

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6SE7090-0XX84-3DB0

DIGITAL TACHOMETER INTERFACE BOARD

Used with the applicable SIMOVERT MASTERDRIVES DTI configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens SIMOVERT MASTERDRIVES DTI manufacturer documentation; applicable pages 28, 29, 30, 32, 33, 34, 35

3 Installation, Connecting-up

The board is snapped onto a mounting rail. The components must be wired-up by others.

NOTES

- ◆ The board provides no protection against direct contact. Protection against direct contact is ensured by mounting it in an enclosure or in a cabinet.
- ◆ Screened cables must be used to prevent EMC disturbance. Screens must be connected at X80 and X81.
- ◆ Perfect functioning of the board cannot be guaranteed if the permissible cable lengths are exceeded (refer to figs. 5-1 to 5-4). If longer cable lengths are required, please contact your tachometer manufacturer or supplier.
- ◆ Power- and control cables must be separately routed.

Terminal	Function, information	Cable cross-section	
		[mm ²]	AWG ¹⁾
X401:	TTL tachometer		
1	Reference potential (M tachometer)	0,5 to 2,5	20 to 14
2	Pulse track A	0,5 to 2,5	20 to 14
3	Inverted pulse track A	0,5 to 2,5	20 to 14
4	Pulse track B	0,5 to 2,5	20 to 14
5	Inverted pulse track B	0,5 to 2,5	20 to 14
6	Position track (not evaluated)	0,5 to 2,5	20 to 14
7	Inverted position track (not evaluated)	0,5 to 2,5	20 to 14
8	Tachometer monitoring track (not evaluated)	0,5 to 2,5	20 to 14
9	Inverted tachometer monitoring track	0,5 to 2,5	20 to 14
10	5 V tachometer supply	0,5 to 2,5	20 to 14

¹⁾ American Wire Gauge

Terminal	Function, information	Cable cross-section	
		[mm ²]	AWG
X402:	HTL tachometer		
1	Reference potential (M tachometer)	0,5 to 2,5	20 to 14
2	Pulse track A	0,5 to 2,5	20 to 14
3	Inverted pulse track A	0,5 to 2,5	20 to 14
4	Reference potential (M tachometer)	0,5 to 2,5	20 to 14
5	Pulse track B	0,5 to 2,5	20 to 14
6	Inverted pulse track B	0,5 to 2,5	20 to 14
7	Reference potential (M tachometer)	0,5 to 2,5	20 to 14
8	Position track (not evaluated)	0,5 to 2,5	20 to 14
9	Inverted position track (not evaluated)	0,5 to 2,5	20 to 14
10	Reference potential (M tachometer)	0,5 to 2,5	20 to 14
11	Tachometer monitoring track (not evaluated)	0,5 to 2,5	20 to 14
12	Inverted tachometer monitoring track	0,5 to 2,5	20 to 14
13	Reference potential (M tachometer)	0,5 to 2,5	20 to 14
14	15 V supply	0,5 to 2,5	20 to 14

Table 3-1 Terminals

NOTES

- ◆ In the case of TTL encoders (X401), the signals and the inverse signals of the tachometer must be connected.
- ◆ If the inverted signals are not used in the case of HTL encoders, these inputs must be connected at X402 with reference potential (M Tacho) (see Fig. 5-2).
- ◆ If a supply voltage of >15 V is necessary for HTL tachometers, it can be picked off from -X404:3 and 4.

Terminal	Function, information	Cable cross-section	
		[mm ²]	AWG
X403:	CU2 / CUVC / CUVP ¹⁾ or TSY		
1	Reference potential	0,5 to 1,5	20 to 16
2	Pulse track A	0,5 to 1,5	20 to 16
3	Pulse track B	0,5 to 1,5	20 to 16
4	Position track (not evaluated)	0,5 to 1,5	20 to 16
5	Tachometer monitoring track	0,5 to 1,5	20 to 16
6	15 V supply / 24 V supply ¹⁾	0,5 to 1,5	20 to 16
X404:	External 24 V power supply		
1	Reference potential (M24 ext.)	0,5 to 2,5	20 to 14
2	Power supply voltage (P24 ext.)	0,5 to 2,5	20 to 14
3	Reference potential, tachometer (M24 SV T)	0,5 to 2,5	20 to 14
4	Tachometer supply (P24 SV T)	0,5 to 2,5	20 to 14
X405:	TTL output		
1	Reference potential	0,5 to 1,5	20 to 16
2	Pulse track A	0,5 to 1,5	20 to 16
3	Inverted pulse track A	0,5 to 1,5	20 to 16
4	Pulse track B	0,5 to 1,5	20 to 16
5	Inverted pulse track B	0,5 to 1,5	20 to 16
6	Position track	0,5 to 1,5	20 to 16
7	Inverted position track	0,5 to 1,5	20 to 16
8	5 V power supply	0,5 to 1,5	20 to 16
X80	Grounding point / screen ground	With cable lug for M4 bolt	
X81	Grounding point / screen ground	With cable lug for M4 bolt	

