Technical Data

The configuration of M*Link* depends on the selected communication protocol to the DCS. Following communication interface protocols are available:

- PROFIBUS DP (-V0) and PROFIBUS DP-V1
- MODBUS RTU / TCP

System functions such as M*Link* web interface (M*View*), OPC connectivity and time stamp are possible with all M*Link* specifications.

Identifier Numbers			
Protocol	**Modbus**		
Hardware Interface	RS 485 & TCP	RS 422 & TCP	RS232 & TCP
Standard	1TGE102009R4800	1TGE102009R4200	1TGE102009R2300
Dual Redundant	1TGE102019R4800	1TGE102019R4200	1TGE102019R2300
Protocol	**Profibus**		
Hardware Interface	DP & DPV1		
Standard	1TGE102009R1001		
Dual Redundant	1TGE102019R1001		

Electrical Data	
Power Supply	24V DC (19 – 33V DC)
Power Consumption	Typical 1000mA, Maximum 1700mA

Mechanical Data	
Weight	2.0 kg
Dimensions H x W x D	120 x 265 x 165 mm

Environmental Data	
Storage Temperature	-20°C to +70°C
Operating Temperature	0°C to +55°C
Degree of Protection	IP 20
MTBF (Mean Time Between Failures)	15 years @ 40°C

Table 1 Technical Data

Interfaces

Front view

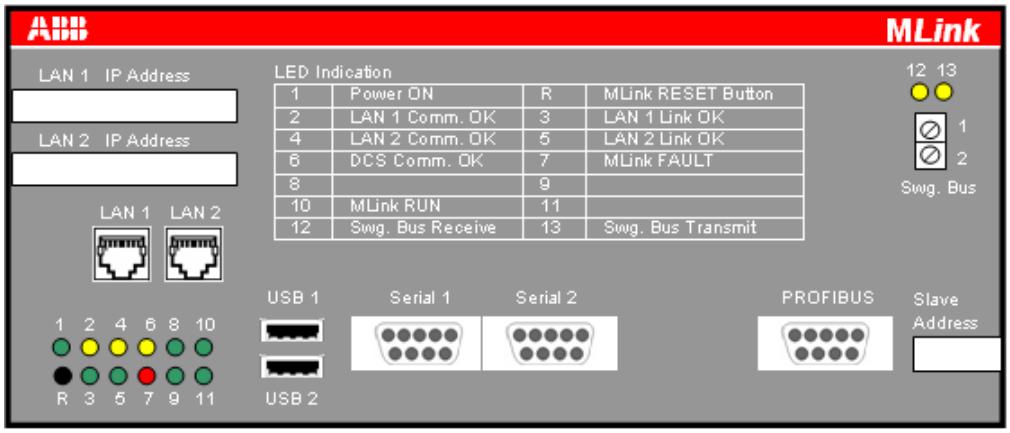


Figure 3 Front view

LED 1	M*Link* Power On Indication
LED 2	Communication Ethernet LAN1
LED 3	Link LAN1 active
LED 4	Communication Ethernet LAN2
LED 5	Link LAN2 active
LED 6	DCS Communication active (PROFIBUS or Modbus)
LED 7	M*Link* Fault
LED 8	Application dependent (refer Table 6)
LED 9	Application dependent (refer Table 6)
LED 10	M*Link* Run indication (CF card application loaded and running)
LED 11	Application dependent (refer Table 6)
Button <R>	Reset button (Restart of M*Link*)
LAN 1	LAN1 Interface (Modbus TCP/ Profinet)
LAN 2	LAN2 Interface
USB 1	Not used
USB 2	Not used
Serial 1	Redundancy Interface (male plug)
Serial 2	Modbus RTU Interface (female plug)
PROFIBUS	PROFIBUS DP Slave Interface (female plug)
Swg Bus	Switchgear Bus Interface
LED 12	Switchgear Bus Rx Indication
LED 13	Switchgear Bus Tx Indication

