

C-DIAS VARAN Control Module

1 x VARAN-In

1 x VARAN-Out (Optional Ethernet (VtE))

The C-DIAS CIV 513 module serves as the power supply and connection for decentralized C-DIAS module groups with a CPU over the VARAN bus.

A module group consists of a module carrier and the C-DIAS modules mounted on it. Depending on the module carrier, up to 8 modules can be mounted.

The CIV 513 can also be operated with Datamover. The Datamover offers the possibility to manage the I/O data of the connected C-DIAS modules independently, thereby by reducing the burden on the VARAN bus.

The VARAN-Out port allows the construction of the VARAN bus in a line structure.

The VARAN-Out port has automatic Ethernet recognition. If the VARAN-Out is connected to an Ethernet participant, it is automatically changed to an Ethernet port.

Incoming Ethernet packets are, similar to using a HUB, distributed to all other Ethernet ports in the VARAN bus system and the VARAN manager (and therewith the CPU) with VtE.



Technical Data

Performance data

Interfaces	<p>1 x VARAN-In (RJ45) 1 x VARAN-Out (optional Ethernet (VtE) (RJ45) (maximum length: 100 m)</p>
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Electrical requirements

Voltage supply	18 – 30 V DC
Current consumption of power supply	The current consumption depends on the connected load (max. 1 A)
C-DIAS bus supply	Through the CIV 513
Current load on the C-DIAS bus (I/O/P module supply)	Maximum 1,2 A

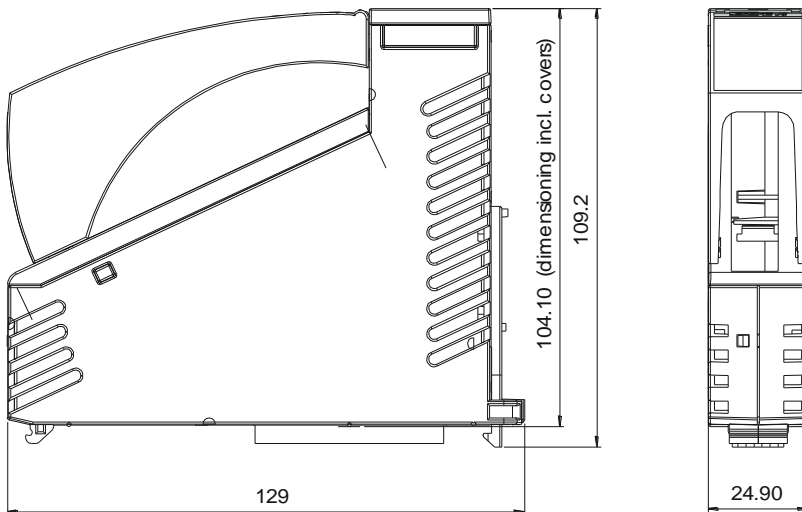
Miscellaneous

Article number	12-003-513
Hardware version	1.x

Environmental conditions

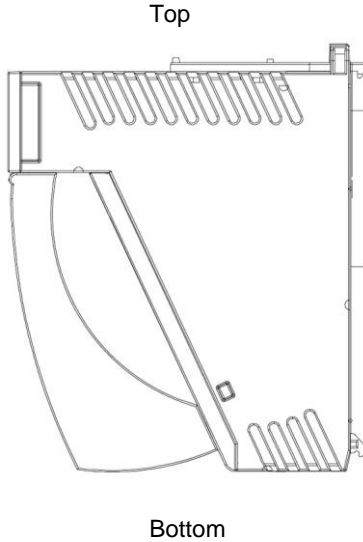
Storage temperature	-20 – +85 °C	
Operating temperature	0 – +60 °C	
Humidity	0 – 95 %, uncondensed	
EMV stability	EN 61000-6-2 (Industry area)	
Shock resistance	EN 60068-2-27	150m/s ²
Protection	EN 60529	IP 20

Mechanical dimensions



Mounting position

To ensure optimal cooling of the module, the CIV 513 must be mounted as shown (standing). For an angled mounting position, forced convection (cooling fan) must be used.

