MLC 9000+ Basic Bus Module

The Basic Bus Module is part of the MLC 9000+ DIN-Rail mounting multiple loop PID control system. The Basic Bus Module is the supervisor in the MLC 9000+ system and can communicate with up to 8 single or multiple Loop Modules. The Basic Bus Module is for standalone systems that require no supervision by a master device as no fieldbus connection is provided.

- **Dedicated Configuration port**
- **Direct DIN Rail Mounting**

- **Software Configurable**
- **Fully Isolated from any other system**

Technical Data

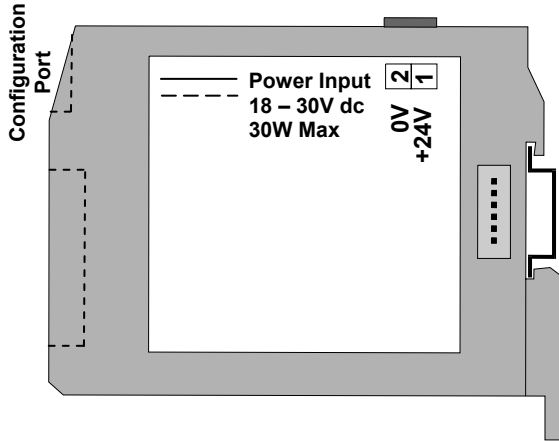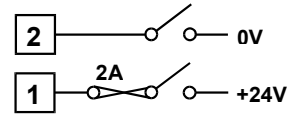| Configuration Port	
Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type
Physical	
Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg
Operating & Environmental	
Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1

Connection Details

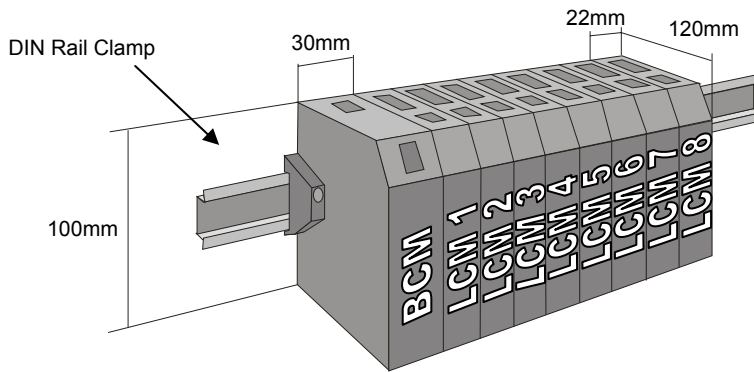Configuration Port

Power Input
18 – 30V dc
30W Max

2
1

0V
+24V

Power Connections

| 2 | 0V |
| 1 | 2A | +24V |

System Dimensions

DIN Rail Clamp

30mm

22mm

120mm

100mm

BCM
LCM 1
LCM 2
LCM 3
LCM 4
LCM 5
LCM 6
LCM 7
LCM 8

Configuration Port

Pin No.	Signal / Function
1	Receive Data
2	Transmit Data
3	No connection
4	Signal Ground

1
2
3
4
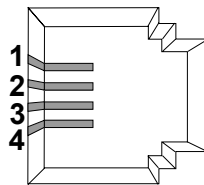
RJ11 Connector

Order Code

MLC 9000-BM210-NF   Bus Module with Configuration Port only

In accordance with our policy of continuous improvement, we reserve the right to change specifications from those shown in this document.

MLC 9000+ Basic Bus Module– 05/04

MLC 9000+ MODBUS RTU Bus Module

The MODBUS Bus Module is part of the MLC 9000+ DIN-Rail mounted multiple loop PID control system. The Bus Module is the supervisor in the MLC 9000+ system and manages the communication with up to 8 single or multiple Loop Modules and the MODBUS RTU network. Systems larger than 32 loops can be built using multiple Bus Modules, within the limitations of your MODBUS RTU system.

