# Short Instruction For Use EN HF Inverter e@syDrive® TV 4503, TV 4506, TV 4538







## INDUSTRIAL DRIVES





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#### 1.0 Scope of Supply

HF Inverter e@syDrive® TV 4503 (Drive System SD2T / device variant 0362160DB)	Material no. 2.000.6670
HF Inverter e@syDrive® TV 4506 (Drive System SD2T / device variant 0362162EB)	Material no. 2.000.6784
HF Inverter e@syDrive® TV 4538 (Drive System SD2T / device variant 0362161EC)	Material no. 2.000.5530
SycoTec – Short Instruction For Use	Material no. 2.000.7718
HF Inverter e@syDrive® TV 4503, TV 4506, TV 4538	
HF Inverter e@syDrive® TV 4503, TV 4506, TV 4538 Mains cable, 10 A, length approx. 1.8 m	
HF Inverter e@syDrive® TV 4503, TV 4506, TV 4538 Mains cable, 10 A, length approx. 1.8 m USB cable, screened with Ferrite, length approx. 2 m	

#### 2.0 Motor Connection - Rear Side

The device variant of the SD2T series provides the following terminal block for the motor connection.

6 lead-through terminals DFK 4 (PHOENIX)

	Pin	I/O	Name	Meaning			
	2	I/0	GND	Ground			
	1	I	PTC	PTC contact			
	Ť		PE	Protective conductor			
U V W 🛓 1 2	W	0	W	Motor phase W			
	V	0	V	Motor phase V			
	U	0	U	Motor phase U			

• The motor cable shield is connected to the shield connection clamp.

- The EMC characteristics of these device variants are restricted. Thus the device meets the interference limit values of EMC category C3.
- ▶ If using a KTY connect the black wire to PTC (Pin 1) and the white Kabel to Ground (Pin 2).



(Fig.: e @syDrive TV 4506)

#### 3.0 Operation

At the first start (mains on) of the inverter the display shows:



This display indicates the start of the electronics and will change to the first selected parameter set:



#### 3.1 Parameter Set Selection

This function is only possible if the device is stopped.

- Press keys [START] and [STOP / ESC] for at least 3 seconds at the same time to switch to the parameter menu ("PARAMETER SELECT").
- Select a different parameter set using the arrow buttons [Up / Down]
  - Press the button [START] to apply the selected parameter set.
  - Press the button [STOP / ESC] to returns to the preset selection.

#### 3.2 Configuration of the Rotational Speed

- The setting of the speed in steps is possible with the arrow buttons.
  - With the arrow keys [Left / Right] move the cursor to the desired position.
  - With the arrow keys [Up /Down] change the selected digit.
- It is possible to set negative speed values.

#### 3.3 Starting and Stopping the Spindle

Using the keys on the front panel the motor spindle can be started and stopped.

1x Button [START] = controller on 2x Button [START] = motor spindle runs

1x Button [STOP / ESC] = controller still on

2x Button [STOP / ESC] = controller off

#### 4.0 Analog and Digital Inputs and Outputs

A parameter set with the addition "FB" in the motor spindle description, the inverter can be operated by remote control or external control unit.



The functions of the digital and analog inputs and outputs are different depending on the drive function. The following inputs and outputs are set by default.

#### 4.1 Digital Inputs

Name	I/0	Function / Assignment	Pin
INO	1	Switch on	X53/6
IN1		Operation enable	X53/18
IN2		Error reset	X53/5
IN3	1	Speed direction	X53/17
IN4		External hardware OK	X53/19
GND	I/0	Ground	X53/1,4,13
VCC24_OUT	0	24 V output for inputs/outputs (max. 0,3 A)	X53/24
VCC24_EXT		24 V supply for external inputs/outputs	X53/25



#### 4.2 Digital Outputs

Name	I/0	Function / Assignment	Pin
OUTO	0	Ready type 1	X53/9
OUT1	0	M02 – Message operation enabled	X53/22
OUT2	0	M12 – Speed zero	X53/23
OUT3	0	M10 – Ref. Value reached	X53/10
GND	I/O	Ground	X53/1,4,13
VCC24_OUT	0	24 V output for inputs/outputs (max. 0,3 A)	X53/24
VCC24_EXT	1	24 V supply for external inputs/outputs	X53/25