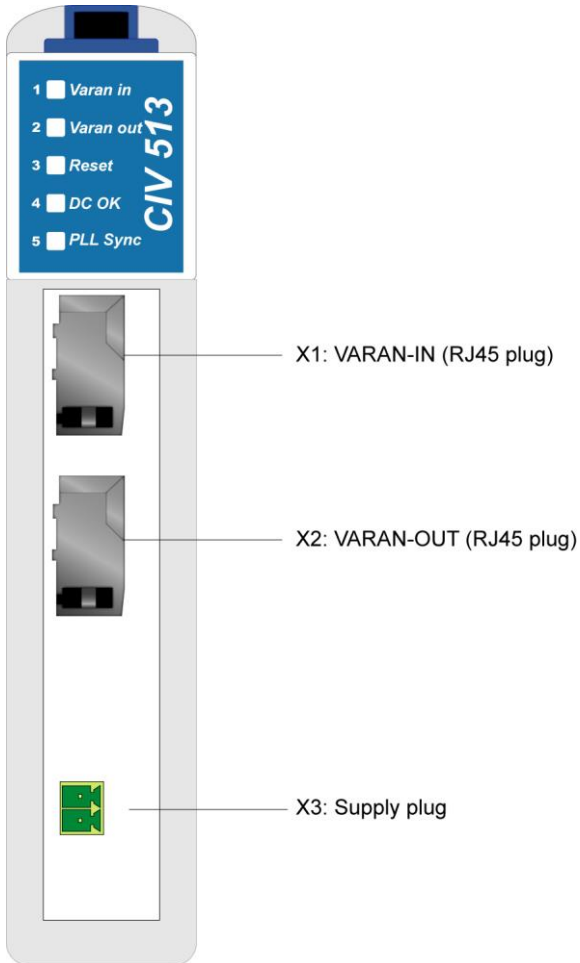


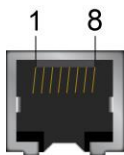
Strain relief



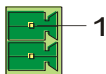
Connections

You find the following connections on the front side of the VARAN interface module:



X1: VARAN-In, X2: VARAN-Out (Optional Ethernet (VtE) (RJ45))