- **MODBUS RTU port**
- **Configurable data rate**
- **DIN Rail Mounting**

- **Software Configurable**
- **Configuration port**
- **Configurable Data Assemblies**

Technical Data

MODBUS Port

Protocol	MODBUS RTU (Slave Device)
Function	Connection of the MLC 9000+ system to a MODBUS RTU Master Device
Configuration	Data Rates 2.4kbps, 4.8kbps, 9.6kbps and 19.2kbps
	Address 0 – 257 (Default = 96). Configured using the MLC9000+ Configuration software, via the dedicated configuration port
Messaging Supported	MODBUS RTU Function codes 01, 02, 03, 04, 05, 06, 08, 0x0F, 0x10 and 0x17
Connector	3-way 5.08mm combicon type
Diagnostics	Two Colour LED, indicating On/Off-line, Self Test, Bus Fault and Communication Status

Configuration Port

Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type

Physical

Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg

Operating & Environmental

Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1, awaiting approval from MODBUS Organisation

Connection Details

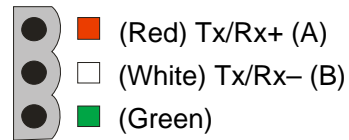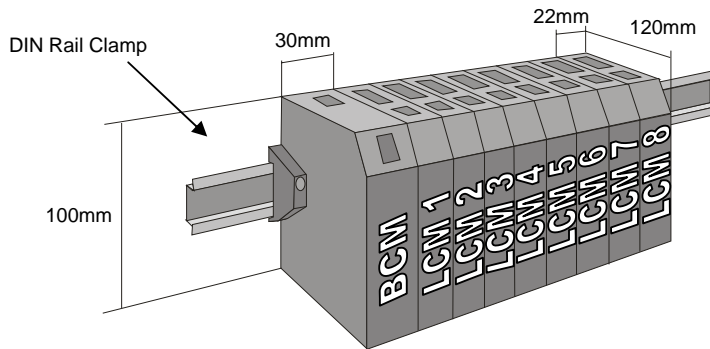Configuration Port

Field Bus Port

Power Input
18 – 30V dc
30W Max

0V   +24V

Power Connections

| 2 | ⚬—⚬ 0V |
| 1 | 2A ⚬—⚬ +24V |

System Dimensions

DIN Rail Clamp

30mm   22mm   120mm

100mm

BCM LCM 1 LCM 2 LCM 3 LCM 4 LCM 5 LCM 6 LCM 7 LCM 8

MODBUS Connections

⬤ 🟥 (Red) Tx/Rx+ (A)
⬤ ⬜ (White) Tx/Rx– (B)
⬤ 🟩 (Green)

Data Assemblies

Using the MLC 9000+ configuration software the user can define a collection of parameters for communication via MODBUS RTU. This allows the user to fully customise the communication interface to the MLC 9000+ system. The user drags and drops the required parameters into the data assemblies allowing the MODBUS master to gather several parameters in a single message.

Order Code

MLC 9000-BM220-MB   Bus Module with MODBUS RTU & Configuration Port

In accordance with our policy of continuous improvement, we reserve the right to change specifications from those shown in this document.

MLC 9000+ DeviceNet Bus Module

The DeviceNet Bus Module is part of the MLC 9000+ DIN-Rail mounted multiple loop PID control system. The Bus Module is the supervisor in the MLC 9000+ system and manages the communication with up to 8 single or multiple Loop Modules and the DeviceNet network. Systems larger than 32 loops can be built using multiple Bus Modules, within the limitations of your DeviceNet system.

- **DeviceNet port**
- **Supports up-to 500kbps**
- **DIN Rail Mounting**

- **Software Configurable**
- **Configuration port**
- **Configurable Data Area**

Technical Data

DeviceNet Port

Protocol	DeviceNet (Class 2 Slave Device)
Function	Connection of the MLC 9000+ system to a DeviceNet Master Device
Configuration	Data Rate 125kbps, 250kbps or 500kbps. MAC ID 0 – 63 (Defaults 125kbps, ID 63). Configured using the MLC 9000+ Configurator software, via the configuration port
I/O Size	Dependant on Data Assembly Configuration. Maximum 256 bytes (total) of input/output data limited by DeviceNet
Messaging Supported	I/O messages and Explicit messages
EDS File	The EDS file is defined by the MLC 9000+ Configuration software
Connector	5-way 5.08mm combicon type
Diagnostics	Two Colour LED, indicating On/Off-line, Self Test, Bus Fault and Communication Status

