VARAN Manager PCI Insert Module PCV 531

Versatile **A**utomation **R**andom **A**ccess **N**etwork

The PCI insert module, PVC 531 with integrated VEB 031, can be used in any standard PC. A VARAN Manager is available on the PC and serves as an interface between the PC and VARAN bus. With the PVC 531, VARAN modules can be controlled by the PC directly.

Technical Data

Performance data

PCI-Bus	32-Bit PCI-Bus card / 33MHz Vendor ID: 5112 Device ID: 0C00
VARAN bus	2 x VARAN-Out (Manager) (maximum length: 100 m)
Status display	Green: Link Yellow: Active

Electrical requirements

Supply voltage	+3,3V DC (from PCI- Bus)	
Current consumptions on the PCI bus (+3,3V)	Typically 400mA	Maximum 450mA

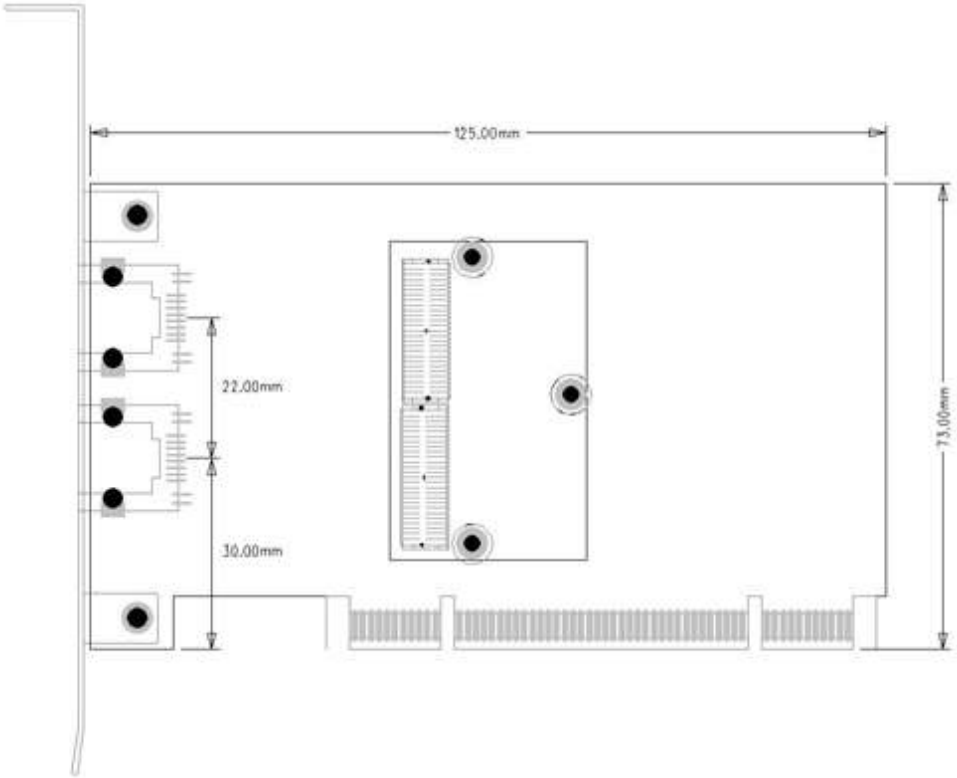
Miscellaneous

Article number	01-320-531
Hardware version	1.x

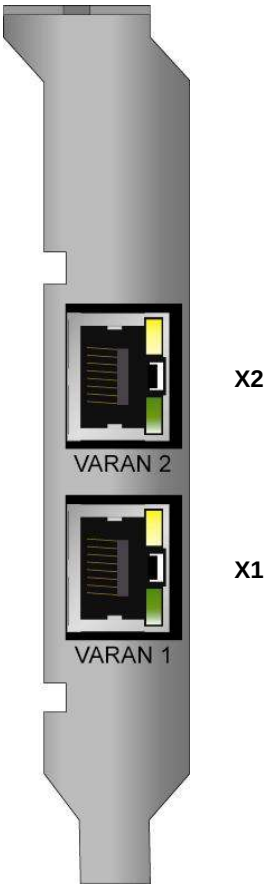
Environmental conditions

Storage temperature	-20 – +85℃	
Operating temperature	0 – +60℃	
Humidity	0 – 95%, Uncondensed	
EMV-Stability	EN 61000-6-1	
Shock resistance	EN 60068-2-27	150m/s²

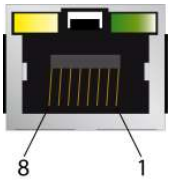
Mechanical Dimensions



Connector Layout



X1, X2: VARAN-Out



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

LEDs	Function
Yellow	ACTIVE
Green	LINK

LED	Color	Description
ACTIVE	Yellow	Lights when data is received over the VARAN bus.
LINK	Green	Lights when the connection between the two PHYs is established.