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

X3: Supply plug


Pin	Function
1	+24 V input
2	GND

Status displays

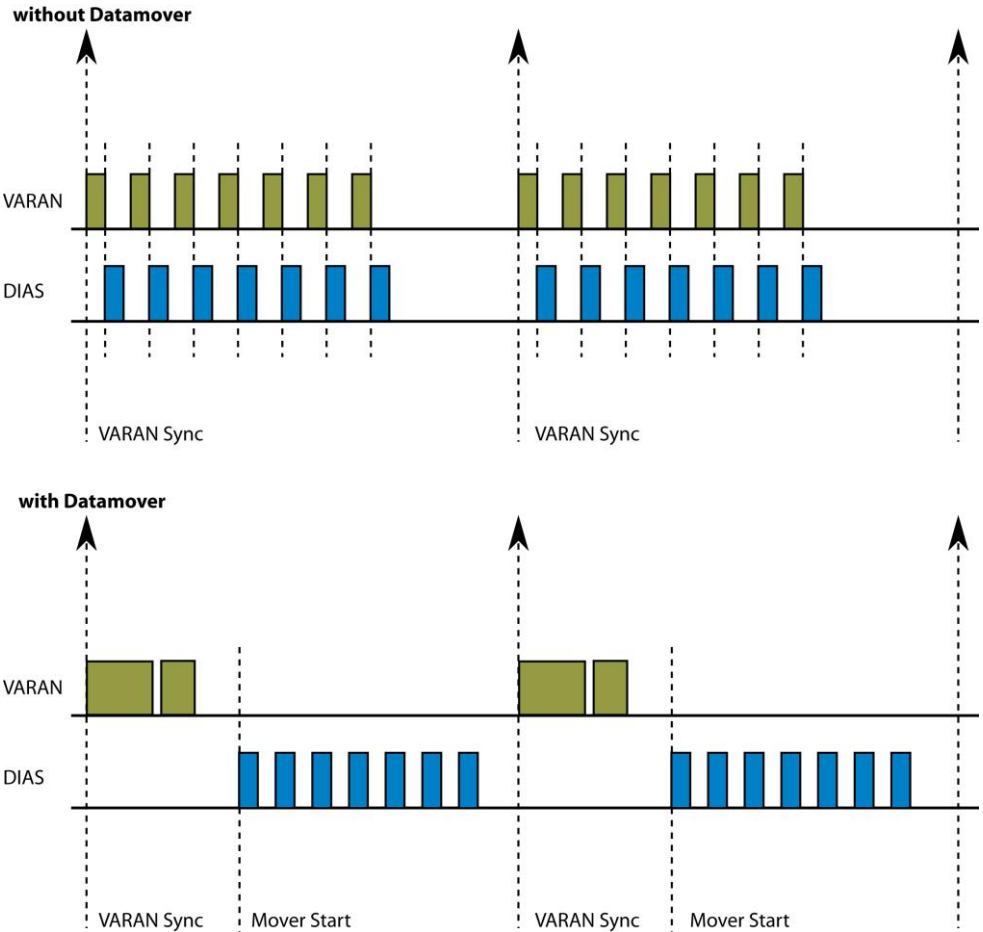


LED number	LED color	Definition		
1	Green	VARAN-In	Link	Lights when the connection between the two PHYs is established Blinks when the VARAN-In of the primary client does not have a link.
	Yellow	VARAN-In	Active	Lights when data is exchanged over the VARAN bus
2	Green	VARAN-Out	Link	Lights when the connection between the two PHYs is established Blinks when there is no connection between VARAN-In and the primary client.
	Yellow	VARAN-Out	Active	Lights when data is exchanged over the VARAN bus
3	Red	Reset		Lights when the CIV 513 is in Reset.
4	Green	DC OK		Lights when the module is supplied with 24 V.
5	Green	PLL SYNC		Lights when the module is synchronized with the VARAN manager.

Detailed Description

If the CIV 513 is operated with the Datamover deactivated, the I/O data of the module group is assumed immediately.

With the Datamover activated, the I/O data of the entire C-DIAS module group is collected by accessing VARAN. The Datamover starts the C-DIAS communication offset from VARAN bus. The burden on the VARAN bus is thereby reduced significantly.



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

Applicable Modules

Almost all C-DIAS modules are supported.

The modules CCA 021 – CCA 121 and CPB 021 can only be operated over the CIV 513 without the Datamover.

The following C-DIAS modules must be operated with a CPU directly:

- CSI 021 – CSI 025
- CGPS 011
- CBC 021

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.

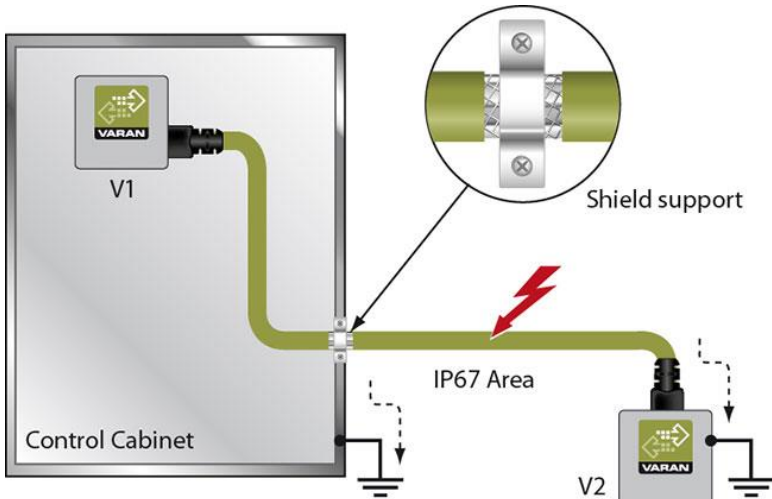
SIGMATEK recommends the use of **CAT5e** industrial Ethernet bus lines.

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!

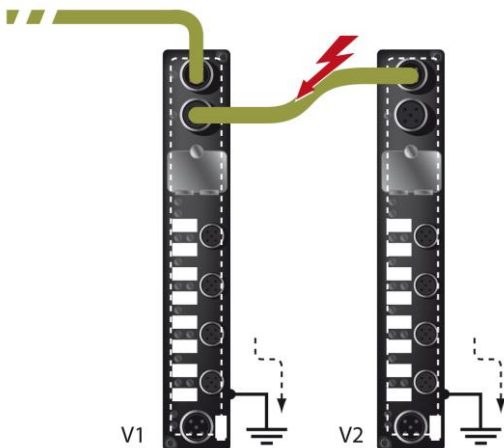
1. Wiring from the Control Cabinet to an External VARAN Component

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.



