Interface Module MSR 121

With this module, the VARAN plugs and the power plug are connected to the front panel. In addition, the interface module has an inrush current limiter. To avoid misplugging, a DIN connector (connection to the module carrier) is offset from I/O base or fan module.

Through the VARAN-Out port, the VARAN bus can be configured in a linear structure.

Technical Data

Because the interface module serves as a connection to the module carrier only, the technical data is the same.

Performance data

Interface connections	1 x VARAN-In (RJ45) 1 x VARAN-Out (RJ45) (maximum length: 100 m)

Electrical requirements

Supply voltage	18 – 30 V DC
Current consumption of voltage supply	The current consumption is dependent on the connected loads. **CAUTION: The maximum current is 9 A!**

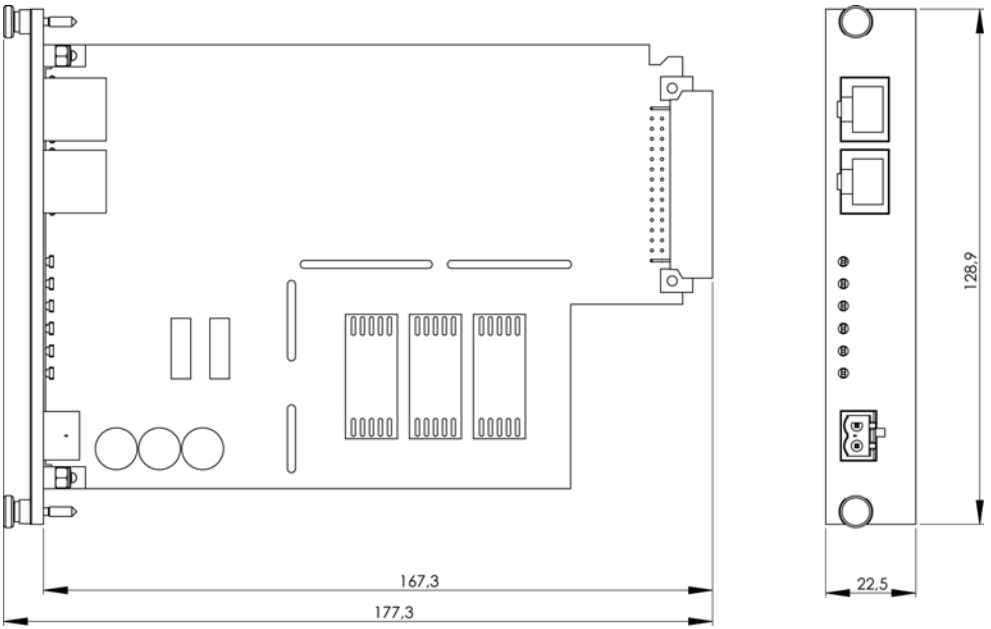
Miscellaneous

Article number	18-001-121
Hardware version	1.x

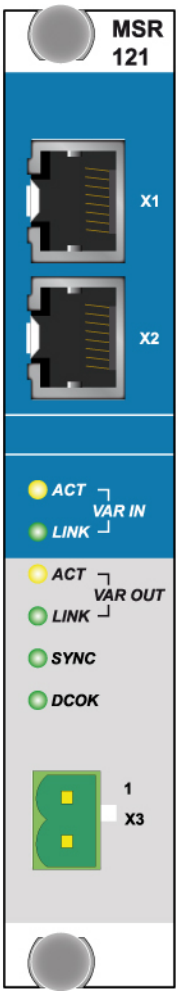
Environmental conditions

Storage temperature	-30 – +85 °C	
Operating temperature	0 – +60 °C	
Humidity	0 - 95 %, uncondensed	
EMV stability	According to EN 61000-6-2:2001 (industrial area)	
Shock resistance	EN 60068-2-27	150 m/s²
Protection Type	EN 60529	IP 20

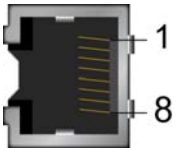
Mechanical Dimensions



Connector Layout

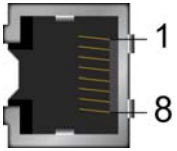


X1: VARAN-In (8-pin RJ45)



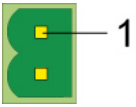
Pin	Function
1	TX+/RX+
2	TX-/RX-
3	RX+/TX+
4 – 5	-
6	RX-/TX-
7 – 8	-

X2: VARAN-Out (8-pin RJ45)



Pin	Function
1	TX+/RX+
2	TX-/RX-
3	RX+/TX+
4 - 5	-
6	RX-/TX-
7 - 8	-

X1: Voltage supply (MSTBVA 2,5/2-G-5,5)

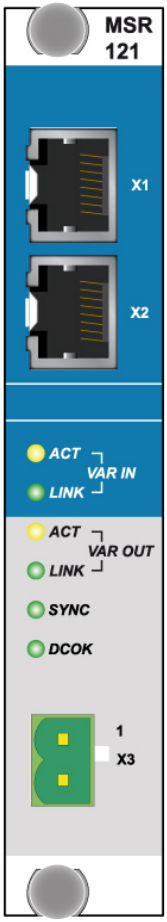


Pin	Function
1	+24 V power supply
2	GND

Applicable connectors
X1/X2: 8-pin RJ45
X3: Phoenix Contact MSTB 2,5/2-ST-5,08

The complete connector set for the MSR 121 is available at Sigmatek under the article number 18-001-121-Z1.

