Control Panel ETV 1521

The ETV 1521 control panel is an intelligent terminal for programming and visualization of automatic processes. Process diagnosis, monitoring and operation of automated tasks are simplified using this terminal.

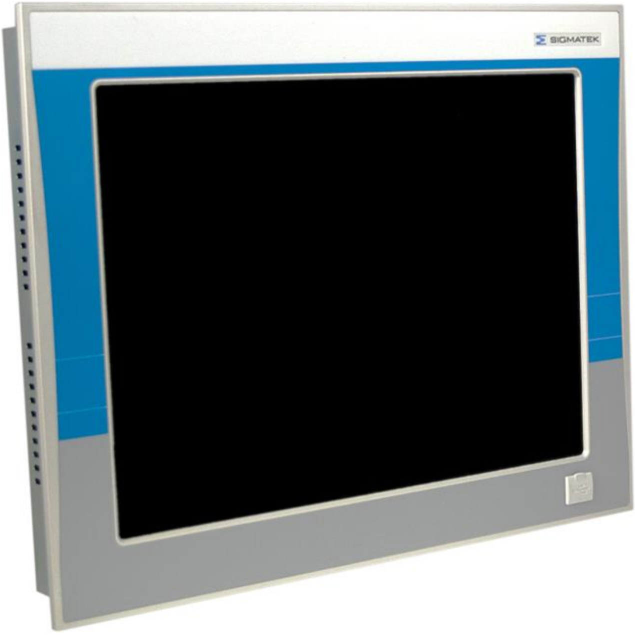
A touch screen serves as the input medium for process data and parameters. The output is shown on a 15“ XGA TFT color display.

Over the LSE mask editor, graphics can be created on the PC and loaded to the terminal where they can be displayed.

The interface connections provided can be used to transmit process data or configure the terminal. An internal CompactFlash is used as the storage medium for the operating system, application and application data.

The integrated high-capacity VARAN bus can be used for direct control of I/O modules.

When mounted correctly, the foam seal allows the front panel to protect the terminal from moisture.



Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Contents

Technical Data **3**
Performance data 3
Electrical requirements 4
Terminal 4
Control unit 4
Display (HW version 1.x - 3.x) 5
Miscellaneous 5
Environmental conditions 6
Mechanical Dimensions **7**
Chemical Resistance **8**
Front foil 8
Touch foil 9
Connector Layout **10**
Front side connections 10
Rear connections 11
Storage Media **14**
Buffer Battery **14**
Exchanging the Battery **15**
Cooling **16**
Mounting Instructions **16**
Wiring Guidelines **17**
1. Earth 17
2. Shielding 18
3. ESD protection 18
4. DIAS bus Termination 18
5. DIAS bus with C-DIAS modules 19
6. DIAS bus with DIAS modules 19
7. CAN bus Termination 20
8. USB interface 20
Process Diagram **21**
Status and Error Messages **22**
VARAN Recommended Shielding **30**
1. Wiring from the Control Cabinet to an External VARAN Component **31**
2. Wiring Outside of the Control Cabinet **32**
3. Shielding for Wiring Within the Control Cabinet **33**
4. Connecting Noise-Generating Components **34**
5. Shielding Between Two Control Cabinets **35**
Cleaning the Touch Screen **36**

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Technical Data

Performance data

Processor	AMD Geode LX 800
Cache	128 Kbytes 1st Level 128 Kbytes 2nd Level
BIOS	INSYDE BIOS
SDRAM (SO-DIMM 200pin)	128 Mbytes SDRAM (up to 512 Mbytes optional) (16 Mbytes „Shared Memory“ for the graphic controller)
Internal program memory	10 MByte (128 Mbyte) / 10 Mbyte (512 Mbyte)
Internal data memory	93 MByte (128 Mbyte) / 477 Mbyte (512 Mbyte)
CompactFlash (Type I)	1 GByte
SRAM	512 Kbytes (battery buffered)
Interfacing	1 x CAN-Bus 1 x DIAS-Bus 2 x VARAN-Bus (maximum length: 100 m) 1 x Ethernet 10/100 Mbit 2 x USB V2.0 Type-A (front + back)
Internal interfacing and devices	1 x TFT color display 1 x Touch 1 x CompactFlash-Socket
Control panel	Touch-Screen (Analog resistive)
Display	15“ TFT color display XGA, 1024 x 768 Pixel
Data buffer	Lithium battery
Signal generator	Yes
Real time clock	Yes
Cooling	Passive (fanless)

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Electrical requirements

Supply voltage	Minimum +18 V DC	Maximum +30 V DC
Current consumption of voltage supply	Typically 0,8 A (at +24 V) (With no external devices connected)	
Turn-on current	Maximum ca. 28 A for <3 ms	

The device shall be supplied from an isolating transformer having a secondary listed fuse rated either:

a) max. 5 amps for voltages 0~20 V (0~28.3 Vp), or
b) 100 VA/Vp for voltages of 20~30 V (28.3~42.4 Vp).

Le module doit être alimenté par un transformateur d'isolement avec un fusible sur la sortie de l’enroulement secondaire dont les spécifications sont:

a) max. 5 A pour des tensions 0 ~ 20 V (0 ~ 28,3 Vp), ou
b) 100 VA/Vp pour des tensions de 20 ~ 30 V (28,3 ~ 42,4 Vp).

Terminal

Dimensions	380 mm / 310 mm /49 mm (W / H / D)	
Material	Cover: 1 mm sheet steel, chromated (alkaline blue)	Front plate: 6 mm Aluminum, anodized (natural C0)
Weight incl. Mounting bracket	Typically 4,9 kg	

Control unit

Touch foil	Analog resistant film glass touch panel
Active surface	304,1 mm x 228,1 mm
Resolution	12 Bit (4096 x 4096)
Data wheel	No
Buttons	No
LEDs	No
Signal generator	Yes

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Display (HW version 1.x - 3.x)

Type	15” TFT color display
Resolution	XGA, 1024 x 768 Pixel
Color depth	18 Bit (262 144 colors)
Pixel size	0,297 mm x 0,297 mm
Active surface	304,1 mm x 228,1 mm
Background lighting	2 cold cathode tube (CCFT, switchable)
Contrast	Typically 700 : 1
Brightness	Typically 350 cd/m²
Viewable angles CR>10 from	Left and right 70°, upper 65°, lower 60°