More information over the VARAN bus can be found in the VARAN bus specifications!

Applicable connector

VARAN-Bus: 8-pin RJ45

CAUTION: Insert cards with a +5V level used on the PCI bus with the PCV 521; this will destroy the PCV 531

VARAN Recommended Shielding

The VARAN real-time Ethernet bus system offers robust performance in harsh industrial environments. Through the use of IEEE 802.3 standard Ethernet physics, the potential between an Ethernet line and sending/receiving components is kept separate. The VARAN Manager resends messages to a bus participant immediately when an error occurs. It is principally recommended that the shielding guidelines below be followed.

For applications in which the bus line is run outside the control cabinet, correct shielding is required. This is especially important, if due to physical requirements, the bus lines must be placed next to sources of strong electromagnetic noise. It is recommended that whenever possible, to avoid wiring VARAN-Bus lines parallel to power cables.

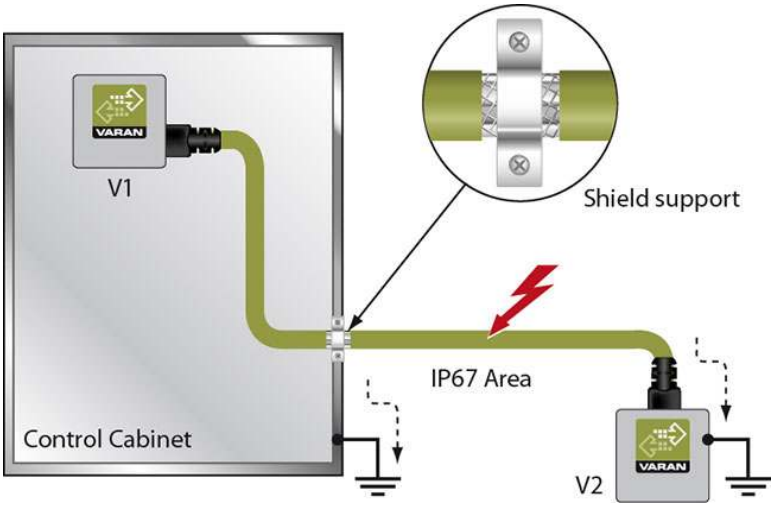
SIGMATEK recommends the use of **CAT5e** industrial Ethernet bus lines.

For the shielding variants, an S-FTP bus line is recommended, which is a symmetric, multi-wire cable with unshielded pairs. For the total shielding, a combination of foil and braiding is used; it is recommended that an unvarnished variant be used.

The VARAN cable must be secured at a distance of 20 cm from the connector for protection against vibration!

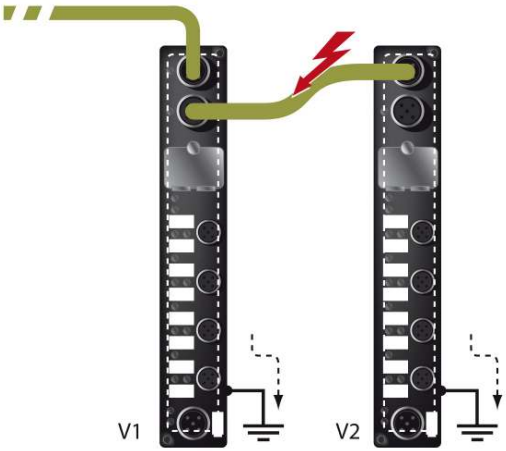
1. Wiring from the Control Cabinet to an External VARAN Component

