

# VARICON with special interface

## Notes on Safety



**Warning – electrical hazard! Danger of death!**  
Electrical shocks can lead to death or serious injury to personnel. Equipment is also at risk (for example, damage to the device).

**i** If you see this symbol in the Short Guide and require more information, please refer to the VARICON operating instructions (article number 65158) or visit our website: <http://varicon.hanning.com>.

## Preparation

**i** This Short Guide is an extract of the VARICON operating instructions. Read the operating instructions carefully before commissioning the VARICON.

## Mechanical installation

- Install the VARICON in accordance with the corresponding rules and regulations in an appropriate environment and position that precludes any danger to personnel, machines and systems during the mechanical and electrical installation.
- Ensure that the VARICON is sufficiently ventilated to allow heat loss to dissipate.
- When installing for the first time in a machine, pay particular attention to ensure the direction of rotation is correctly wired and that the correct power supply voltage is applied.

## Electrical installation

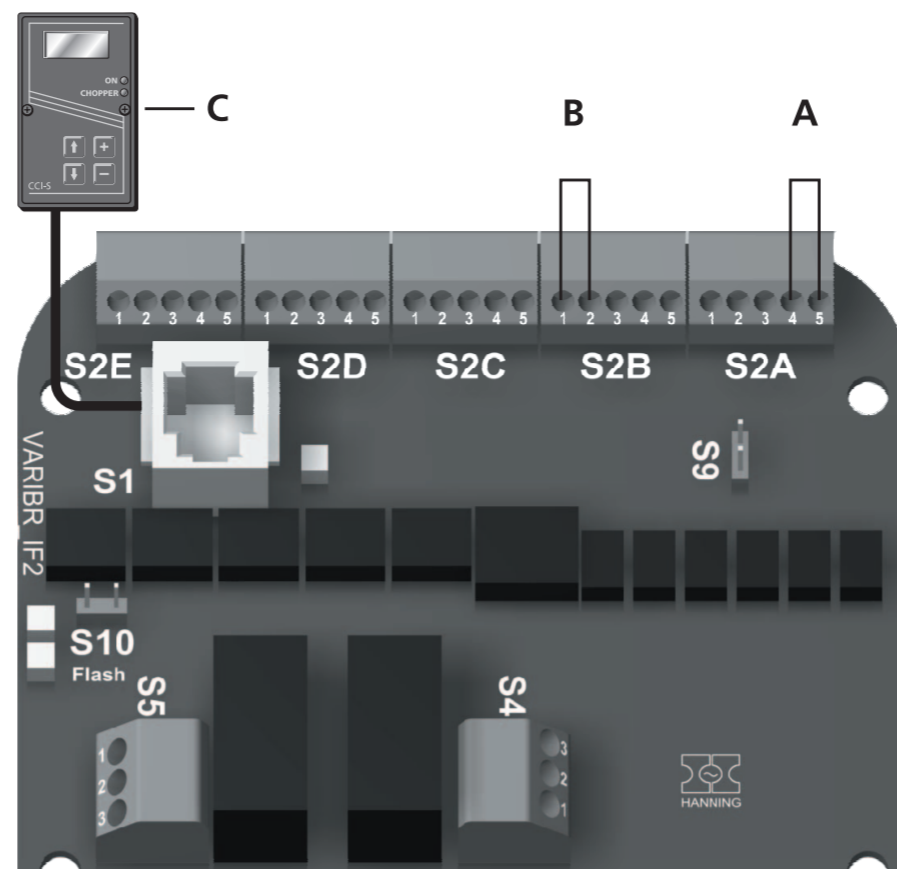
- Power supply voltage**  
Please refer to the details on the rating plate for the electrical installation of the power supply.

**i** Explaining the rating plate  
For information on cross-section and power supply cable fusing, please refer to the chapter: Technical data

## EMC compliant installation

It is the user's responsibility to ensure that his respective construction (final product/device) complies with the valid regulations in his country.  
The control lines must be routed separately from the mains supply lines. It is recommended to route the control lines in a separate cable duct. Use shielded lines.  
Protective measures and protective equipment must comply with valid regulations (for example, EN 60204 or EN 50178).