Display (starting with HW version 4.x)

Type	15” TFT Color (6 Bit RGB)
Resolution	1024 x 768 Pixel
Color depth	18 Bit (262 144 colors)
Pixel grid	0,297mm x 0,297mm
Active area	304,128mm x 228,096mm
Background lightning	LED
Brightness	Typically 350 cd/m²
Contrast	Typically 700 : 1
Perspective of	left and right 80°, above and below 70°

Miscellaneous

Hardware version	4.x
Article number	12-230-1521
Software macro	LSE LASAL operating system
Backup of the project	Internal on CompactFlash
Standardization	UL (E247993)

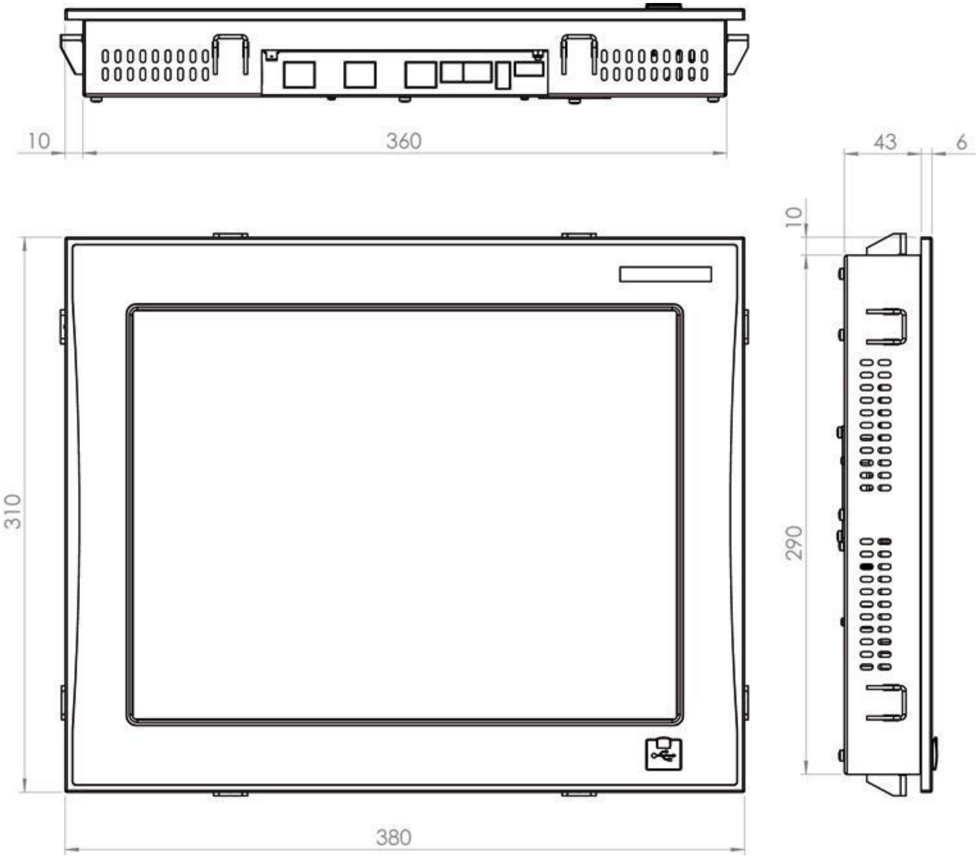
Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Environmental conditions

Lager temperature	-20 – +60 °C	
Operating temperature	0 – +45 °C	
Humidity	10 – 95 %, Uncondensed	
EMV stability	EN 61000-6-2 (industrial area): noise resistance EN 61000-6-4: noise transmission	
Vibration resistance	EN 60068-2-6	2-9 Hz: Amplitude 3,5 mm 9-200Hz: 1 g (10 m/s²)
Shock resistance	EN 60068-2-27	15 g (150 m/s²), Duration 11 ms, 18 Shocks
Protection	EN 60529: protected by housing	Front: IP 54 cover: IP 20

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Mechanical Dimensions


10
360
43
6
10
310
290
380

The cover has a depth of 43 mm and mounts to the front plate!

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Chemical Resistance

Front foil

Solution	**Effects over time**	
	1 hour	**24 hours**
Methylethylketon	None	None
Cyklohexanol	None	None
Acetone	None	None
Ethanol	None	None
Benzyl alcohol	Yes	Yes
1.1.1.Trichloroethan (Genklene)	None	None
Perchlorethyline (Perklone)	None	None
Trichlorethylene	None	None
Ethylene chloride	Yes	Yes
Diethylether	None	None
Toluol	None	None
Xylol	None	None
Gasoline	None	None
Diesel oil	None	None
Nitric acid <10 %	None	None
Sodium hydroxide <10 %	None	None
Turpentine	None	None
Ethyl acetate	None	None

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

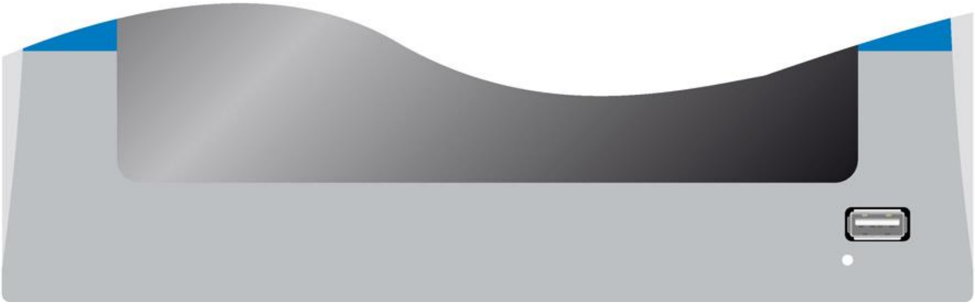
Touch foil

Solution	Visual effects
Coal tar oil / Toluol	None
Tricholorethylene	None
Acetone	None
Alcohol	None
Gasoline	None
Machine oil	None
Ammonia	None
Glass cleaner	None
Mayonnaise	None
Ketchup	None
Wine	None
Salad oil	None
Vinegar	None
Lipstick	None

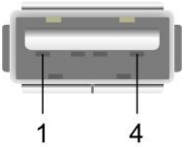
Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Connector Layout