Table 2 Front View Connector, LED and Push Button function

Side view Left / Right

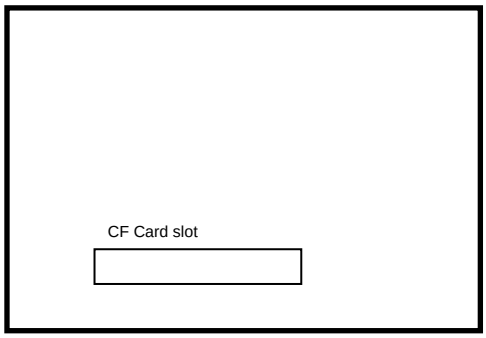


Figure 4 Left Side View

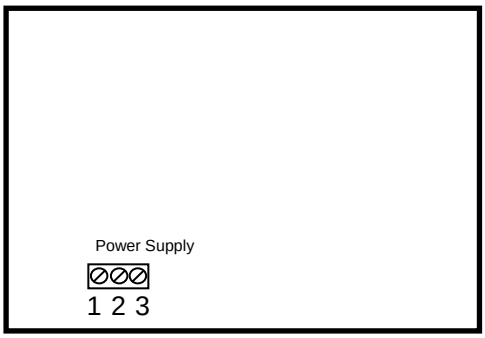


Figure 5 Right Side View

1	Power Supply 0V
2	Not used
3	Power Supply +24VDC

Table 3 Power Supply Connector

Power Supply

The M*Link* requires 24V DC supply voltage. The connection is on the right side of the device with terminal plugs:

- Terminal 1 connects to 0V DC
- Terminal 3 connects to +24V DC
- Terminal 2 is not used

Software Modules

M*Link* contains different software modules depending on its initial configuration. The software modules are available on request.

Following software modules are available:

- Web Server
- OPC Server (DA & AE)
- Fieldbus
- Time Synchronization
- Redundant Operation

If a specific module is not available on the M*Link*, please contact your local ABB LVS Sales organization should this be required.

Web Server

A Web Server can be activated inside M*Link*. Through network connection web interface information can be displayed on M*View* or a PC using web browser software. For details about Web Interface see the document:

MNS *iS* Interface Manual Web Interface.

OPC Server

With MNS *i*S an OPC Server (DA & AE) is available. The software is typically installed on a server as part of the automation control system. The software installation program is delivered separately. If activated, the M*Link* functions as a data provider for the MNS *i*S OPC Server. For details about OPC Server see the document:

MNS *iS* Interface Manual OPC Server.

Fieldbus

M*Link* can include fieldbus communication to DCS. The type of fieldbus must be selected before ordering the M*Link* type. The fieldbus specific information (PROFIBUS, MODBUS etc.) can be found in the following documents:

MNS *iS* Interface Manual Profibus

MNS *iS* Interface Manual Modbus

Communication Interface Connection

Switchgear Network (internal)

The internal communication between M*Link* and M*Control* is via the switchgear bus. The wiring is located within the MNS *i*S cubicle. The bus cable is connected to the <Swg. Bus> terminal located on the front of the M*Link* at the upper right hand side. The internal communication does not require any configuration.



The shield of internal communication cable must be connected on both ends of the cable, and the bus terminated to suit the topology used. For more information on shielding, bus topologies and termination please refer to the MNS *i*S Quick Guide Installation and System Setup.

Switchgear Control Network

M*Link* can be connected to a standard 10/100 Base-T Ethernet network through LAN2 interface (Switchgear Control Network). Network components are standard (COTS – commercial of the shelf) components. No specific components are required connecting M*Link* to the network.

Examples of connections are shown in the following figures. Additional M*Link* and MNS *i*S tools (Engineering tool M*Navigate*, web interface, OPC Server, Time Server) are connected to this network (see Figure 2). The cable is CAT5, connector type is standard RJ45 type.



If the switchgear control network has any connection to other networks (e.g. plant management network etc.) measures have to be taken to protect the switchgear control network against unauthorized use (e.g. through Router and Firewall). This is a project specific configuration. Contact always the local network administrator and review the project specific requirements.

Connection examples of Switchgear Control Network

Option 1

If the M*Link* is directly connected to M*View* or a PC with web browser a cross-over network cable is used. On the M*Link*, the cable has to be connected to the right Ethernet connector (LAN2), on M*View* the cable has to be connected to the Ethernet connector. The cable type is CAT5 cable.