Table 3-2 Terminals

¹⁾ only with 6SE7090-0XX84-3DB1

4 Start-up

WARNING



Work must not be done on the module when the power supply is on or the motor is turning.

The safety instructions for MASTERDRIVES are to be complied with.

Prerequisites

- ◆ The standard converter start-up with "closed-loop speed control" has been completed.
- ◆ Check the existing board combination
 - TSY in conjunction with CU1 (SIMOVERT FC)
 - CU2 (SIMOVERT VC) / CUVC (Vector Control) / CUVP ¹⁾ (Vector Control Compact PLUS)
- ◆ Determine the tachometer type
- ◆ Select and check the input terminals
 - HTL ↔ -X402 DTI
 - TTL ↔ -X401 DTI
- ◆ Establish and check the connection to the converter (refer to figs. 5-1 and 5-2)
 - **SIMOVERT FC**
DTI -X403 ↔ TSY -X113,-X117 ↔ CU1-X107 (15-V-Signalpegel)
 - **SIMOVERT VC**
DTI -X403 ↔ CU2 -X103 (15 V signal level)
CUVC -X103 (15 V signal level)
CUVP ¹⁾ -X104 (15 V signal level)
- ◆ Select the 24 V power supply for the tachometer
 - 0.3 A power supply module (option)
 - Other 24 V power supplies

NOTE

"Potential separation" is required for the external supply.

- ◆ Check that the screen is grounded at both cable ends and that the board is grounded.

¹⁾ only with 6SE7090-0XX84-3DB1

- ◆ Set the parameter numbers on the SIMOVERT MASTERDRIVES (refer to the Instruction Manual / Compendium SIMOVERT converter, Section "Parameter list").

SIMOVERT FC **P208**, Src Speed(act)
 P209, Encoder Pulse #
 P090, Brd Slot2
 P091, Brd Slot3

SIMOVERT VC **P208**, Src Speed(act)
 (CU2) **P209**, Encoder Pulse #

SIMOVERT MASTERDRIVES Vector Control (CUVC / CUVP ¹⁾)

P130, Select MotEncod
 P151, Encoder Pulse #

¹⁾ only with 6SE7090-0XX84-3DB1

5 Technical Data

Board name	DTI (digital tachometer interface)	
Order No.	6SE7090-0XX84-3DB0	
Internal power supply voltage	15 V DC, 160 mA	
External power supply voltage	24 V DC -16 % +25 %, 300 mA in the case of HTL encoder 24 V DC -16 % +25 %, 150 mA in the case of TTL encoder	
Max. loading of encoder supply	HTL encoder: 300 mA TTL encoder: 400 mA	
Input current	HTL encoder: 12 mA TTL encoder: 42 mA	
Output driver current	HTL encoder: 15 mA TTL encoder: 20 mA	
Digital signals, limit frequency	$f_{\max}$ 400 kHz	
Operating temperature	0 °C to +55°C	
Storage temperature	-25 °C to +70°C	
Transport temperature	-25 °C to +70°C	
Environmental class for operation	acc. to DIN IEC 721 Part 3-3	
- Humidity:	3K3	
- Pollutant exposure:	3C2	
Pollution level	2	DIN VDE 0110 Part 1 moisture condensation not permissible
Overvoltage category	II	DIN VDE 0110 Part 2
Degree of protection	IP00	DIN VDE 0470 Part 1 $\neq$ EN 60529
Mechanical stability		DIN IEC 68-2-6
Dimensions	[mm]	
	Width	160
	Height	96
	Depth	46 / 56 1)