Every output can be loaded with 100 mA

#### 4.3 Analog Input

Name	I/0	Function / Assignment	Pin
AIN0+	E	Speed reference value	X53/16
AIN0-	E	Reference point of AIN0+ (bridge with ground)	X53/3
GND	E/A	Ground	X53/1,4,13
VCC10	А	10 V for analog measuring systems (max. 0,1 A)	X53/14



Input voltage range: ± 10 V

### 5.0 Example of Remote Control





- > Connect the inverter via USB interface to the computer
- > Plug in the inverter
- Start Sieb & Meyer "SD2 Windows software drivemaster2" <u>https://www.sieb-meyer.com/file-detail.html?item=413</u>



To establish a connection to the device click "Setup connection to the device", adjust "USB" for connection type and select "Search devices + connect".



#### 7.0 Activate another parameter set

To activate a different parameter file, enter the number (P00 ... Pxx) of the required parameter file and click "Apply".



#### 8.0 Load parameter file

Before opening the parameter file select the right position (Pxx) or add a new parameter set.

IIII SIEB & MEYER AG - drivemaster2 - V1.18 - [Build &	0 - 28.06.2018 ]	-		×
Project Edit Loader Settings Extras Help   Now   🖈 👂 🖓 🖓 🙌   🧐 🕅   📟 🖬	User Level: Admin 🍕 Pow: 0 - Drv: 0 A P01: 4033 AC	SIEB &	MEYER	Ħ
🔠 Device overview 👔 Parameters 🛛 🐊 Diagnosis				
	Basic device         Designation:       036 21 62EB - A         Serial number:       1 000 328 996         Parameter set       Image: Copy content         Image: Operation of the selection of the selec			Q
P20: 2 x 4025 AC P22: 4033 DC-T P25: FB 2 x 4025 AC P27: FB 4033 DC-T Edit project	O Digital inputs O Field bus	0. Dec 0.4	Online	

To open a parameter file click "Open parameters" on the toolbar and select the required parameter file. To write the parameter file into the inverter click "Write parameters to drive" on the toolbar.

III SIEB & MEYER AG - drivemaster2 - V1.18 - [Build	80 - 28.06.2018 ]		- 0	×
Project Edit Loader Settings Extras Help   New   🥕 🔁 🖓 🙌 🖓   왕 왕이 📰	SIEB & MEYER	Ħ		
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Projekt: Online Projekt	Host: localhost	Server: S&M USB Server V2.2 (GUI) Pow	: 0 - Drv: 0 A - Online	

## $\triangle$ ATTENTION

Parameters with the Drive function type HSPWM must not be written to the drive.

#### 9.0 Load Project

To open a project select "Project" and then "Open project". Select the required project file and click "Open".

,	28.06.2018 ]	-		×
Project Edit Loader Settings Extras Help 수 Execute project wizard 왕 한 문화 조용	SIEB &	MEYER	Ē	
Qpen project       Diagnosis         Save project       Diagnosis         New parameters       Diagnosis         Save project as       Save project as         Save parameters       Save parameters         Save parameters as       Save parameters to Html         P12: FB 4033 AC 25T-60       P13: FB 4033 AC 25T-60         P14: FB 4040 / 4041 AC       P15: FB 4050 C         P15: FB 4050 C       P15: FB 4050 C	Summary         Basic device         Designation:       036 21 62EB - A         Serial number:       1 000 328 996         Parameter set       Image: Copy content         Image: Add       Image: Copy content         Image: Delete       Image: Parameter set			Q
P17: FB 4032 DC-T P18: FB 4033 DC P19: FB 4040 / 4041 DC-S P20: 2 x 4025 AC P22: 4033 DC-T P25: FB 2 x 4025 AC P27: FB 4033 DC-T Edit project	Parameter set selection ● Fixed selection (EEPROM) 1 ○ Digital inputs ○ Field bus		A.F.	

To write the project to the inverter select "Loader" in the menu bar and then "Write project to drive".