Configuration Port

Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type

Physical

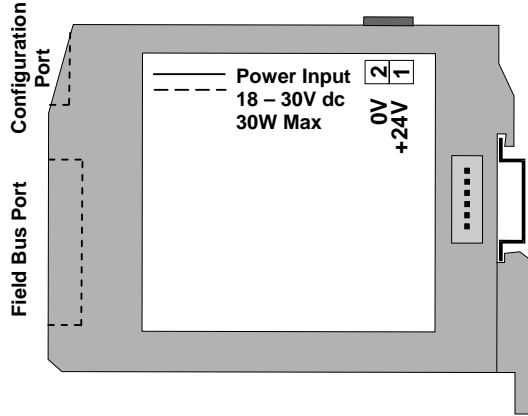|	
Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg

Operating & Environmental
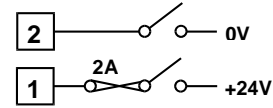
Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1, awaiting approval from ODVA

Connection Details

Power Input
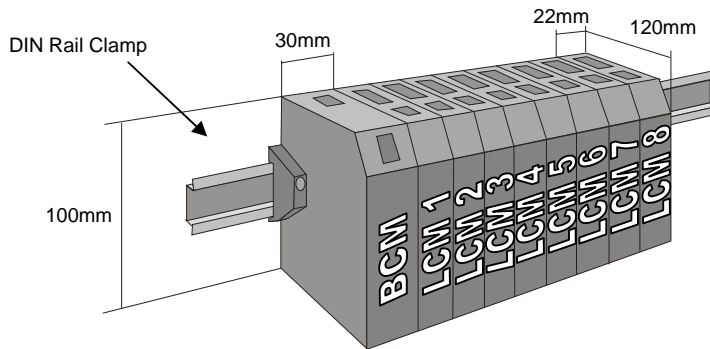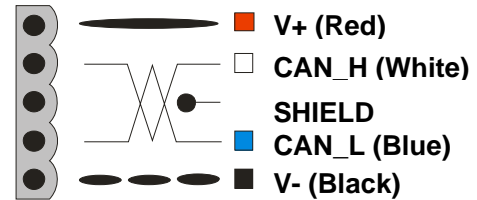18 – 30V dc
30W Max

Power Connections

System Dimensions

DIN Rail Clamp

30mm   22mm   120mm

100mm

BCM LCM 1 LCM 2 LCM 3 LCM 4 LCM 5 LCM 6 LCM 7 LCM 8

DeviceNet Connections

■ V+ (Red)

□ CAN_H (White)

SHIELD

■ CAN_L (Blue)

■ V- (Black)

Data Assemblies

Using the MLC 9000+ configuration software the user can define a collection of parameters (data assembly) for communication via I/O messaging. This allows the user to fully customise the communication interface to the MLC 9000+ system. The user drags and drops the required parameters into the data assembly area an EDS file is then created for use with your DeviceNet master device.

Order Code

MLC 9000-BM230-DN   Bus Module with DeviceNet & Configuration Port

In accordance with our policy of continuous improvement, we reserve the right to change specifications from those shown in this document.

MLC 9000+ CANopen Bus Module

The CANopen Bus Module is part of the MLC 9000+ DIN-Rail mounting PID control system. The Bus Module is the supervisor in the MLC 9000+ system and manages the communication with up to 8 single or multiple Loop Modules and the CANopen network. Systems larger than 32 loops can be built using multiple Bus Modules, within the limitations of your CANopen system.

- **CANopen port**
- **Supports up-to 1024kbps**
- **DIN Rail Mounting**

- **Software Configurable**
- **Configuration port**
- **Configurable Data Assemblies**

Technical Data

CANopen Port

Protocol	CANopen (Slave Device)
Function	Connection of the MLC 9000+ system to a CANopen Master Device
Configuration	Data Rate 125kbps, 250kbps, 500kbps or 1024kbps. Node ID 1 – 127 (Defaults 125kbps, Node ID 1). Configured using the MLC 9000+ Workshop software, via the configuration port
I/O Size	Dependant on Data Assembly Configuration. Maximum 256 bytes (total) of input/output data limited by CANopen
Messaging Supported	Up to 64 Asynchronous PDO's, 1 SSDO
EDS File	The EDS file is defined by the MLC 9000+ Workshop Configuration Software
Connector	5-way 5.08mm combicon type
Diagnostics	Two Colour LED, indicating On/Off-line, Self Test, Bus Fault and Communication Status

Configuration Port

Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Workshop Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type