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



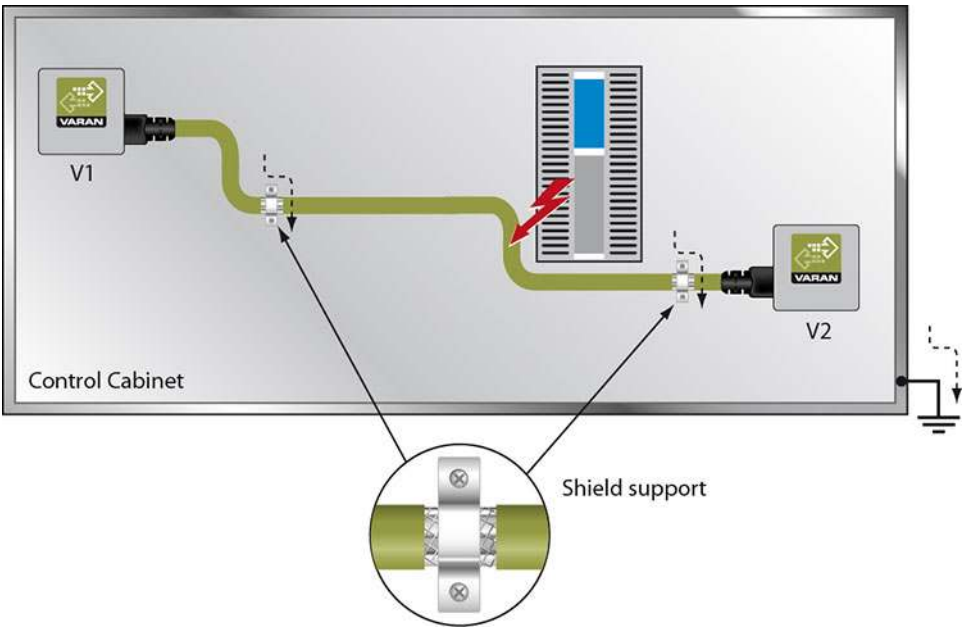
2. Wiring Outside of the Control Cabinet

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.



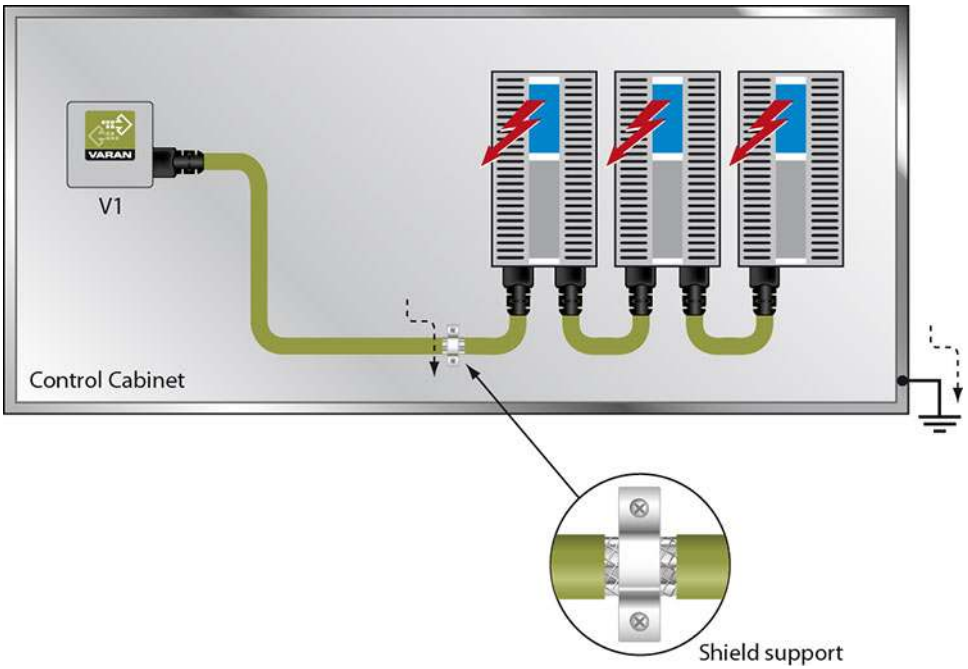
3. Shielding for Wiring Within the Control Cabinet

Sources of strong electromagnetic noise located within the control cabinet (drives, Transformers, etc.) can induce interference in a VARAN bus line. Spike voltages are deflected over the metallic housing of a RJ45 connector. Noise is conducted through the control cabinet housing without further action from the electronic components To eliminate sources of noise during data transfer, it is recommended that the shielding from all electronic components be connected within the control cabinet.



4. Connecting Noise-Generating Components

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



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 to both cabinets. Noise can thereby be kept from reaching the electronics within the control cabinet.