IIIII SIEB & MEYER AG - drivemaster2 - V1.18 - [Build &	80 - 28.06.2018 ]		- 0	$\times$
Project Edit Loader Settings Extras Help	User Level	: Admin 🍕	SIER & MEYED	_
New 🕺 🕺 Write system software to drive	v: 0 - D	nr: 0 A P01: 4033 AC	JED & METER	11
B Device over Write system software to power su	upply unit			
SD2: 0 - 036 ⊟  ☐ Drv: 0 A  Write project to drives		Summary		Q
P00: 20 Write parameters to drive				
PO2: 9 Read parameters from drive		Basic device		
P04: Write garametersets to drive		Designation: 036.21.62EB - A		
P05: W Read parametersets from drive		Serial number: 1 000 328 996		
P07: Searching for connected devices				
P09: Delete all parameter sets in drive				
P11: Delete system software in drive		Parameter set		
P12: FB 4033 AC 2ST-60 P13: FB 4033 AC LN15		🛃 Add 🛛 🔯 Copy content		
P14: FB 4040 / 4041 AC		Delete Asste content		
P16: FB 4025 DC-S P17: FB 4025 DC-T		Parameter set selection		
P18: FB 4033 DC		Fixed selection ( EEPROM )		
		O Digital inputs #II Apply		
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# $\Lambda$ ATTENTION

Parameters with the Drive function type HSPWM must not be written to the drive.

The display indicates status and error messages.

#### Examples:

1. Switch-on message



Status: "Loader" flashes

The device is in boot loader mode: Display appears short-time when the device is booted and if the system software is loaded.

#### 2. Initialization finished



Line 1 = parameterized name of the active parameter set Line 2 = active reference speed value in rpm Line 3 = status ("Ready" = ready to be switched on)

#### 3. Switch-on



With the button [START] the drive switches to the status "Switched On". The parameterized holing current flows.

#### 4 Operation enabled



After pressing the button [START] a second time, the drive switches to the status "Operation Enabled", the spindle accelerates to the set reference speed.

"ACT" = actual speed

"REF" = reference speed value

Progress bar = load in % of the parameterized motor rated current

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5. Error

PA ·	-	MF	4	0		U	F				
REF	:		2	5	0	0	0		r	p	m
		E	r	r	0	r	:	E		4	1

The device stopped due to "Error E.41". The error is still present (indicated by the dot behind "E")

PA -	MF40 UF	
REF:	25000	rpm
	Error:	E41
		/

The device stopped due to "Error E41". The error is not present anymore.

#### 6. Parameterized quick stop message

PA -	MF40	UF	
REF:	250	000	rpm
	QSt	op:	н03

If the controller can not be switched on due to a quick stop, the corresponding quick stop code is displayed.

#### 7. Parameter set selection

PARAMETER			SELECT		
			0		
PA	-	MF4	0	UF	

This function is only possible if the device is stopped.

Line 1 = PARAMETER SELECT - > Parameter menu

Line 2 = Parameter set number

Line 3 = Parameter set description / Spindle name

#### 8. Switch-off message

PA -	MF40	UF	
REF:		0	rpm
Main	volta	age	NOK

After switch-off the switch-off message is displayed.

#### **Warranty Conditions**

Under current SycoTec delivery and payment conditions, SycoTec undertakes warranty for satisfactory function and freedom from faults in material and manufacture for a period of 12 months from the date of sale certified by the vendor.

In the event of justifiable complaints, SycoTec shall supply spare parts or carry out repairs free of charge under warranty. SycoTec accepts no liability for defects and their consequences which have arisen or could have arisen as a result of natural wear and tear, improper handling, cleaning or maintenance, noncompliance with the maintenance, operating or connecting instructions, corrosion, impurities in the air supply or chemical or electrical influences which are unusual or not admissible in accordance with SycoTec's standards. The warranty claims shall become null and void if defects or their consequences can be attributed to interventions in or modifications to the product. Warranty claims can only be validated if they are notified immediately in writing to SycoTec.

A copy invoice or delivery note clearly showing the manufacture number shall be attached if products are returned.

#### **CE** Declaration of Conformity

The CE Declaration of conformity may be requested or downloaded from www.sycotec.eu.

(DE = original)

### **INDUSTRIAL DRIVES**

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