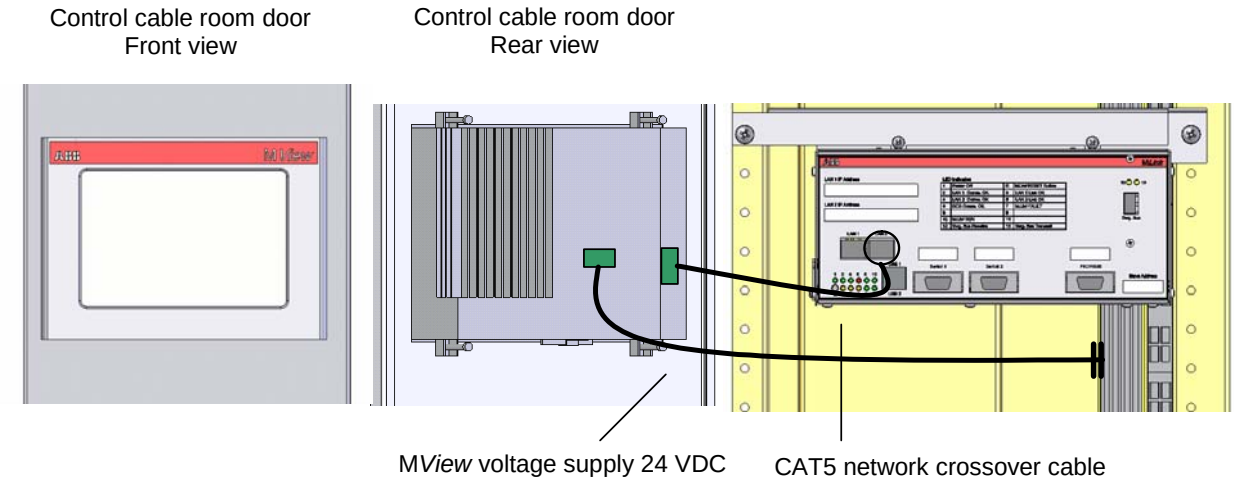


Figure 6 M*Link* direct connected to M*View*

Option 2

M*Link* connected to Switchgear Control Network providing facility to connect additional MNS *i*S M*Link* and tools (e.g. OPC Server, PC with web browser for monitoring etc.). A network switch has to be installed in the plant. M*Link* and M*View* are connected to the switch with standard CAT5 patch cable.

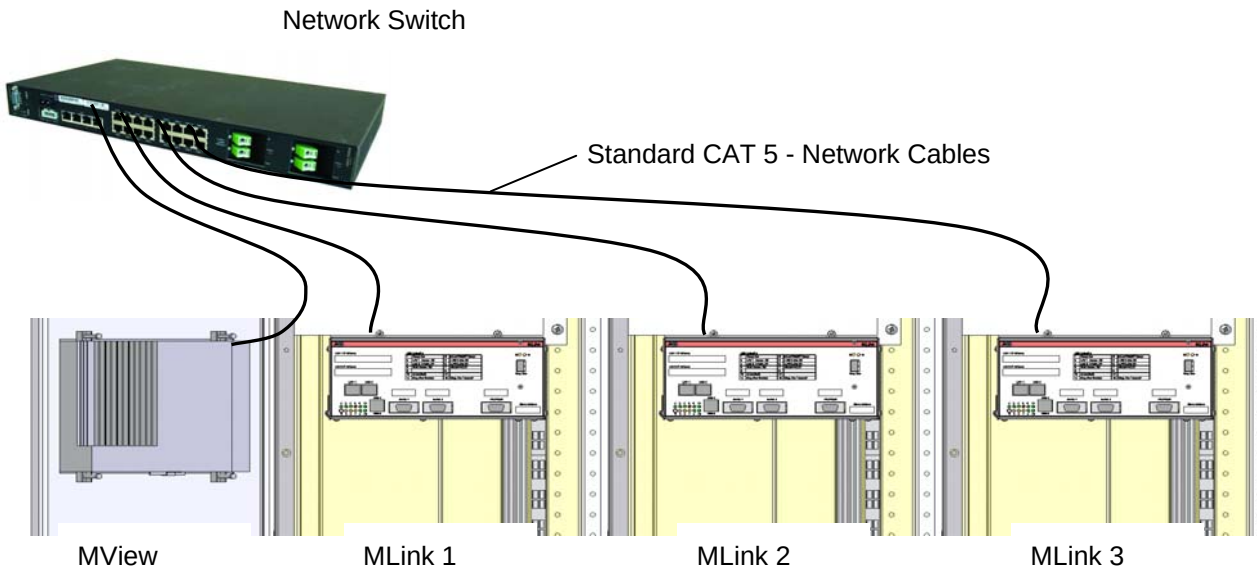


Figure 7 Network connection of M*Link* and M*View*

Option 2 allows using fewer number of M*View*. However, all M*Link* connected to the same network can display their data on all M*View* connected to the same network.