	Frequency range	Constant amplitude of the	
	Hz	deflection mm	acceleration m/s ² (g)
- when stationary	10 to 60	0,35	
	above 60 to 500		49 (5)
- during transport	5 to 9	3,5	
	above 9 to 500		9,8 (1)

1) with 6SE7090-0XX84-3DB1

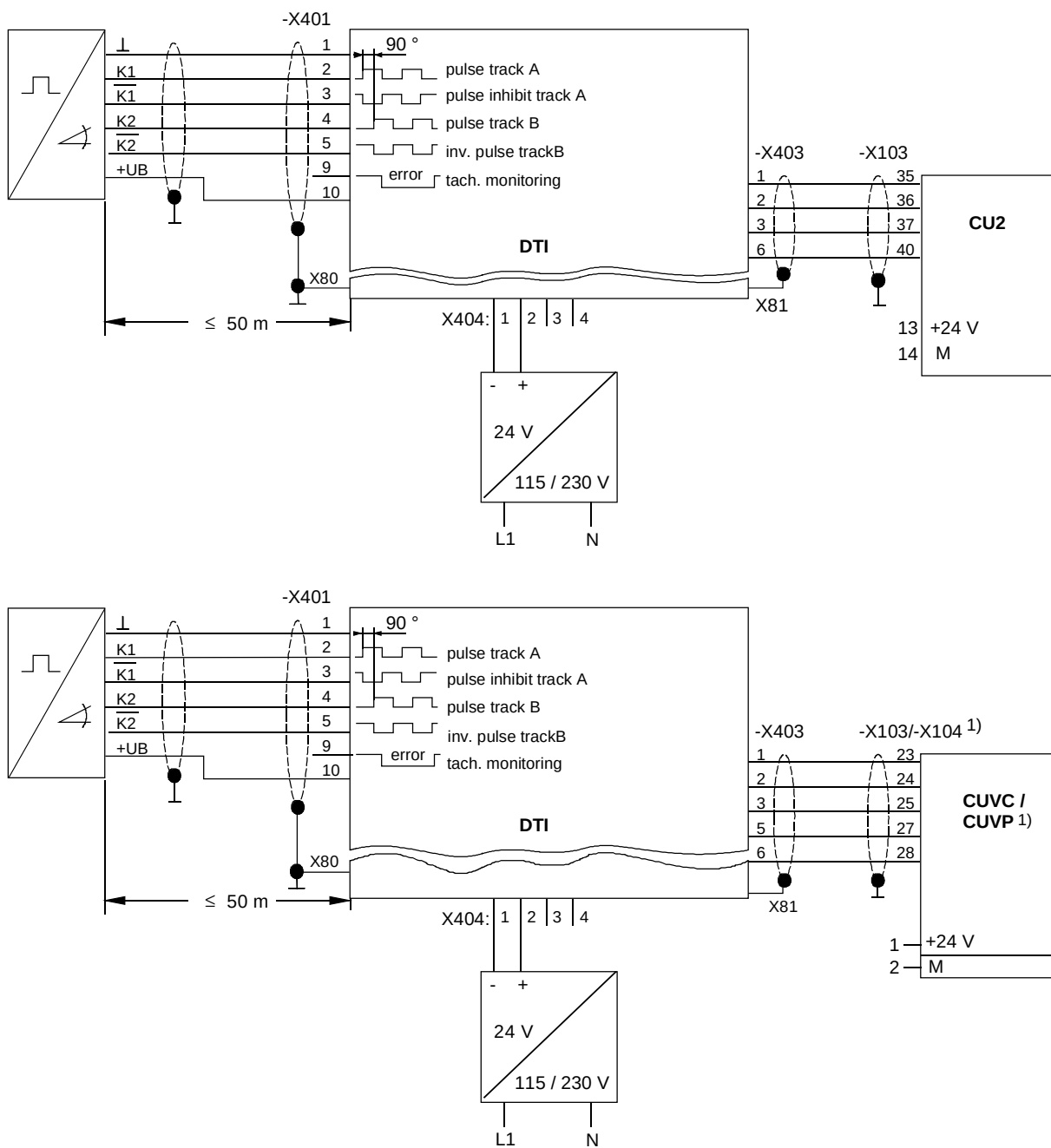


Fig. 5-1 TTL tachometer with inverted pulse track (type H0G9, Fa. Hübner Berlin) and external power supply for SIMOVERT VC

1) only with 6SE7090-0XX84-3DB1