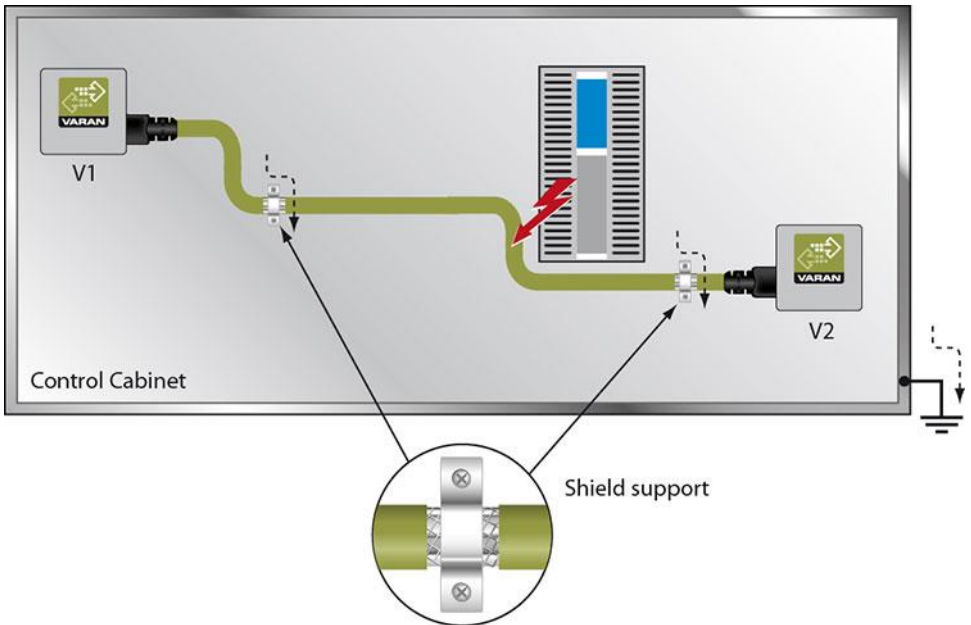
2. Wiring Outside of the Control Cabinet

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.



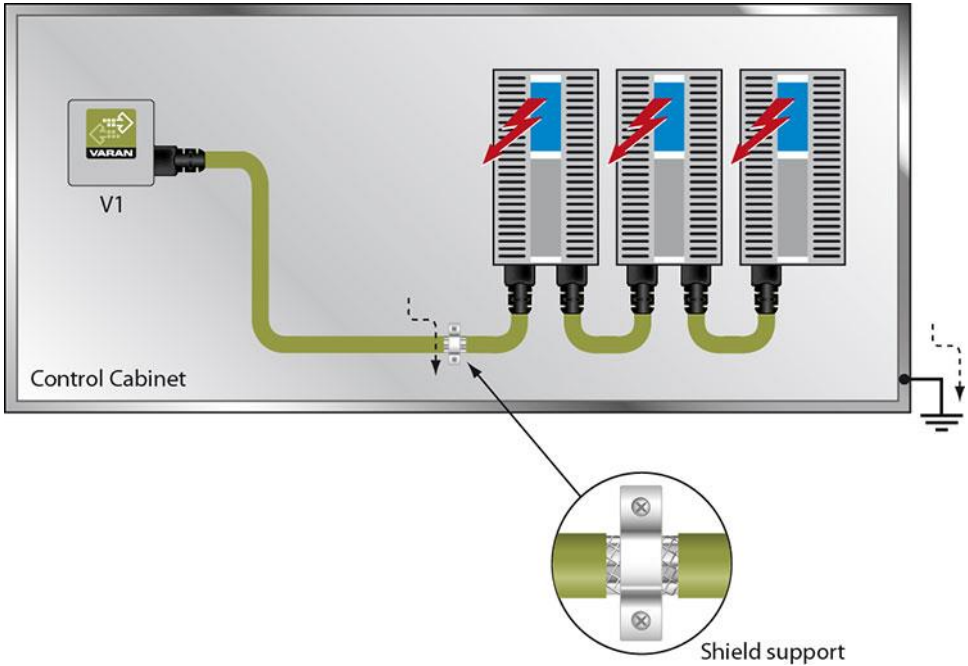
3. Shielding for Wiring Within the Control Cabinet

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.