It is recommended that a managed network switch is used to connect the M*Link* to the PCS or PLC. The switch is not part of the MNS *i*S assembly but may be delivered together with the switchboard depending on project scope definition.

Time Synchronization

In the M*Control* Alarms and Events can be provided with a time stamp. The time and date is received on M*Control* from M*Link* via the internal switchgear bus. In order to provide the correct time and date the Time Sync option must be activated in M*Link* and it may require a time server in the switchgear control network.

The protocol used for time synchronization is the standard network time protocol (NTP).

Time Sync must be activated through the ABB Engineering Tool.

Option 1

A standard network component is installed which can provide the time signal as NTP Server. Such a NTP Server can be a computer or network server as well as Ethernet switches. As an option, this NTP Server can be equipped with a GPS Receiver to provide accurate time for the location.

In case of Option 1, Time Server hardware is not part of MNS *i*S and has to be provided separately.

If the Time Server is out of service, the M*Link* runs with the internal RTC (Real Time Clock) until a new time server signal is available. Redundant Time Servers are not supported.

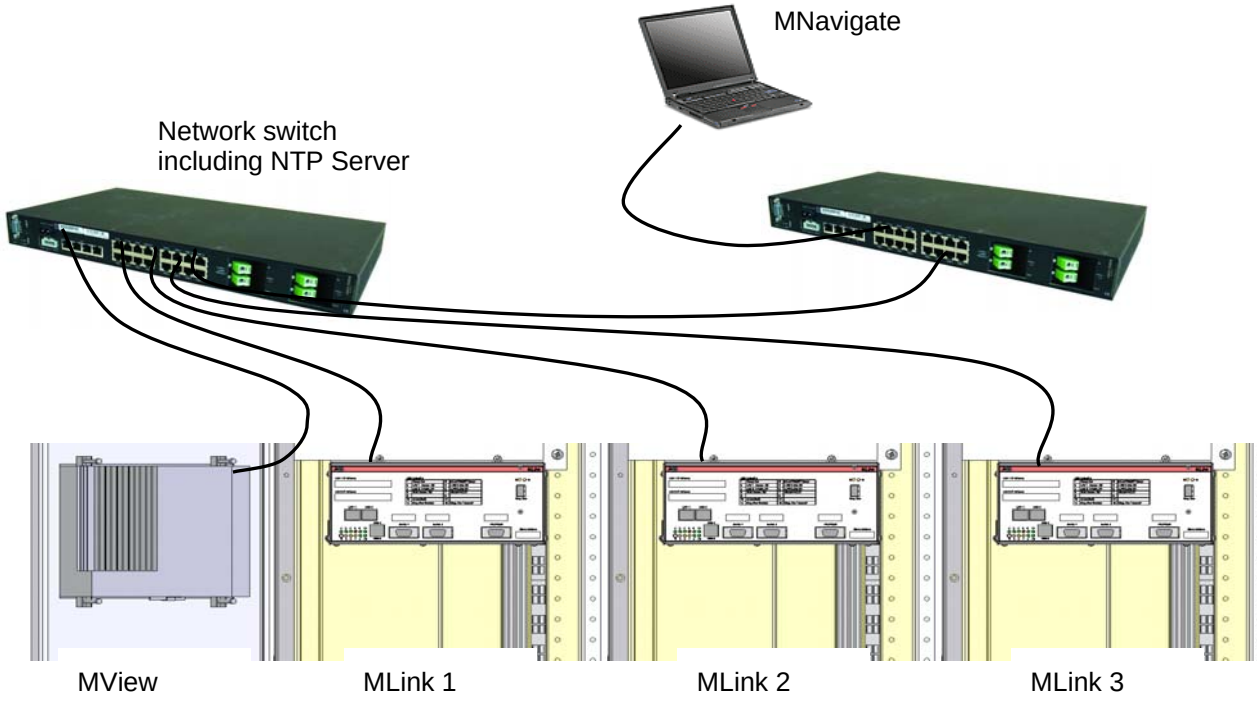


Figure 8 Example, showing 3rd party Network Switch and 3rd party NTP Server in a switchgear control network, standard CAT5 network cables are utilized