Physical

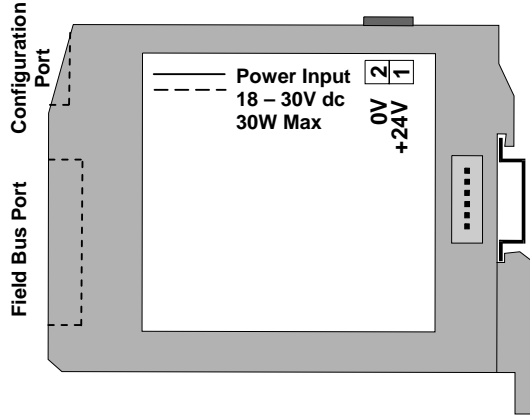|	
Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg

Operating & Environmental

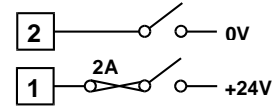|	
Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1, awaiting approval from CiA

Connection Details

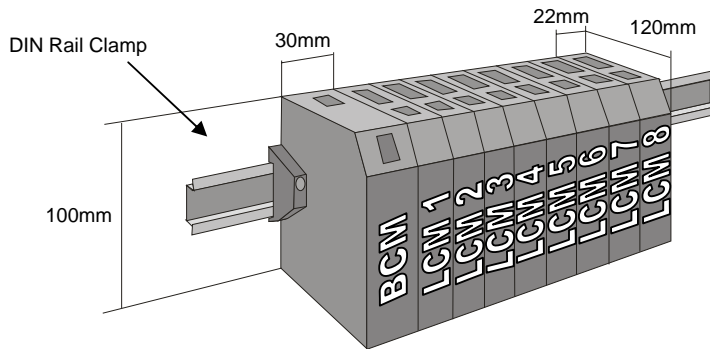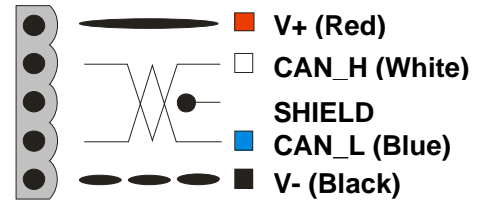Configuration Port

Power Input
18 – 30V dc
30W Max

2 1
0V
+24V

Field Bus Port

Power Connections

2 — 0V

1 — 2A — +24V

System Dimensions

DIN Rail Clamp

30mm

22mm

120mm

100mm

BCM LCM 1 LCM 2 LCM 3 LCM 4 LCM 5 LCM 6 LCM 7 LCM 8

CANopen Connections

■ V+ (Red)
□ CAN_H (White)
SHIELD
■ CAN_L (Blue)
■ V- (Black)

Data Assemblies

Using the MLC 9000+ configuration software the user can define a collection of parameters (data assembly) for communication via Asynchronous PDO messaging. This allows the user to fully customise the communication interface to the MLC 9000+ system. The user drags and drops the required parameters into the data assemblies an EDS file is then created for use with your CANopen master device.

Order Code

MLC 9000-BM230-CO   BCM with CANopen & Configuration Ports

In accordance with our policy of continuous improvement, we reserve the right to change specifications from those shown in this document.

MLC 9000+ PROFIBUS Bus Module

The PROFIBUS Bus Module is part of the MLC 9000+ DIN-Rail mounting multiple loop PID control system. The Bus Module is the supervisor in the MLC 9000+ system and manages the communication with up to 8 single or multiple Loop Modules and the PROFIBUS network. Systems larger than 32 loops can be built using multiple Bus Modules, within the limitations of your PROFIBUS system.

- **PROFIBUS DP port**
- **Auto Detects data rate**
- **DIN Rail Mounting**

- **Software Configurable**
- **Configuration port**
- **Configurable Data Assemblies**

