

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6SL3055-0AA00-3BA0

FAIL-SAFE TERMINAL EXPANSION MODULE

Used with the applicable SINAMICS S120 TM54F configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens SINAMICS S120 TM54F manufacturer documentation; applicable pages 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173

5.4.8 Technical data

Table 5- 30 Technical data

6SL3055-0AA00-3PA1	Unit	Value
Electronics power supply		
Voltage	V _{DC}	24 (20.4 ... 28.8)
Current (without DRIVE-CLiQ and digital outputs)	A _{DC}	0.5
Power loss	W	12
Response time	The response time of the digital inputs/outputs and the analog input comprise the following: • Response time on the component itself (approx. 1/2 DRIVE-CLiQ cycle). • Transfer time via the DRIVE-CLiQ connection (approx. 1 DRIVE-CLiQ cycle). • Evaluation on the Control Unit (see function diagram). Additional information can be taken from the following references: Reference: /LH1/ SINAMICS S120/S150 List Manual, Chapter "Function diagrams/Terminal Module 41"	
PE/ground connection	At the housing with M4 screw	
Maximum cable lengths:		
electronics power supply	m	30
DRIVE-CLiQ cables	m	100
inputs/outputs	m	30
Weight	kg	0.32

5.5 Terminal Module TM54F

5.5.1 Description

The TM54F is a terminal expansion module for snapping onto a mounting rail according to EN 60715: The TM54F includes fail-safe digital inputs and outputs to control the Safety Integrated functions of SINAMICS. A fail-safe digital input comprises 2 digital inputs. A fail-safe digital output comprises a 24 VDC switching output, a ground switching output and a digital input for checking the switching state.

The TM54F connection should be established via the DRIVE-CLiQ directly at a Control Unit. Only one TM54F Terminal Module can be assigned to each Control Unit.

Additional DRIVE-CLiQ nodes can be connected to the TM54F, such as Sensor Modules and Terminal Modules (however, no additional TM54F). Motor Modules and Line Modules should not be connected to a TM54F.

TM54F features the following interfaces:

Table 5- 31 Interface overview of the TM54F

Type	Quantity
DRIVE-CLiQ interfaces	2
Fail-safe digital inputs (F-DI)	10
Fail-safe digital outputs (F-DO)	4
Sensor ¹⁾ power supplies, dynamization supported ²⁾	2
Sensor ¹⁾ power supply, no dynamization	1
Digital inputs to check F_DO for a test stop	4
Power supply	1

¹⁾ Sensors: Fail-safe devices to issue commands and sense, for example, Emergency Stop pushbuttons and safety locks, position switches and light arrays/light curtains.

²⁾ Dynamic response: The sensor power supply is cycled on and off by the TM54F when the forced checking procedure is active for the sensors, cable routing, and the evaluation electronics.

Note

All signals connected to the TM54F must be PELV signals.

Note

The operating ranges of the F-DI meet the requirements of EN 61131-2 for type 1 digital inputs.

The rated values of the F-DO meet the requirements of EN 61131-2 for digital DC outputs with 0.5 A rated current.

Note

For cable lengths > 30 m, shielded cables must be used for the F-DI.