Front side connections



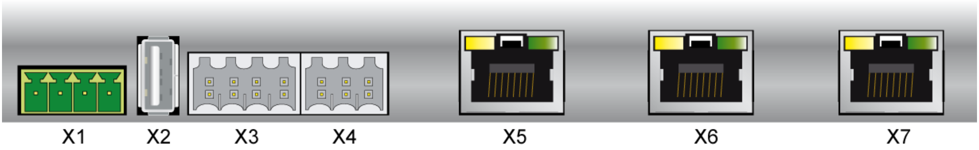
USB Type A V2.0



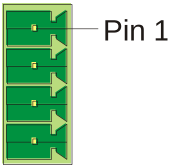
Pin	Function
1	+5 V
2	D0-
3	D0+
4	GND

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Rear connections

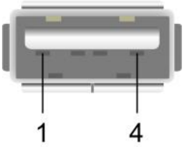


X1: Supply (FK-MCP 1,5/4-ST-3,5)



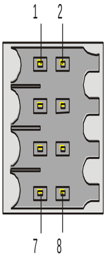
Pin	Function
1	+ 24 V supply
2	+ 24 V Supply
3	GND
4	GND

X2: USB Type-A V2.0



Pin	Function
1	+5 V
2	D0-
3	D0+
4	GND

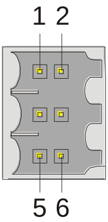
X3: CAN (Weidmüller B2L 3,5/8)



Pin	Function
1	CAN A (LOW)
2	CAN B (HIGH)
3	CAN A (LOW)
4	CAN B (HIGH)
5	GND
6	+5 V
7	GND
8	+24 V

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

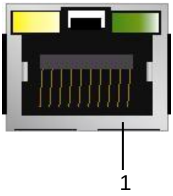
X4: DIAS Bus (Weidmüller B2L 3,5/6)



Pin	Function
1	MBUS+
2	MBUS-
3	SBUS+
4	SBUS-
5	GND
6	n.c.

n.c. = do not use

X5: ETHERNET (RJ45)



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4 - 5	n.c.
6	Rx-
7 - 8	n.c.

Problems can arise if a control is connected to an IP network, which contains modules that are not running with a SIGMATEK operating system. With such devices, Ethernet packets could be sent to the control with such a high frequency (i.e. broadcasts), that the high interrupt load could cause a real-time runtime error or runtime error. By configuring the packet filter (Firewall or Router) accordingly however, it is possible to connect a network with SIGMATEK hardware to a third party network without triggering the error mentioned above.

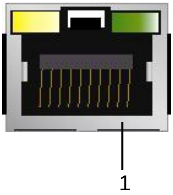
Des problèmes peuvent survenir si un automate est connecté à un réseau IP contenant des modules qui ne fonctionnent pas sous un système d'exploitation SIGMATEK. Avec de tels dispositifs, les paquets Ethernet peuvent être envoyés à l'automate avec une fréquence tellement élevée (càd. diffusion), que les interruptions ainsi générées peuvent provoquer une erreur d'exécution. En configurant d'une façon appropriée le filtre de paquets (pare-feu ou un routeur) il est toutefois possible de connecter un réseau avec le matériel SIGMATEK à un réseau tiers sans déclencher l'erreur mentionnée ci-dessus.

For use in local networks only, not telecommunication circuits.

Pour une utilisation dans les réseaux locaux uniquement, et non pas dans de circuits de télécommunications.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

X6, X7: VARAN Bus (RJ45)



Pin	Function
1	TX/RX+
2	TX/RX-
3	RX/TX+
4 - 5	n.c.
6	RX/TX-
7-8	GND

LEDs	Function
Yellow	ACTIVE
Green	LINK

n.c. = do not use

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

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

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Storage Media

**It is recommended that only storage media provided by SIGMATEK (CompactFlash cards, microSD cards etc.) be used.
The number of read and write actions have a significant effect on the lifespan of the storage media.**

Il est recommandé d'utiliser uniquement les supports de stockage fournis par SIGMATEK (Cartes CompactFlash, cartes microSD, etc). Le nombre de lectures et d'écritures ont un effet significatif sur la durée de vie du support de stockage.

Buffer Battery

The exchangeable buffer battery ensures that programs, data and the clock time (RTC) are preserved in the expanded memory (SRAM) in the absence of a supply voltage. A lithium battery is provided by the manufacturer.

The battery has enough capacity to preserve data for a period of 2 years in the absence of a supply voltage.

We recommend however, that the battery be changed annually to ensure optimal performance.

Battery order number: 01-690-052

	FIRM	DATA
Lithium battery	RENATA	3,0 V / 235 mAh

**Use batteries from RENATA with the number CR2032!
With use of other batteries a danger of fire or explosion exists!**

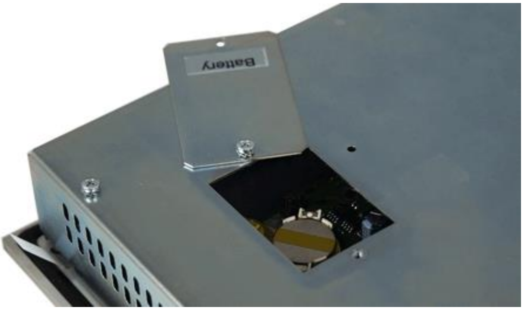
Remplacer la pile avec RENATA, modèle n° CR2032 uniquement! Utilisation d'une autre pile peut présenter un risque d'incendie ou d'explosion!

Touch.Keypad.Display
+86-15876525394

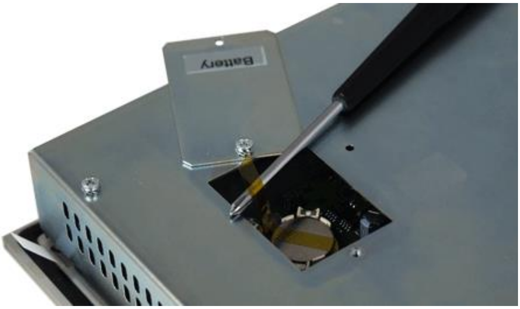
Exchanging the Battery

1. Turn off the power to the ETV.

2. Remove the locking screws with a PH1 screwdriver:



3. Remove the battery from the holder using the flap:



4. Insert the new battery with the correct polarity and mount the battery cover (+ Pole towards the back)

Note:
After of the +24V supply is turned off, the battery is buffered for 5 minutes. The battery must be changed within this time otherwise data will be lost!