Technical Data

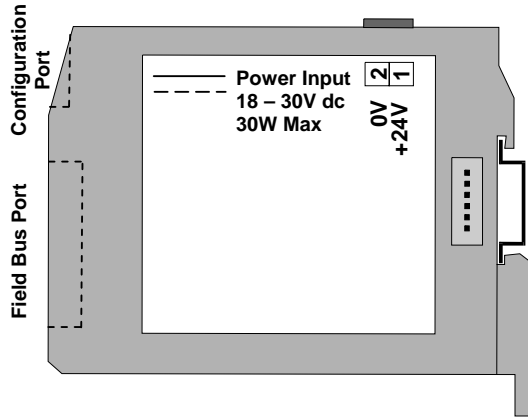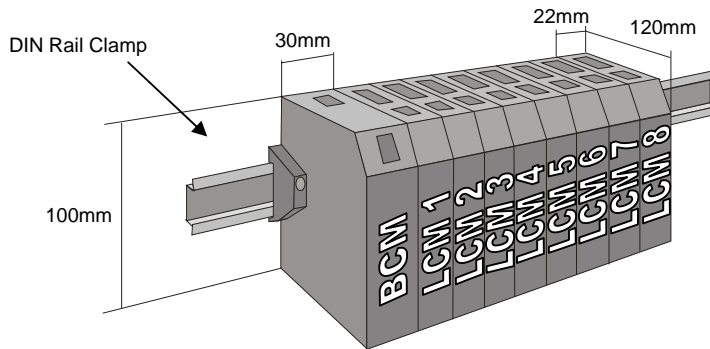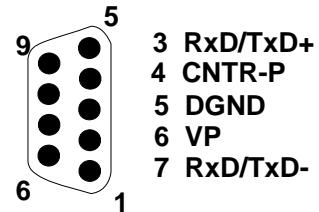| PROFIBUS Port	
Protocol	PROFIBUS DP (Slave Device)
Function	Connection of the MLC 9000+ system to a PROFIBUS DP Master Device
Configuration	Data Rate auto detected by BCM from 9.6kbps, 19.2kbps, 45.4kbps, 93.75kbps, 187.5kbps, 500kbps, 1.5Mbps, 3Mbps, 6Mbps and 12Mbps.
	Profibus Address 0 – 126 (Default = 126). Configured using the MLC9000+ Configurator software, via the configuration port
I/O Size	Dependant on Data Assembly Configuration. Maximum 256 (total) bytes of input/output data limited by PROFIBUS
Messaging Supported	Cyclic and Acyclic messages
GSD/GSE File	The GSD/GSE file is defined by the MLC 9000+ configuration software
Connector	9-way D-Type
Diagnostics	Two Colour LED, indicating On/Off-line, Self Test, Bus Fault and Communication Status
Configuration Port	
Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type
Physical	
Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg
Operating & Environmental	
Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1, awaiting approval from PROFIBUS

Connection Details
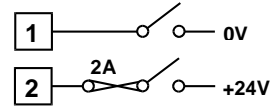
Power Input
18 – 30V dc
30W Max

2 1
0V +24V

Configuration Port

Field Bus Port

Power Connections

1 — 0V

2A
2 — +24V

System Dimensions

DIN Rail Clamp

30mm 22mm 120mm

100mm

BCM LCM 1 LCM 2 LCM 3 LCM 4 LCM 5 LCM 6 LCM 7 LCM 8

Fieldbus Connections

5
9
3 RxD/TxD+
4 CNTR-P
5 DGND
6 VP
7 RxD/TxD-
6
1

Data Assemblies

Using the MLC 9000+ configuration software the user can define a collection of parameters (data assemblies) for communication via cyclic messaging. This allows the user to fully customise the communication interface to the MLC 9000+ system. The user drags and drops the required parameters into the data assemblies area a GSD file is then created for use with your PROFIBUS master device.

Order Code

MLC 9000-BM240-PB   Bus Module with PROFIBUS & Configuration Port

In accordance with our policy of continuous improvement, we reserve the right to change specifications from those shown in this document.

MLC 9000+ PROFIBUS Bus Module – 05/04

DANAHER
INDUSTRIAL CONTROLS

PMA

MLC 9000+ Ethernet/IP Bus Module

The Ethernet/IP Bus Module is part of the MLC 9000+ DIN-Rail mounting multiple loop PID control system. The Bus Module is the supervisor in the MLC 9000+ system and manages the communication with up to 8 single or multiple Loop Modules and the Ethernet/IP network. Systems larger than 32 loops can be built using multiple Bus Modules, within the limitations of your Ethernet/IP system.