Status display



LED number	LED color	Definition
1	Yellow	Active (VARAN-In)
2	Green	Link (VARAN-In)
3	Yellow	Active (VARAN-Out)
4	Green	Link (VARAN-Out)
5	Green	SYNC (module carrier)
6	Green	DCOK

Recommended Shielding for VARAN

The real-time VARAN Ethernet bus system exhibits very robust characteristics in industrial environments. Through the use of IEEE 802.3 standard Ethernet physics, the potentials between an Ethernet line and sending/receiving components are separated. Messages to a bus participant are immediately repeated by the VARAN Manager in the event of an error. The shielding described below is principally recommended.

For applications in which the bus is run outside the control cabinet, the correct shielding is required. Especially when for structural reasons, the bus line must be placed next to strong electromagnetic interference. It is recommended to avoid placing Varan bus lines parallel to power cables whenever possible.

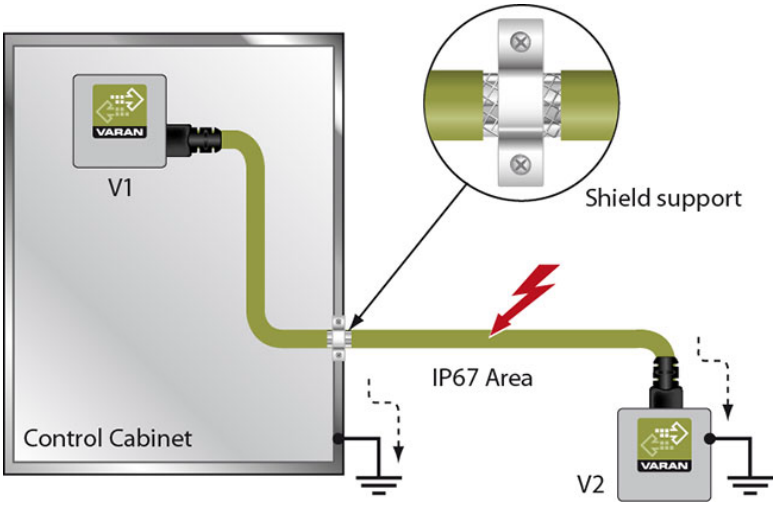
SIGMATEK recommends the use of CAT5e industrial Ethernet bus cables.

For the shielding, an S-FTP cable should be used.
An S-FTP bus is a symmetric, multi-wire cable with unshielded pairs. For the total shielding, a combination of foil and braiding is used. A non-laminated variant is recommended.

The VARAN cable must be secured at a maximum distance of 30 cm from the connector for protection against vibration!

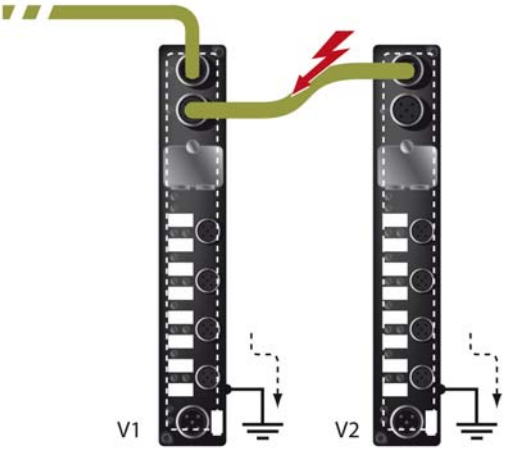
1. Wiring from the Control Cabinet to an External VARAN Component

If the Ethernet lines are connected from a VARAN component to a VARAN node located outside the control cabinet, the shielding should be placed at the entry point to the control cabinet housing. All noise can then be dissipated before reaching the electronic components.