Attention:
Après avoir débranché l'alimentation +24 V, la pile est tamponnée pendant 5 minutes. La pile doit être remplacée pendant ce laps de temps sinon les données seront perdues.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Cooling

The power loss from the terminal can be up to 27 Watts. Most of this heat is dissipated over the back panel of the housing. To ensure the necessary air circulation, the mounting instructions below must be followed.

Caution:
Because the back panel of the housing is used as the heat sink, its temperature can reach up to 25 °C.
Danger of injury!

Attention:
Parce que le face arrière du boîtier est utilisée comme dissipateur de chaleur, sa température peut atteindre jusqu'à 25 ° C.

Mounting Instructions

The following distance from the housing should be maintained:

- Back, left and right 5 cm
- Above and below 10 cm

In addition, an orientation from 60° to 120° must be maintained.

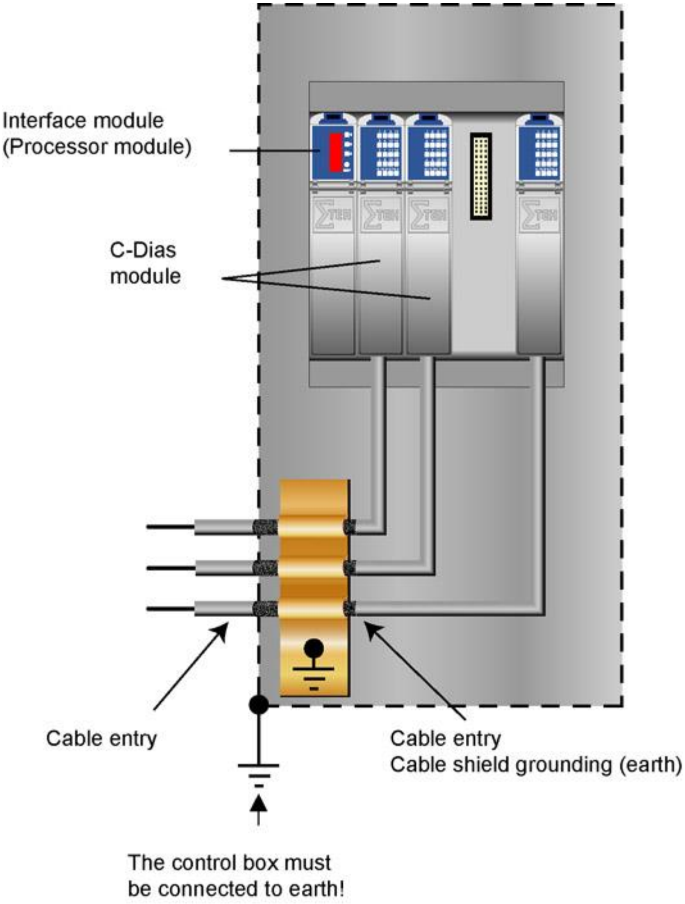
Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Wiring Guidelines

1. Earth

The terminal must be connected to earth through the assembly on the control cabinet or over the connection provided. It is important to establish a low Ohm earth connection to ensure fault-free operation. The earth connection should have a maximum cross section and the larges (electrical) surface possible.

The earth connection must be able to absorb all signal noise that reaches the terminal over external lines. With a large electrical surface, high frequency noise can be removed (skin effect).


Interface module
(Processor module)
C-Dias
module
Cable entry
Cable entry
Cable shield grounding (earth)
The control box must
be connected to earth!

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

2. Shielding

The wiring of the CAN and DIAS buses should be shielded twisted pair wires. The shielding for the cables must be connected over a large surface and with low resistance directly to the earth clamp before the terminal or connected to earth over a blade terminal. For Ethernet and VARAN bus CAT5 cables with shielded RJ45 connectors must be used. The shielding on the CAT5 cable is connected to earth via the RJ45 plug connector.

This prohibits signal noise from reaching the electronics and disrupting the functions.

3. ESD protection

USB devices (keyboard, mouse…) are typically not wired using shielded lines. ESD surges can disrupt the function of these devices.

Before any device is connected or disconnected from the terminal, the potential should be dissipated over the earth bus (touch control cabinet or earth bus) so that electrostatic loads (through clothing or shoes) can be drained.

4. DIAS bus Termination

In a DIAS bus system, both end modules must have a line termination. This is required to avoid data transfer errors caused by reflections in the line.

The DIAS bus termination is already integrated into the terminal, therefore, an additional termination on the DIAS bus connector is unnecessary.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

5. DIAS bus with C-DIAS modules

To ensure a good bus connection, several guidelines must be followed:

- The cable used must be suitable for the transfer rate:
  Data cable (10 MBit, 2 x 2 wire TWISTED PAIR, shielded)
  I.e.: LAPPKABEL / UNITRONIC-BUSLEITUNG FD P LD

- Due to the internal termination resistance, the impedance of the cable must be 100 Ohms.

- With twisted-pair cables, the correct pairs must be connected with one another:
  Cable 2x2 pair: pair 1 MBUS+, MBUS-
  Pair 2 SBUS+, SBUS-

- Both sides of the shielding must be connected to GND over the shortest route possible.

- In order to insert the individual wires in the connector, the insulation must be removed and the shielding moved to the side. The insulation and shielding should only be removed as far as needed.

- The sending and receiving modules must be connected to the same GND potential.

The Maximum length with a twisted-pair cable is 20 m
(with UNITRONIC BUS wire FD P LD / Fa. LAPPKABEL)

La longueur maximale totale d'un câble à paire torsadée est de 20 m (lors de l'utilisation UNITRONIC BUS FD P LD / Fa. LAPPKABEL).

