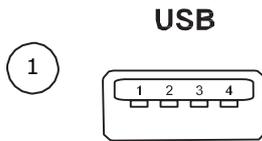
Termination COM 3 (RS 485)



Bus termination for COM 3 (RS 485)

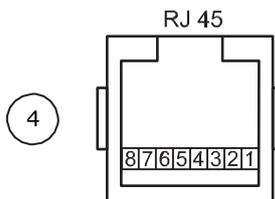
	Function
wire strap connected	Bus-terminating resistor on
without wire strap	Bus-terminating resistor off

USB serial interface



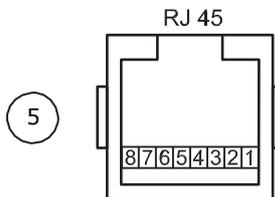
Plug Pin	Function
1	+5 V DC
2	Data -
3	Data +
4	Ground

Network (LAN)



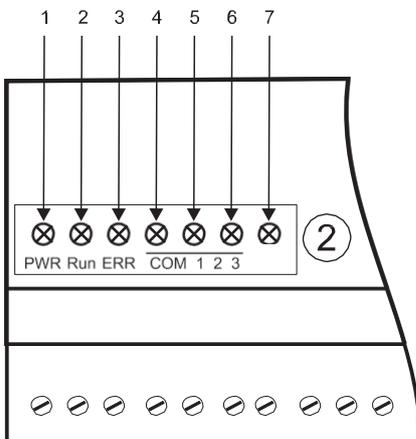
Network (LAN) Plug Pin	Function
1	Tx +
2	Tx -
3	Rx +
4	-
5	-
6	Rx -
7	-
8	-

Serial interfaces COM 1 / COM 2



Serial interfaces COM 1 / COM 2 Plug Pin	Function
1	secondary RxD (input)
2	CTS (input)
3	RxD (input)
4	-
5	GND (ground)
6	TxD (output)
7	RTS (output)
8	secondary TxD (output)

Operating and status LEDs



Operating – and status LEDs

LED	Name	Function
1	PWR	If the GSM-1000-BMX is connected to the power supply, the LED lights green
2	Run	The RUN-LED begins to flash green, just before the system of the GSM-1000-BMX started. During operation, the LED is still flashing green
3	ERR	This LED lights red during the startup and restart process
4	COM 1	The LED flashes green when data are transmitted via the serial interface COM 1
5	COM 2	The LED flashes green when data are transmitted via the serial interface COM 2
6	COM 3	The LED flashes green when data are transmitted via the serial interface COM 3
7	-	Not used

After switching on the power supply, all LEDs will light up for a few seconds.