5.5.2 Interface description

5.5.2.1 Overview

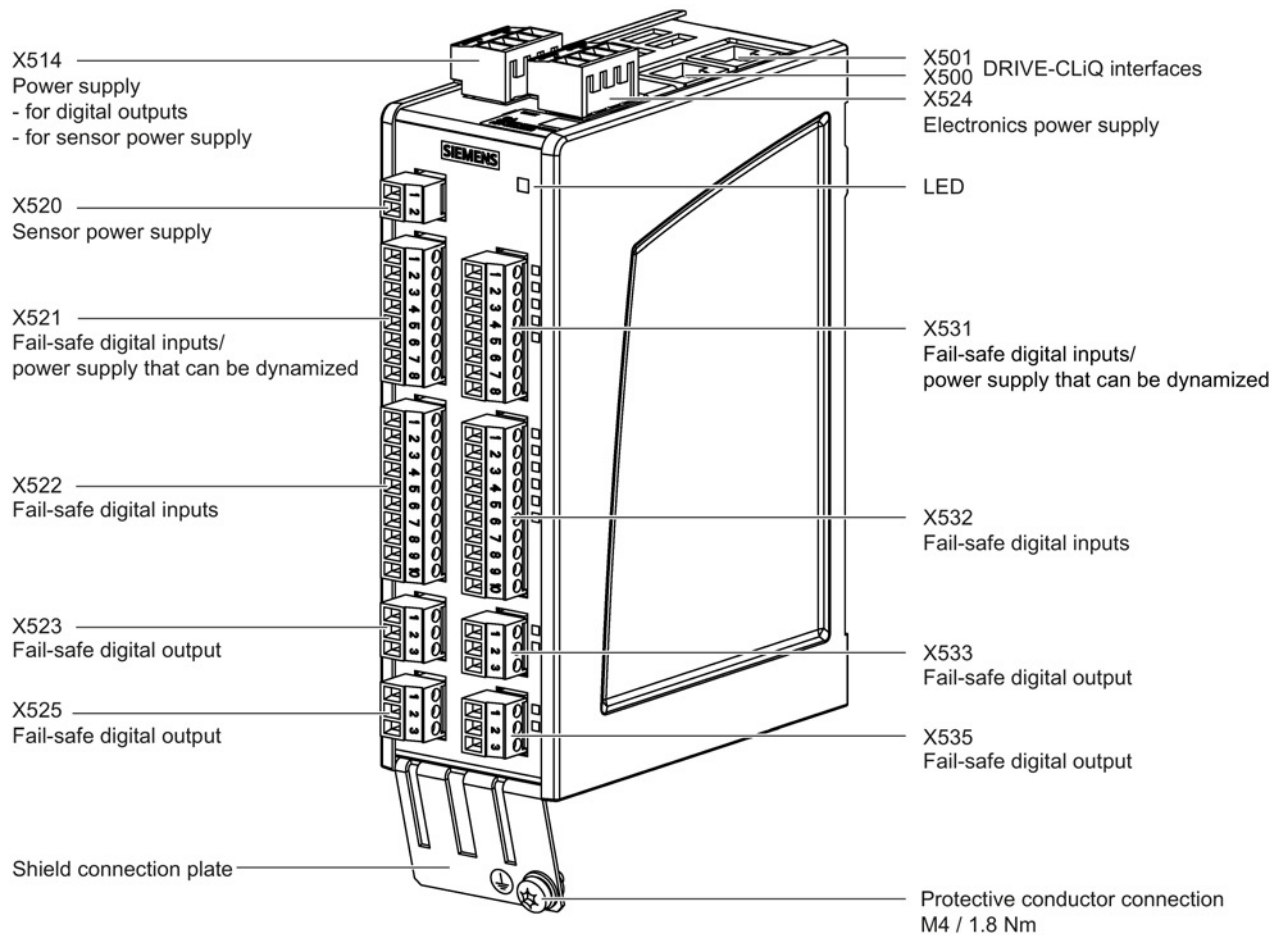
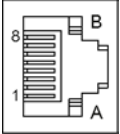


Figure 5-18 TM54 interface overview

5.5.2.2 X500/X501 DRIVE-CLiQ interfaces

Table 5- 32 X500/X501: DRIVE-CLiQ interfaces

	Pin	Signal name	Technical data
	1	TXP	Transmit data +
	2	TXN	Transmit data -
	3	RXP	Receive data +
	4	Reserved, do not use	
	5	Reserved, do not use	
	6	RXN	Receive data -
	7	Reserved, do not use	
	8	Reserved, do not use	
	A	+ (24 V)	Power supply
	B	M (0 V)	Electronics ground

The blanking covers for the DRIVE-CLiQ interfaces are included in the scope of delivery.

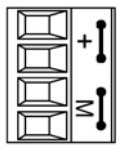
Blanking covers (50 x) Article No.: 6SL3066-4CA00-0AA0

Note

The maximum DRIVE-CLiQ cable length is 100 m.

5.5.2.3 X514 power supply for digital outputs and sensors

Table 5- 33 X514: Power supply

	Terminal	Designation	Technical data
	+	Power supply	Voltage: 24 V DC (20.4 ... 28.8 V)
	+	Power supply	Current consumption: max. 4.0 A ¹⁾
	M1	Electronics ground	Max. current via jumper in connector: 20 A (15 A according to UL/CSA)
	M1	Electronics ground	
Type: Screw terminal 2 (Page 331)			

¹⁾ Including the current consumption for the digital outputs and to supply the sensor.

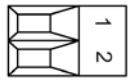
The maximum cable length that can be connected is 30 m.

Note

The two "+" and "M1" terminals are jumpered in the connector. This ensures that the supply voltage is looped through.