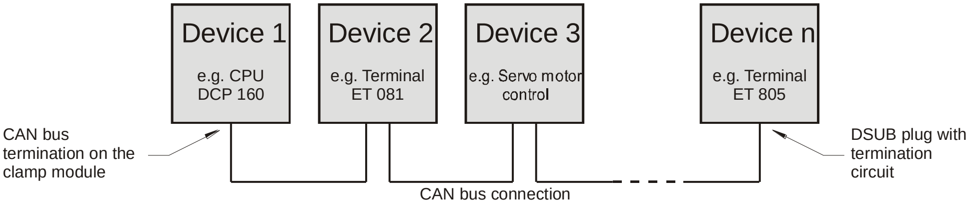
6. DIAS bus with DIAS modules

This terminal can also be connected to a DIAS module. A voltage supply, however, is required for the DIAS module (i.e.: DPS 001) as well as an adapter module to connect the twisted pair cable to the ribbon cable connector (i.e.: DKO 012 / 013).

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

7. CAN bus Termination

In a CAN bus system, both ends must be terminated. This is required to avoid transfer errors caused through reflections in the line.


Device 1
e.g. CPU
DCP 160
Device 2
e.g. Terminal
ET 081
Device 3
e.g. Servo motor
control
Device n
e.g. Terminal
ET 805
CAN bus
termination on the
clamp module
DSUB plug with
termination
circuit
CAN bus connection

If the terminal is one of the end modules, the termination can be made using a 150-Ohm resistor between CAN A (LOW) and CAN B (HIGH).

8. USB interface

The terminal has 2 USB interfaces. These interfaces can be used for various USB devices (keyboard, mouse, storage media, hubs…) in LASAL. Several USB devices can be connected via hub, all completely functional in LASAL. However, for the BIOS setup, the following condition must be noted:

The BIOS setup is only operator-accessible, when the USB keyboard is directly connected to the USB connector. When using a USB hub, malfunctions can appear in the BIOS setup!

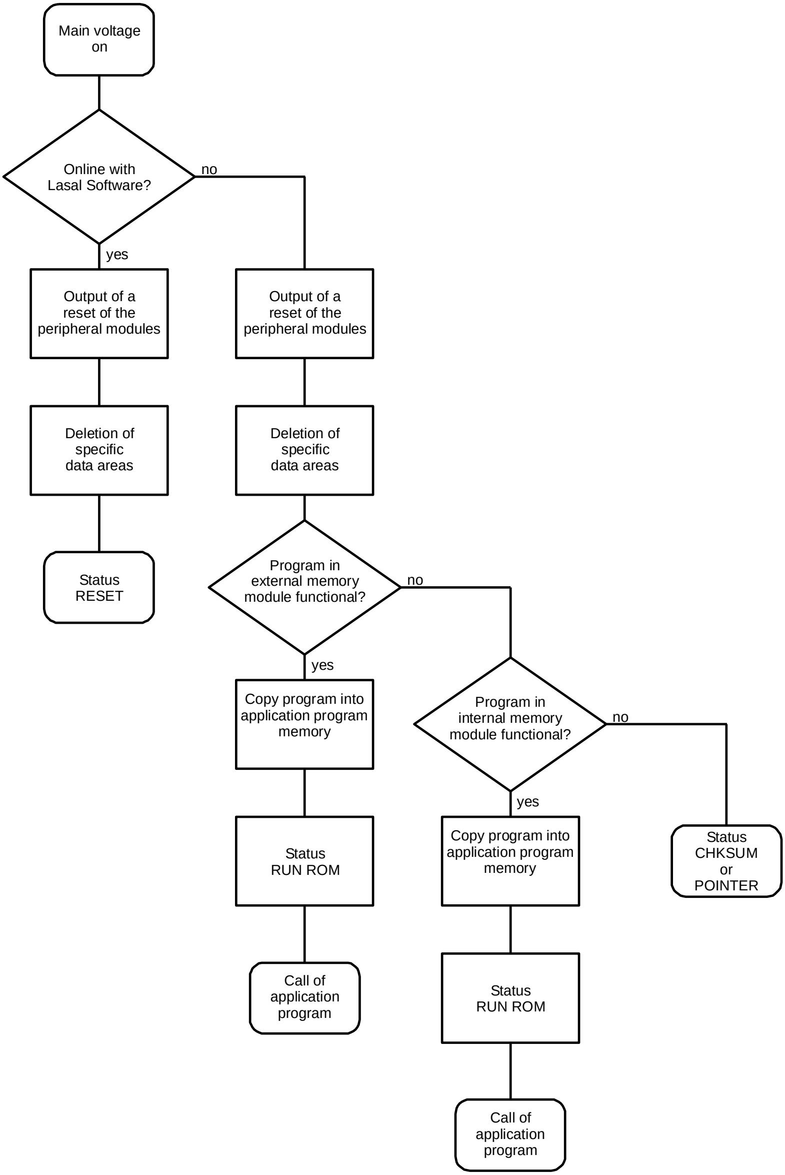
It should be noted that many of the USB devices on the market do not comply with USB specifications; this can lead to device malfunctions. It is also possible that these devices will not be detected at the USB port or function correctly. Therefore, it is recommended that every USB stick be tested before actual use.

La configuration du BIOS est accessible uniquement si le clavier est connecté directement à la prise USB. L'utilisation d'un concentrateur USB peut provoquer des erreurs dans la configuration du BIOS!

Il faut souligner que la plupart des périphériques USB sur le marché ne sont pas conformes aux spécifications USB, ce qui peut entraîner des dysfonctionnements de l'appareil. Il est également possible que ces dispositifs ne seront pas détectés par le port USB ou qu’ils ne fonctionnent pas correctement. Par conséquent, il est recommandé que chaque clé USB soit testée avant l'utilisation sur l’automate.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Process Diagram


Main voltage on
Online with Lasal Software?
no
yes
Output of a reset of the peripheral modules
Deletion of specific data areas
Status RESET
Output of a reset of the peripheral modules
Deletion of specific data areas
Program in external memory module functional?
no
yes
Copy program into application program memory
Status RUN ROM
Call of application program
Program in internal memory module functional?
no
yes
Copy program into application program memory
Status RUN ROM
Call of application program
Status CHKSUM or POINTER

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Status and Error Messages

Status and error messages are given during the LASAL software status test. If the module is a CPU with a status display, the status or error code is also displayed. A POINTER or CHKSUM error is also shown on the terminal screen.