## Commissioning with operating unit

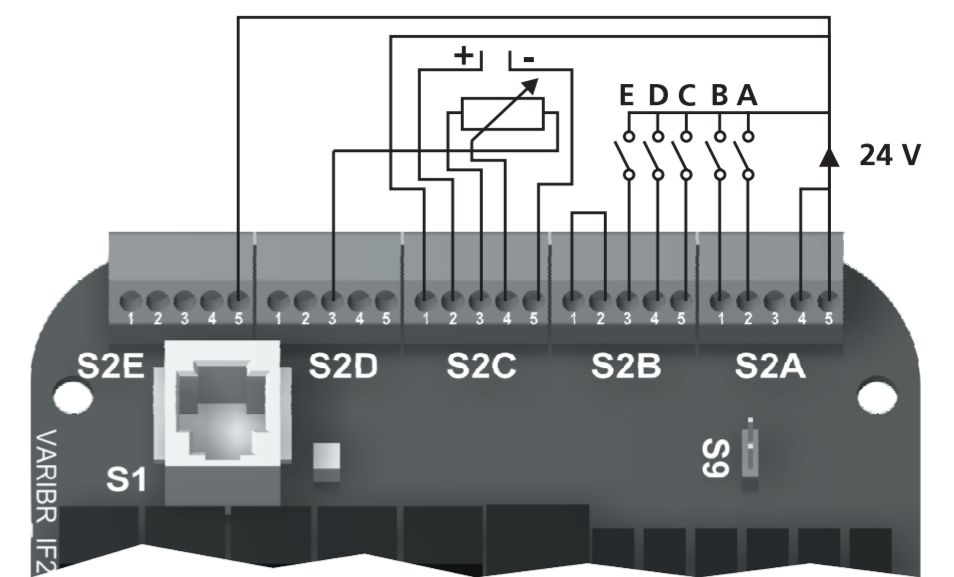


- A** A bridge from +24 V EX ('A5') to 'FREI' ('A4')
- B** A bridge from 'GND INT' ('B1') to DIG GND ('B2')
- C** Operating unit

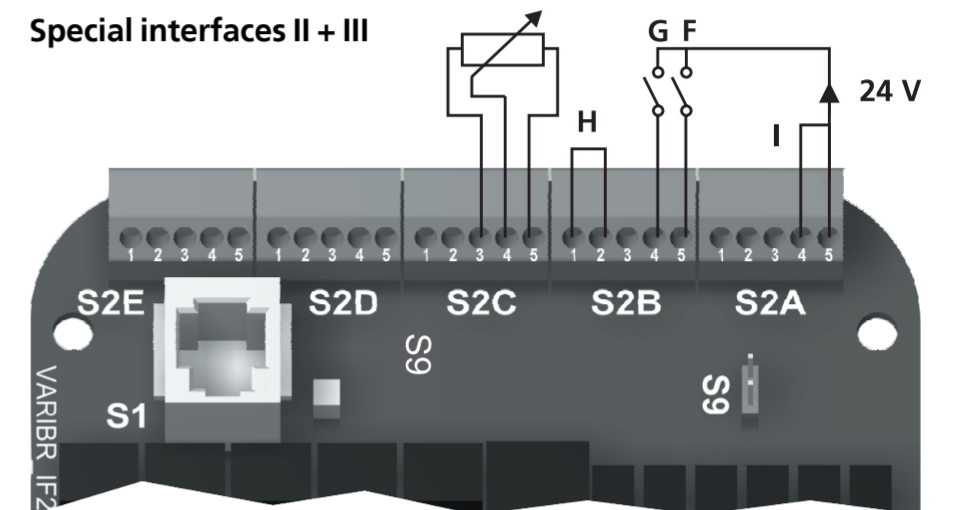
- The earth terminals ('GND INT' ('B1') und 'DIG GND' ('B2')) must be connected.
- The operating unit must be connected.
- Both start inputs ('ST-RE' and 'ST-LI') are disabled (0 or open).
- The enable input 'FREI' must be wired to 'A5'.
- All operating parameters for the VARICON can be displayed one after the other (keys  $\uparrow$   $\downarrow$ ) and altered (keys  $\oplus$   $\ominus$ ).
- It is possible to switch to the speed parameter 'Speed' from any position by pressing both buttons  $\uparrow$   $\downarrow$  simultaneously.
- The name of the selected parameter is displayed in the first line. The actual value or control state is displayed in the second line.
- Set the setpoint value selection 'SetSpeed' to code value 0.
- Set the mode to start using the  $\oplus$  key.
- To alter the speed, select the parameter 'Set Spd 0' using the  $\oplus$   $\ominus$  keys.