- **Ethernet/IP port**
- **10/100BaseT supported**
- **DIN Rail Mounting**
- **Software Configurable**
- **Configuration port**
- **Configurable Data Assemblies**

Technical Data

Ethernet/IP Port

Protocol	Ethernet/IP (Slave Device)
Function	Connection of the MLC 9000+ system to a Ethernet/IP Master Device
Configuration	IP Address and MAC Address. Configured using the MLC9000+ Configurator software, via the configuration port
Messaging Supported	I/O and Explicit messaging
Connector	RJ45 type conforming to CAT5 10/100BaseT
Diagnostics	Two Colour LED, indicating On/Off-line, Self Test, Bus Fault and Communication Status

Configuration Port

Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type

Physical

Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg

Operating & Environmental

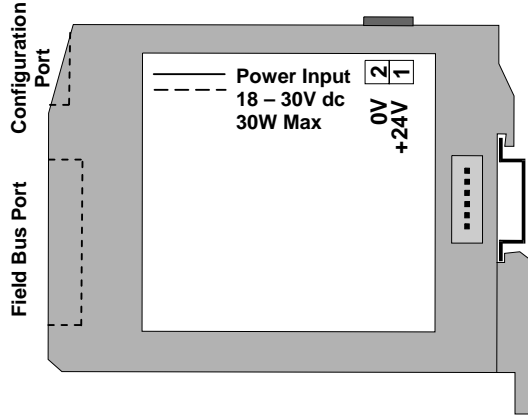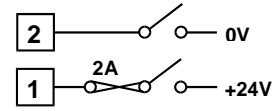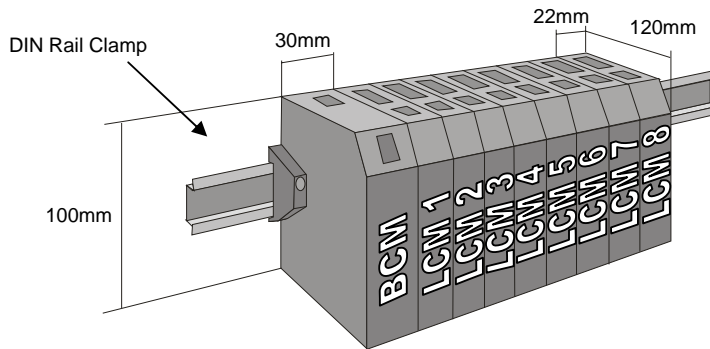|	
Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1, awaiting approval from ODVA

West Instruments	**Tel:** +44 (0) 1273 606271	**e-mail:** info@westinstruments.com
The Hyde Business Park	**Fax:** +44 (0) 1273 609990	**Web:** www.westinstruments.com
Brighton BN2 4JU, UK		

Connection Details

**Power Input
18 – 30V dc
30W Max**

Power Connections

System Dimensions

DIN Rail Clamp

30mm

22mm

120mm

100mm

Ethernet/IP Connections

Pin No.	568A	568B
1	WHITE/green	WHITE/orange
2	GREEN/white	ORANGE/white
3	WHITE/orange	WHITE/green
4	BLUE/white	BLUE/white
5	WHITE/blue	WHITE/blue
6	ORANGE/white	GREEN/white
7	WHITE/brown	WHITE/brown
8	BROWN/white	BROWN/white

Data Assemblies

Using the MLC 9000+ configuration software the user can define a collection of parameters (data assembly) for communication via I/O messaging. This allows the user to fully customise the communication interface to the MLC 9000+ system. The user drags and drops the required parameters into the data assembly area an EDS file is then created for use with your Ethernet/IP master device.

Order Code

MLC 9000-BM250-EI   Bus Module with Ethernet/IP & Configuration Port

In accordance with our policy of continuous improvement, we reserve the right to change specifications from those shown in this document.

MLC 9000+ MODBUS/TCP Bus Module

The MODBUS/TCP Bus Module is part of the MLC 9000+ DIN-Rail mounted multiple loop PID control system. The Bus Module is the supervisor in the MLC 9000+ system and manages the communication with up to 8 single or multiple Loop Modules and the MODBUS/TCP network. Systems larger than 32 loops can be built using multiple Bus Modules, within the limitations of your MODBUS/TCP system.

- **MODBUS/TCP port**
- **10/100BaseT supported**
- **DIN Rail Mounting**

- **Software Configurable**
- **Configuration port**
- **Configurable Data Area**

Technical Data

MODBUS/TCP Port

Protocol	MODBUS/TCP (Slave Device)
Function	Connection of the MLC 9000+ system to a MODBUS/TCP Master Device
Configuration	IP Address, MAC Address and MODBUS port Address 0 – 257 (Default = 96). Configured using the MLC 9000+ Configurator software, via the configuration port
Messaging Supported	Function codes 01, 02, 03, 04, 05, 06, 08, 0Fh, 10h and 17h
Connector	RJ45 type conforming to CAT5 10/100BaseT
Diagnostics	Two Colour LED, indicating On/Off-line, Self Test, Bus Fault and Communication Status