5.5.2.4 X520 sensor power supply

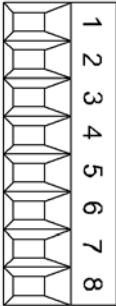
Table 5- 34 X520: Sensor power supply

	Terminal	Designation	Technical data
	1	L3	Voltage: +24 V DC Max. total load current: 500 mA
	2	M1	

Without forced dormant error detection

5.5.2.5 X521 fail-safe digital inputs and dynamically adjustable power supply

Table 5- 35 X521: Fail-safe digital inputs

	Terminal	Designation ¹⁾		Technical data
	1	L1+		Switched voltage: +24 V DC Max. total load current: 500 mA (voltage is switched for a test stop)
	2	DI 0	F-DI 0	Voltage: -3 ... +30 V DC
	3	DI 1+		Electrical isolation: Yes
	4	DI 2	F-DI 1	Reference potential: see terminals 6, 7, 8
	5	DI 3+		Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 µs for "1" → "0": typ. 60 µs Switching frequency: max. 100 Hz
	6	DI 1-	F-DI 0	Reference potential for DI 1+
	7	DI 3-	F-DI 1	Reference potential for DI 3+
	8	M1		Reference potential for DI 0, DI 2, L1+
An F-DI consists of a digital input and a 2nd digital input where, in addition, the cathode of the optocoupler is fed-out. F-DI 0 = terminals 2, 3 and 6 F-DI 1 = terminals 4, 5 and 7				
Type: Screw terminal 1 (Page 331)				

¹⁾ DI: Digital input, F-DI: Fail-safe digital input²⁾ Pure hardware delay

Note

Execution of a test stop

The test stop of the F-DI 0 to F-DI 4 can only be performed if the F-DI is supplied from L1+.

Note

Ensuring the function of digital inputs

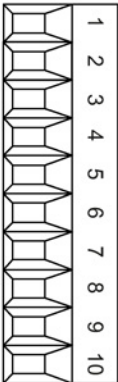
For the digital inputs DIx+ to function, the reference potential must be connected to input DIx- in each case.

This is achieved by using one of the following measures:

1. Providing the ground reference of the digital inputs
 2. A jumper between DIx- and terminal M1
-

5.5.2.6 X522 fail-safe digital inputs

Table 5- 36 X522: Fail-safe digital inputs

	Terminal	Designation ¹⁾		Technical data
	1	DI 4	F-DI 2	Voltage: -3 ... +30 V DC Electrical isolation: Yes Reference potential: see terminals 7, 8, 9, 10 Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 µs for "1" → "0": typ. 60 µs Switching frequency: max. 100 Hz
	2	DI 5+		
	3	DI 6	F-DI 3	
	4	DI 7+		
	5	DI 8	F-DI 4	
	6	DI 9+		
	7	DI 5-	F-DI 2	Reference potential for DI 5+
	8	DI 7-	F-DI 3	Reference potential for DI 7+
	9	DI 9-	F-DI 4	Reference potential for DI 9+
	10	M1		Reference potential for DI 4, DI 6 and DI 8
An F-DI consists of a digital input and a 2nd digital input where, in addition, the cathode of the optocoupler is fed-out. F-DI 2 = terminals 1, 2 and 7 F-DI 3 = terminals 3, 4 and 8 F-DI 4 = terminals 5, 6 and 9				
Type: Screw terminal 1 (Page 331)				

¹⁾ DI: Digital input, F-DI: Fail-safe digital input

²⁾ Pure hardware delay

Note

Execution of a test stop

The test stop of the F-DI 0 to F-DI 4 can only be performed if the F-DI is supplied from L1+.

Note

Ensuring the function of digital inputs

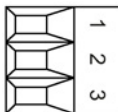
For the digital inputs DIx+ to function, the reference potential must be connected to input DIx- in each case.

This is achieved by using one of the following measures:

1. Providing the ground reference of the digital inputs
2. A jumper between DIx- and terminal M1

5.5.2.7 X523 fail-safe digital output

Table 5- 37 X523: Fail-safe digital output

	Terminal	Designation ¹⁾	Technical data	
	1	DI 20	F-DO 0 Voltage: -3 ... +30 V DC Electrical isolation: Yes Reference potential: M1 Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 μs for "1" → "0": typ. 60 μs Switching frequency: max. 100 Hz	
	2	DO 0+		Voltage: 24 V DC Electrical isolation: Yes Reference potential M1 for DO 0+ Terminal L1+, L2+ or L3+ for DO 0- Output voltage "1" signal, with load: > X514.+ -2 V Output current For each output: ≤ 0.5 A Sum of all 4 outputs: ≤ 2 A Residual current for "0" signal: < 0.5 mA Short-circuit protection, automatic restart after a short-circuit Load types: ohmic, capacitive, inductive Output delay ²⁾ for "0" → "1": 300 μs (ohmic load) for "1" → "0": 350 μs (ohmic load) Switching frequency for ohmic load: max. 100 Hz for inductive load: max. 0.5 Hz for lamp load: max. 10 Hz Lamp load: max. 5 W
	3	DO 0-		