## Commissioning with analog setspeed selection (e.g. external potentiometer)

### Special interface I



### Special interfaces II + III



### Special interface I

- A** Direction of rotation 1. Setpoint value source (open = left, closed = right)
- B** Start command 1. Setpoint value source
- C** 2. Setpoint value source, start right
- D** 2. Setpoint value source, start left
- E** Switch analogue setpoint value from 2 to 1

### Special interfaces II and III

- F** Start right for 1. analogue setspeed
- G** Start left for 1. analogue setspeed

### Special interface I, II and III

- H** Earth terminal
- I** Release



**Necessary protective measures:**  
Earth the VARICON.



**Caution. You must observe the following notice!**  
In an **EMERGENCY STOP** situation, it is permitted to use this input FREI to turn off the clock pulse. However, the input FREI must not be used to switch the VARICON clock pulse on/off for normal operational purposes.



To avoid interference, short cables only (up to max. 2 m) use only to wire the enable 'FREI' to the internal voltage supply (see connection diagram).

When operating with an external power supply, ensure that the 'DIG GND' ('B2') is used as a reference potential for the PLC inputs and that 'GND INT' ('D3' or 'E3') is used as a reference potential for setpoint value selection, speed encoder decoupling and the digital feedback output.

## Block designations

- S1 Terminal for operating unit
- S2A - S2E Terminal strips, each with 5 connections
- S4 1. relay connection terminals  
1: NC contact, 2: Mid-position contact, 3: NO contact
- S5 2. relay connection terminals (not applicable to special interfaces II and III)  
1: NC contact, 2: Mid-position contact, 3: NO contact
- S9 Jumper for analogue setpoint value selection 0 (4) to 20 mA
- S10 Jumper to flash

## Terminal rail assignment

The inputs 'D-IN 0' ('A1'), 'D-IN 1' ('A2'), 'F-QUIT' ('A3'), 'FREI' ('A4'), 'D-IN HAND' ('B3'), 'ST-RE' ('B4') and 'ST-LI' ('B5') are PLC compatible.

Terminal (Block) S2...	Designation	Signal level	Input/output	Function	n/a for S-IF II III
A1	D-IN 0	Active HIGH 24 V	Input	Fixed speed selection 0 or start input	
A2	D-IN 1	Active HIGH 24 V	Input	Fixed speed selection 1 or direction of rotation right	
A3	F-QUIT	LOW/HIGH-edge 24 V	Input	Error acknowledgement	
A4	FREI	Active HIGH 24 V	Input	Inverter enable This input can be used to directly enable or disable the converter clock pulse.	
A5	24 V EX	24 V	Output	24 V power supply for control inputs	
B1	GND INT	GND	---	Ground reference for the internal power supply	
B2	DIG GND	GND	---	Reference potential for the inputs FREI, D-IN 0/1, D-IN HAND, ST-RE/LI and F-Quit	
B3	D-IN HAND	Active HIGH 24 V	Input	Analogue setpoint value selection	X X
B4	ST-LI	Active HIGH 24 V	Input	Start left	
B5	ST-RE	Active HIGH 24 V	Input	Start right	
C1	V-IN	24 V	Input	Supply for analogue setpoint value selection 1 and 2, and supply for the speed encoder signal, spur lines A (D4) and B (D5)	

Terminal (Block) S2...	Designation	Signal level	Input/output	Function	n/a for S-IF II III
C2	A-IN 2+	0 (4) to 20 mA	Input	2. Analogue setspeed selection 0 (4) to 20 mA	X X
C3	+10 V-OUT	10 V / max. 10 mA	Output	10-V supply to connect a potentiometer to the analogue input	
C4	A-IN 1+	0 (2) to 10 V or 0 (4) to 20 mA Switch selectable	Input	1. Analogue setspeed selection 0 (2) to 10 V Bi-directional to 0 (4) to 20 mA (jumper S9)	
C5	A-IN-	A GND	---	Reference potential for analogue input	
D1	I-OUT-	4 - 20 mA	Output	Signalling output	X
D2	I-OUT+	4 - 20 mA	Output	Signalling output	X
D3	GND INT	GND	---	Ground reference for the internal power supply	
D4	A+ OUT	0 - V-OUT (24 V)	Output	Speed encoder signal, spur line <b>A</b> (apply 24 V to C1)	
D5	B+ OUT	0 - V-OUT (24 V)	Output	Speed encoder signal, spur line <b>B</b> (apply 24 V to C1)	
E1	A	0 to 5 V	Input/output	RS 485 signal line	
E2	B	0 to 5 V	Input/output	RS 485 signal line	
E3	GND INT	GND	---	Ground reference for the internal power supply	
E4	OUT HAND	0 - V-OUT (24 V)	Output	Digital signalling output for setpoint value selection	X X
E5	V-IN HAND	24 V	Input	Supply for signalling output OUT HAND (E4) and setpoint value selection	X X