Configuration Port

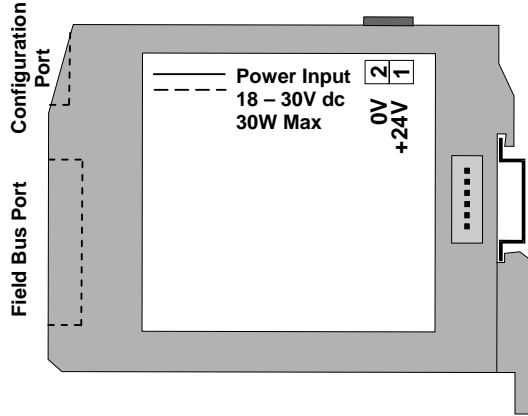|	
Protocol	West PC Configuration protocol only
Function	Communicates with West MLC 9000+ Configuration Software
Diagnostics	Three colour LED, indicating Power Fail, Bus Alarm & Communications Status
Connector	6-way RJ11 Type

Physical

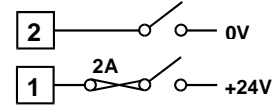|	
Dimensions	Height: 100mm, Width: 30mm, Depth: 120mm
Mounting	Directly fitted onto 35mm Top-Hat DIN mounting rail (EN50022, DIN46277-3)
Weight	0.21kg

Operating & Environmental

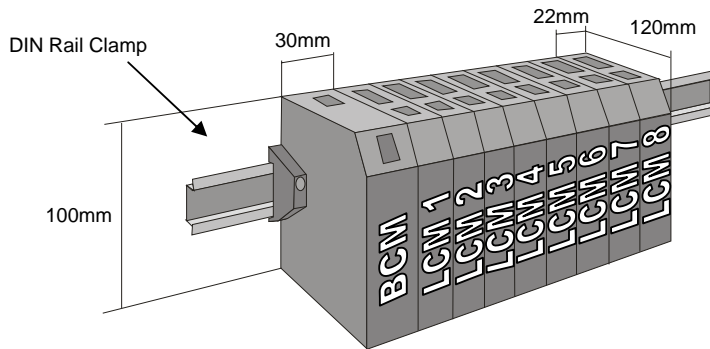|	
Temperature & RH	0 to 55°C (-20 to 80°C storage), 30% to 90%RH non-condensing
Power Supply	18 to 30Vdc (inc ripple), 30W Max
Power Connector	2-way 5.08mm Combicon type
Protection	IEC IP20. Designed for installation in an enclosure which is sealed against dust and moisture
Approvals and Certification	EMC: Certified to EN61326. Safety: Complies with EN61010 and UL 3121-1, awaiting approval from MODBUS Organisation

West Instruments   **Tel:** +44 (0) 1273 606271   **e-mail:** info@westinstruments.com
The Hyde Business Park   **Fax:** +44 (0) 1273 609990   **Web:** www.westinstruments.com
Brighton BN2 4JU, UK

Connection Details

Configuration Port

Field Bus Port

Power Input
18 – 30V dc
30W Max

2 1

0V
+24V

Power Connections

2 ——o∕o—— 0V

1 ——o∕o—— +24V
      2A

System Dimensions

DIN Rail Clamp

30mm

22mm

120mm

100mm

BCM LCM 1 LCM 2 LCM 3 LCM 4 LCM 5 LCM 6 LCM 7 LCM 8

MODBUS/TCP Connections

Pin No.	568A	568B
1	WHITE/green	WHITE/orange
2	GREEN/white	ORANGE/white
3	WHITE/orange	WHITE/green
4	BLUE/white	BLUE/white
5	WHITE/blue	WHITE/blue
6	ORANGE/white	GREEN/white
7	WHITE/brown	WHITE/brown
8	BROWN/white	BROWN/white

Data Assemblies

Using the MLC 9000+ configuration software the user can define a collection of parameters (data assembly) for communication via MODBUS/TCP. This allows the user to fully customise the communication interface to the MLC 9000+ system. The user drags and drops the required parameters into the data assembly area allowing the MODBUS/TCP master to gather several parameters in a single message.

Order Code

MLC 9000-BM250-MT   Bus Module with MODBUS/TCP & Configuration Port

DANAHER
INDUSTRIAL CONTROLS

PMA