Number	Report	Meaning	Cause/Solution
00	**RUN RAM**	The user program is running in the RAM. The display is not affected.	
01	**RUN ROM**	The user program, which is located inside the memory module, has been loaded into the RAM and is running. The display is not affected.	
02	**RUNTIME**	Total duration of all cyclic objects exceeds maximum time; time can be configured by 2 system variables: - Runtime: time remaining -SWRuntime: preset value for runtime counter	
03	**POINTER**	Incorrect pointers were located before the user program was executed.	Possible causes: - Memory module is missing, not programmed or damaged. - Program in user program memory (RAM) is not executable. - Battery buffer broke down. - Software error, which overwrites the user program. Solution: - Reprogram the memory. Should the error reoccur, change the module. - Change buffer battery. - Correct program error.
04	**CHKSUM**	Wrong checksum was ascertained before execution of user program.	Cause/Solution: see POINTER

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

05	**WATCHDOG**	Program interruption by watchdog logic	Possible Causes: - Interrupts of user program blocked over a long period (command STI forgotten). - Defective hardware interrupt programming - Incorrect use of commands INB, OUTB, INW, OUTW - Processor damaged Solution: - Correct program error - Change CPU
06	**GENERAL ERROR**	General error	
07	**PROM DEFECT**	An error has occurred while programming the memory module	Possible causes: - Program memory module is defective - User program is too large - Program memory module is missing Solution: - Change program memory module
08	**RESET**	The CPU has detected the RESET signal and is waiting for further instructions. The user program is not run.	
09	**WD DEFEKT**	The hardware monitor (watchdog logic) is defective. The CPU tests the watchdog logic functions after start-up. If an error occurs during this test, the CPU goes into an endless loop and accepts no further instructions.	Solution: Exchange the CPU
10	**STOP**		
11	**PROG BUSYS**		
12	**PROGRAM LENGTH**		
13	**PROG END**	The memory module has been successfully programmed.	
14	**PROG MEMO**	The CPU is currently programming the memory module.	

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

15	**STOP BRKPT**	The CPU is stopped at a break point.	
16	**CPU STOP**	The PG software has stopped the CPU (F6 HALT in status test).	
17	**INT ERROR**	The CPU has triggered a false interrupt and the user program is interrupted or has encountered an unknown instruction.	Cause: - A non-existent operating system was used. - Stack error (unequal number of PUSH and POF instructions). - The user program was interrupted through a software error. Solution: - Correct program error
18	**SINGLE STEP**	The CPU is in single step mode and is waiting for further instructions.	
19	**READY**	A module or project was sent to the CPU and is now ready to execute the program.	
20	**LOAD**	The program is interrupted and the CPU is receiving a module or project.	
21	**UNZUL. MODUL**	The CPU has loaded a module that does not belong to the project.	
22	**MEMORY FULL**	The memory of the operating system (heap) is too small. No more memory could be reserved by a call to an internal function or an interface function from the application.	
23	**NOT LINKED**	At start-up, the program determined that a module is missing or does not belong to the project.	
24	**DIV BY 0**	A division error has occurred.	Possible cause: - Division by 0 - The division result does not fit in the register. Solution: - Correct program error.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

25	**DIAS ERROR**	While accessing a DIAS module, an error has occurred.	Possible cause: - Access of a non-existing DIAS module. - DIAS bus error Solution: - Check DIAS bus - Check termination resistors
26	**WAIT**	CPU is busy.	
27	**OP PROG**	The operating system is being programmed.	
28	**OP INSTALLED**	Operating system is being reinstalled.	
29	**OS TOO LONG**	The operating system cannot be loaded; the memory is too small.	
30	**NO OPERATING SYSTEM**	Boot loader message. No operating system found in RAM.	
31	**SEARCH FOR OS**	The boot loader is searching for the operating system in RAM.	
32	**NO DEVICE**		
33	**UNUSED CODE**		
34	**MEM ERROR**	The operating system loaded does not correspond to the hardware configuration.	
35	**MAX IO**		
36	**MODULE LOAD ERROR**	LASAL module or project could not be loaded.	
37	**GENERELLER BS-FEHLER**	A general error has occurred while loading the operating system.	
38	**APPLMEM ERROR**	An error has occurred while managing the dynamic application memory (user Heap).	
39	**OFFLINE**		
40	**APPL LOAD**		
41	**APPL SAVE**		

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

45	**VARAN ERROR**	A required VARAN client was disconnected or a communication error with a VARAN client has occurred.	
46	**APPL-LOAD-ERROR**	An error has occurred while loading the application.	
47	**APPL-SAVE-ERROR**	Error in the application memory.	
50	**ACCESS-EXCEPTION-ERROR**	Read-write access to prohibited memory area, e.g. writing on NULL pointer.	
51	**BOUND EXCEEDED**	Exception error; memory range exceeded.	
52	**PRIVILEDGED INSTRUCTION**	Prohibited instruction for the current SPU level. I.e.: setting the segment register.	
53	**FLOATING POINT ERROR**	Error during a floating-point operation.	
60	**DIAS-RISC-ERROR**	Error from the intelligent DIAS master.	
64	**INTERNAL ERROR**	Internal error. All applications stopped.	Restart, report error to Sigmatek.
65	**FILE ERROR**	Error during file operation.	
66	**DEBUG ASSERTION FAILED**	Internal error	Restart, report error to Sigmatek.
67	**REALTIME RUNTIME**	Total duration of all real time objects has exceeded maximum time. The time cannot be configured. 2 ms for 386 CPUs 1 ms for all other CPUs	From Version 1.1.7
68	**BACKGROUND RUNTIME**	Total duration of all background objects exceeds the maximum time. The time can be configured using two system variables: -BTRuntime: time remaining -SWBTRuntime: preset for Runtime counter	

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

70	**C-DIAS ERROR**	An error occurred in connection with a C-DIAS module.	Cause: - The reason for this error is documented in the log file Solution: - Depends on the cause
72	**S-DIAS ERROR**	A connection error with a S-DIAS module has occurred.	Possible causes: - real network does not match the project - S-DIAS client is defective Solution: - analyze logfile
95	**USER DEFINED 0**	User-defined code	
96	**USER DEFINED 1**	User-defined code	
97	**USER DEFINED 2**	User-defined code	
98	**USER DEFINED 3**	User-defined code	
99	**USER DEFINED 4**	User-defined code	
100	**C_INIT**	Start of initialization. Configuration is executed.	
101	**C_RUNRAM**	The LASAL project was successfully started by the RAM.	
102	**C_RUNROM**	The LASAL project was successfully started by the ROM.	
103	**C_RUNTIME**		
104	**C_READY**	Everything OK.	
105	**C_OK**	Everything OK.	
106	**C_UNKNOWN_CID**	Unknown class from a stand-alone or embedded object, or an unknown base class.	
107	**C_UNKNOWN_CONSTR**	The operating system class cannot be created; possibly the wrong operating system has been loaded.	
108	**C_UNKNOWN_OBJECT**	Indication of an unknown object in an interpreter program. More than one DCC080 object has been created.	

