Hardware Types and 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
- PROFINET IO

The PROFINET interface is supported for use with the ABB 800xA System only

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

For communication to MControl a dedicated interface plug (switchgear bus connector) has to be used dependent on system configuration (redundant, non redundant system).

Protocol	**Modbus**			**Profinet IO**	**Profibus**
Hardware Interface	RS 485 & Ethernet TCP IEEE 802.3	RS 422 & Ethernet TCP IEEE 802.3	RS232 & Ethernet TCP IEEE 802.3	Ethernet TCP IEEE 802.3	DP & DPV1
MLink ID	1TGE120021R0010				1TGE120021R0110
Swg. bus connector **non-redundant** (with termination)	1TGE120016R0104				
Swg. bus connector **dual redundant** (w/o termination)	1TGE120016R0103				

Table 1 Hardware Selection

Electrical Data	
Power Supply	24V DC (19 – 31V DC)
Power Consumption	Typical 800mA, Maximum 1000mA
Mechanical Data	
Weight	2.5 kg
Dimensions H x W x D	140 x 160 x 165 mm
Environmental Data	
Storage Temperature	-20°C to +70°C
Operating Temperature	0°C to +55°C
Degree of Protection	IP 51
MTBF (Mean Time Between Failures)	46 years @ 40°C

Table 2 Technical Data

Interfaces

Front view

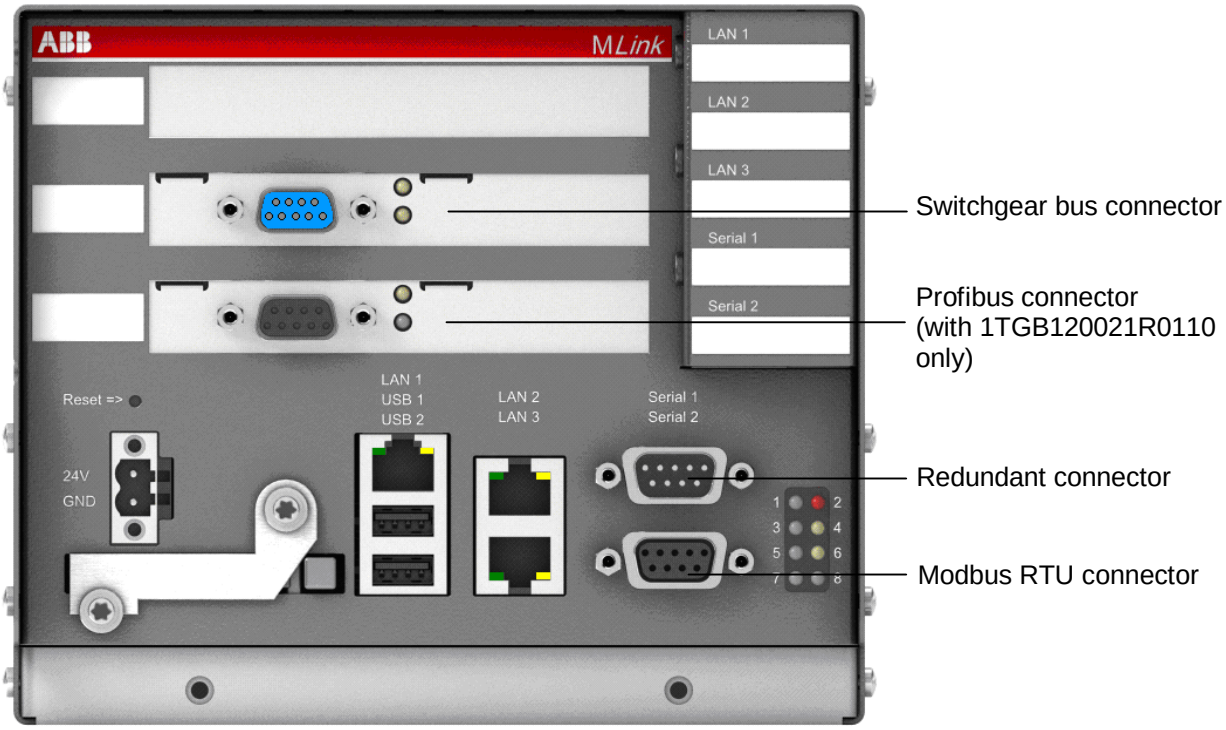


Fig. 1 M*Link* front view

Swg Bus Switchgear Bus Interface (female blue plug)	
Swg Bus – upper LED, yellow	Switchgear Bus Rx Indication
Swg Bus – lower LED, yellow	Switchgear Bus Tx Indication
Profibus PROFIBUS DP Slave Interface (female black plug)	
Profibus – upper LED, yellow	Profibus Communication running
Profibus – lower LED, green	Profibus READY for communication
Power Supply	
Button Reset	Reset button (Restart of M*Link*)
24V	Power Supply +24VDC
GND	Power Supply 0V
CF card	
CF card	CF card is protected against unintentional removal after closing the flap and connecting the power supply (details see page 24)

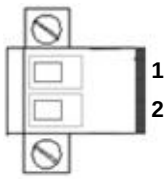
LAN	
LAN 1	LAN1 Interface (Modbus TCP/ Profinet)
LAN 1 – LED left, green	Link LAN1 active
LAN 1 – LED right, yellow	Communication Ethernet LAN1
LAN 2	LAN2 Interface
LAN 2 – LED left, green	Link LAN2 active
LAN 2 – LED right, yellow	Communication Ethernet LAN2
LAN 3	Not used
LAN 3 – LEDs	Not used
USB 1, 2	Not used
Serial 1	Redundancy Interface (male plug)
Serial 2	Modbus RTU Interface (female plug)
LED indications	
LED 1	M*Link* Run indication (CF card application loaded and running)
LED 2	M*Link* Fault
LED 3	Application dependent (see section LED indication, page 27)
LED 4	Application dependent (see section LED indication, page 27)
LED 5	Application dependent (see section LED indication, page 27)
LED 6	DCS Communication active (PROFIBUS or Modbus)
LED 7	M*Link* Power On Indication
LED 8	Application dependent (see section LED indication, page 27) In redundant configurations: M*Link* primary

Table 3 Front View Connectors, LED and Push Buttons

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 +24V DC
- Terminal 2 connects to 0V DC



1 Power Supply +24VDC

2 Power Supply 0VDC

Fig. 2 Power Supply Connector

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

MNS *iS* Interface Manual Profinet IO

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 blue Sub-D 9 terminal located on the front of the M*Link* at the upper part of the device. 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.

If managed switches or routers are used in the Ethernet network it has to be taken care that sent ARP messages are passed through.

Background: After reboot, MLink 1TGE120021 will send a Gratuitous ARP (Address Resolution Protocol) message to force all connected Ethernet devices to update the internal ARP table. This special ARP message is used to map the network layer address (MAC address) to a dedicated link layer address (IP address). This ARP table refresh is required to be able to establish an Ethernet communication.