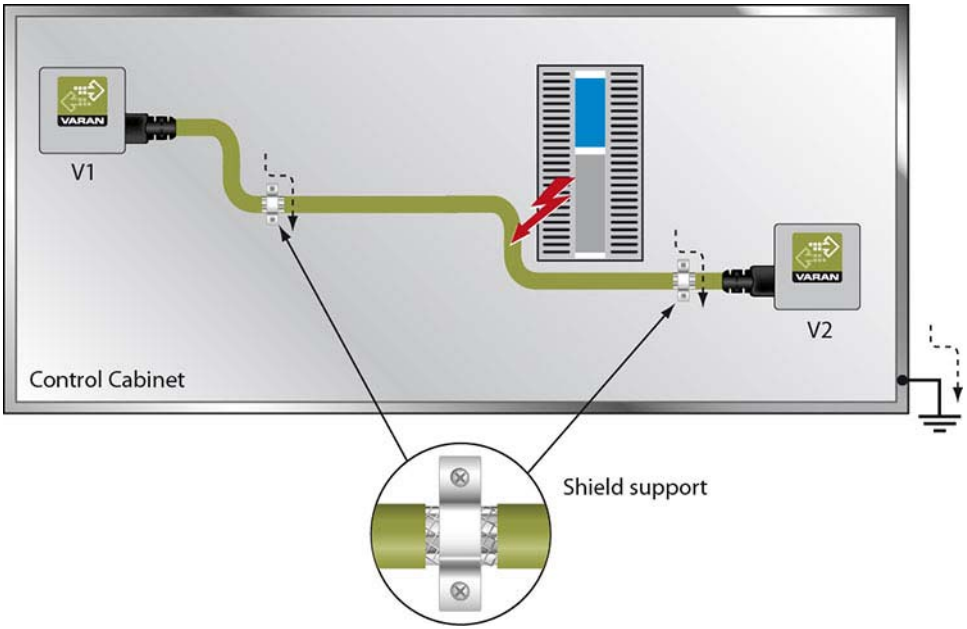
2. Wiring Outside of the Control Cabinet

If a VARAN bus cable must be placed outside of the control cabinet only, no additional shield connection is required. This requires that only IP67 modules and connectors be used. These components are very robust and noise resistant. The shielding for all sockets in IP67 modules are internally connected to common bus or electrically connected to the housing, whereby the deflection of voltage spikes does not flow through the electronics.



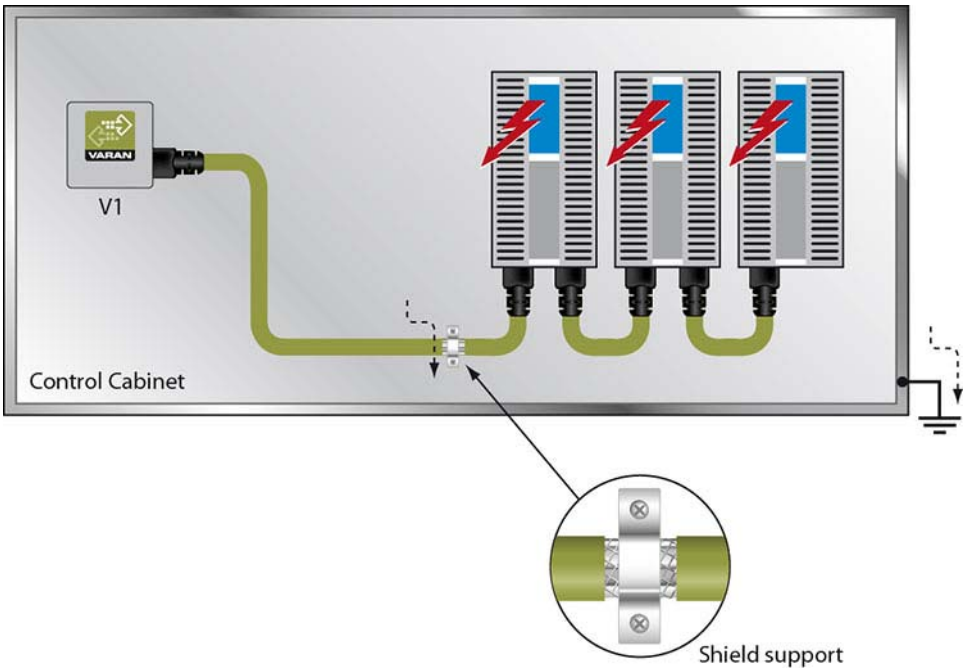
3. Shielding for Wiring Within the Control Cabinet

Sources of strong electromagnetic noise located within the control cabinet (drives, Transformers, etc.) can induce interference in a VARAN bus line. Voltage spikes are dissipated over the metallic housing of a RJ45 connector. Noise is conducted over the control cabinet without additional measures needed on the circuit board of electronic components. To avoid error sources with data exchange, it is recommended that shielding be placed before any electronic components in the control cabinet.



4. Connecting Noise-Generating Components

With the connection of power components that generate strong electromagnetic interference, it is also critical to ensure correct shielding. The shielding should be placed before a power element (or group of power elements).



5. Shielding Between Two Control Cabinets

If two control cabinets must be connected over a VARAN bus, it is recommended that the shielding be located at the entry points of each cabinet. Noise is therefore prevented from reaching the electronic components in both cabinets.