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

109	`C_UNKNOWN_CHNL`	The number of the HW module is larger than 60.	
110	`C_WRONG_CONNECT`	No connection to the required channels.	
111	`C_WRONG_ATTR`	Wrong server attributes	
112	`C_SYNTAX_ERROR`	No specific error. Recompile all project sections and reload.	
113	`C_NO_FILE_OPEN`	An attempt was made to open an unknown table.	
114	`C_OUTOF_NEAR`	Error in the memory allocation.	
115	`C_OUT OF_FAR`	Error in the memory allocation.	
116	`C_INCOMAPTIBLE`	Object with the same name, but another class already exists.	
117	`C_COMPATIBLE`	Object with the same name and class already exists, but has to be updated.	
224	`LINKING`	Application is being linked.	
225	`LINKING ERROR`	An error has occurred while linking. An error message is displayed in the LASAL status window.	
226	`LINKING DONE`	Link ended.	
230	`OP BURN`	Operating system is burned into the flash memory.	
231	`OP BURN FAIL`	An error has occurred while burning the operating systems.	
232	`OP INSTALL`	Operating system is being installed.	
240	`USV-WAIT`	Power supply was disconnected; UPS is active.	
241	`REBOOT`	Operating system is restarted.	
242	`LSL SAVE`		
243	`LSL LOAD`		

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

252	**CONTINUE**		
253	**PRERUN**	Application is started.	
254	**PRERESET**	Application is ended.	
255	**CONNECTION BREAK**		

Additional addressing can be found in the VARAN bus specifications.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

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.

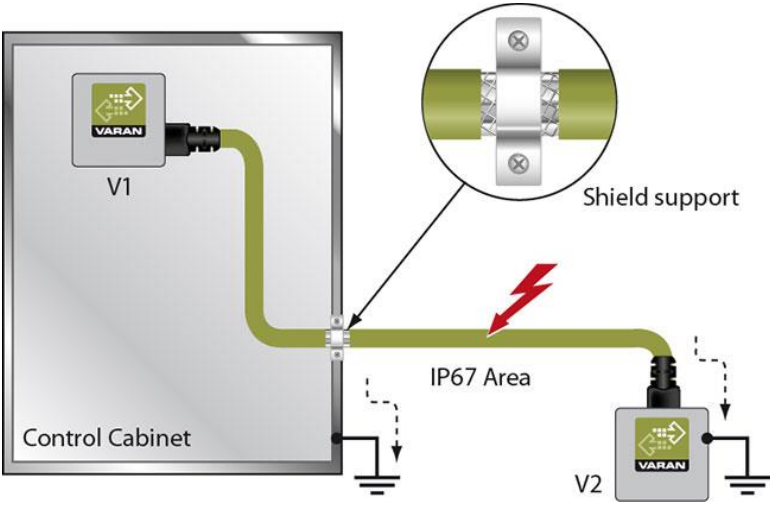
The VARAN cable must be secured at a distance of 20 cm from the connector for protection against vibration!

Le câble VARAN doit être protégé contre les vibrations à moins de 20 cm du connecteur (par exemple à l'aide d'une pince)!

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

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

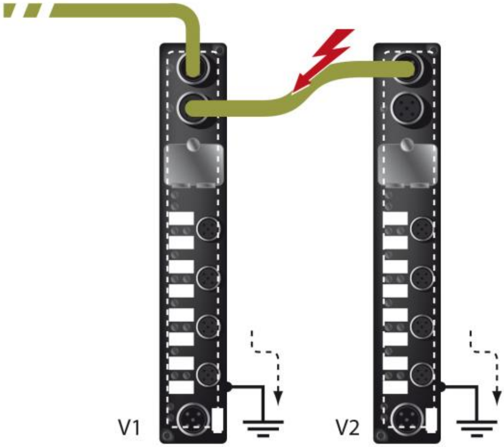
If the Ethernet lines are connected from a VARAN component to a VARAN node outside the control cabinet, the shielding should be placed at the entry point to the control cabinet housing. All noise can then be deflected from the electronic components before reaching the module.


VARAN
V1
Shield support
IP67 Area
Control Cabinet
VARAN
V2

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

2. Wiring Outside of the Control Cabinet

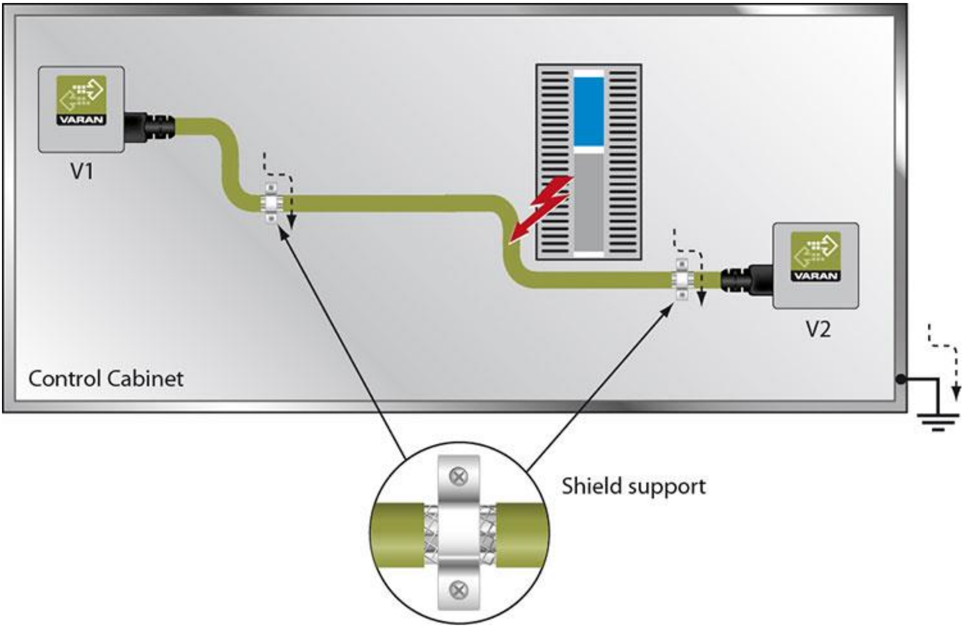
If a VARAN bus cable must be placed outside of the control cabinet only, no additional shield connection is required. This requires that only IP67 modules and connectors be used. These components are very robust and noise resistant. The shielding for all sockets in IP67 modules are internally connected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



Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

3. Shielding for Wiring Within the Control Cabinet

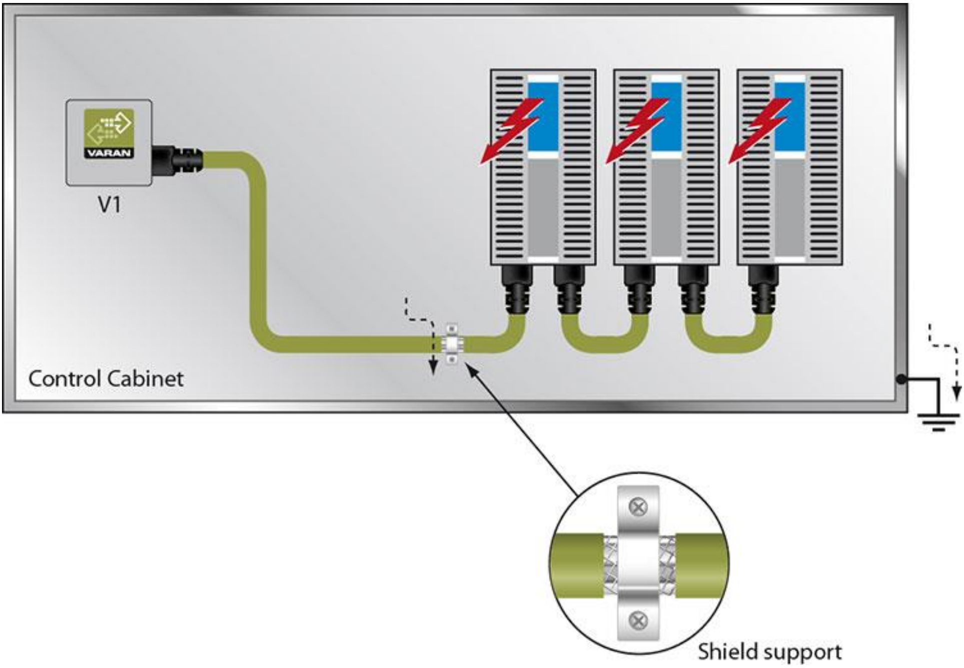
Sources of strong electromagnetic noise located within the control cabinet (drives, Transformers, etc.) can induce interference in a VARAN bus line. Spike voltages are deflected over the metallic housing of a RJ45 connector. Noise is conducted through the control cabinet housing without further action 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.



Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

4. Connecting Noise-Generating Components

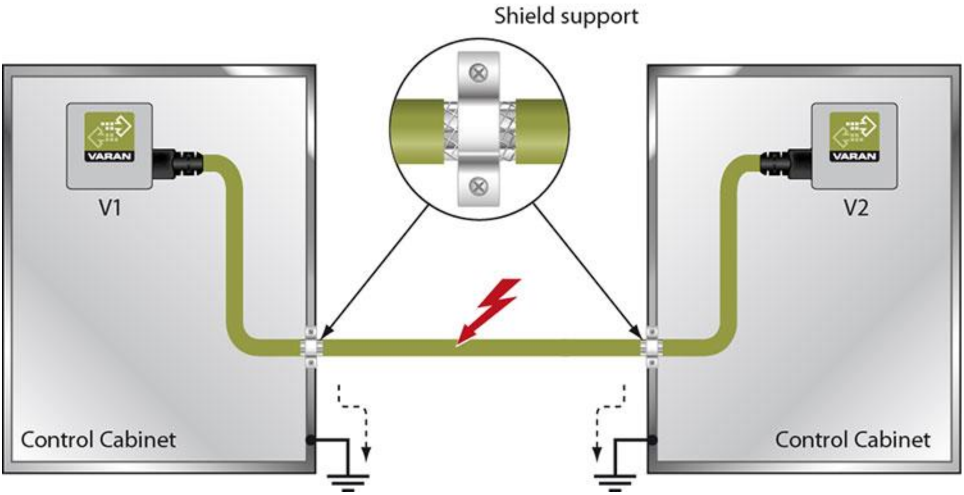
With the connection of power components that generate strong electromagnetic noise, it is also critical to ensure correct shielding. The shielding should be placed before a power component (or a group thereof).



Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

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.


Shield support
VARAN
V1
VARAN
V2
Control Cabinet
Control Cabinet

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394

Cleaning the Touch Screen

CAUTION!
Before cleaning the touch screen, the terminal must first be turned off to avoid unintentionally triggering commands or functions!

ATTENTION!
Avant de nettoyer l'écran tactile, le terminal doit d'abord être éteint afin d'éviter un déclanchement involontaire des commandes!

The terminal's touch screen can only be cleaned with a soft, damp cloth. To dampen the cloth, a screen cleaning solution such as anti static foam, water with a mild detergent or alcohol should be used. The cleaning solution should be sprayed onto the cloth and not directly on the terminal. The cleaning solution should not be allowed to reach the terminal electronics, for example, through the ventilation slots.

No erosive cleaning solutions, chemicals, abrasive cleansers or hard objects that can scratch or damage the touch screen may be used.

If the terminal comes in contact with toxic or erosive chemicals, carefully clean the terminal immediately to prevent acid damage.

To ensure the optimal function of the terminal, the terminal should be cleaned regularly!

To extend the lifespan of the touch screen as much as possible, using the fingers to operate the terminal is recommended.

Pour garantir le fonctionnement optimal du terminal, le terminal doit être nettoyé régulièrement!

Pour prolonger la durée de vie de l'écran tactile on recommande d'utiliser les doigts pour l'opérer.

Everything for your HMI running
Touch.Keypad.Display
+86-15876525394