An F-DO comprises two digital outputs and one digital input for feedback

F-DO 0 = terminals 1, 2, and 3

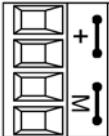
Type: Screw terminal 1 (Page 331)

¹⁾ DI: Digital input; DO: digital output F-DO: Fail-safe digital output

²⁾ Pure hardware delay

5.5.2.8 X524 electronics power supply

Table 5- 38 X524: Electronics power supply

	Terminal	Designation	Technical data
	+	Electronics power supply	Voltage: 24 V DC (20.4 ... 28.8 V)
	+	Electronics power supply	Current consumption: max. 0.7 A
	M	Electronics ground	Max. current through the jumper in the connector: 20 A (15 A according to UL/CSA)
	M	Electronics ground	

Type: Screw terminal 2 (Page 331)

The maximum cable length that can be connected is 30 m.

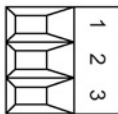
Note

The two "+" or "M" terminals are jumpered in the connector. This ensures that the supply voltage is looped through.

The current consumption increases by the value for the DRIVE-CLiQ node.

5.5.2.9 X525 fail-safe digital output

Table 5- 39 X525: Fail-safe digital output

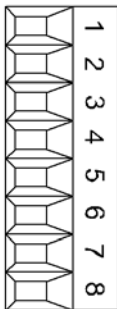
	Terminal	Designation ¹⁾	Technical data
	1	DI 21	F-DO 1 Voltage: -3 ... +30 V DC Electrical isolation: Yes Reference potential: M1 Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 μs for "1" → "0": typ. 60 μs Switching frequency: max. 100 Hz
	2	DO 1+	
	3	DO 1-	
An F-DO comprises 2 digital outputs and 1 digital input for feedback signal F-DO 1 = terminals 1, 2, and 3 Type: Screw terminal 1 (Page 331)			

¹⁾ DI: Digital input; DO: Digital output F-DO: Fail-safe digital output

²⁾ Pure hardware delay

5.5.2.10 X531 fail-safe digital inputs and dynamically adjustable power supply

Table 5- 40 X531: Fail-safe digital inputs

	Terminal	Designation ¹⁾		Technical data
	1	L2+		Switched voltage: +24 V DC Max. total load current: 500 mA (voltage is switched for a test stop)
	2	DI 10	F-DI 5	Voltage: -3 ... +30 V DC
	3	DI 11+		Electrical isolation: Yes
	4	DI 12	F-DI 6	Reference potential: see terminals 6, 7, 8
	5	DI 13+		Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 µs for "1" → "0": typ. 60 µs Switching frequency: max. 100 Hz
	6	DI 11-	F-DI 5	Reference potential to DI 11+
	7	DI 13-	F-DI 6	Reference potential to DI 13+
	8	M1		Reference potential to DI 10, DI 12, L2+
An F-DI consists of 1 digital input and a 2nd digital input where, in addition, the cathode of the optocoupler is fed-out. F-DI 5 = terminals 2, 3 and 6 F-DI 6 = terminals 4, 5 and 7				
Type: Screw terminal 1 (Page 331)				

¹⁾ DI: Digital input, F-DI: Fail-safe digital input

²⁾ Pure hardware delay

Note**Execution of a test stop**

The test stop of the F-DI 5 to F-DI 9 can only be performed if the F-DI is supplied from L2+.

Note

Ensuring the function of digital inputs

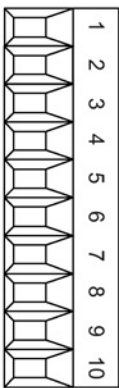
For the digital inputs DIx+ to function, the reference potential must be connected to input DIx- in each case.

This is achieved by using one of the following measures:

1. Providing the ground reference of the digital inputs
2. A jumper between DIx- and terminal M1

5.5.2.11 X532 fail-safe digital inputs

Table 5- 41 X532: Fail-safe digital inputs

	Terminal	Designation ¹⁾	Technical data
	1	DI 14	F-DI 7 Voltage: -3 ... +30 V DC Electrical isolation: Yes
	2	DI 15+	
	3	DI 16	F-DI 8 Reference potential: see terminals 7, 8, 9, 10 Input characteristic acc. to IEC 61131-2, type 1
	4	DI 17+	
	5	DI 18	F-DI 9 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 µs for "1" → "0": typ. 60 µs Switching frequency: max. 100 Hz
	6	DI 19+	
	7	DI 15-	
	8	DI 17-	
	9	DI 19-	Reference potential for DI 19+
	10	M1	Reference potential for DI 14, DI 16 and DI 18
An F-DI consists of 1 digital input and a 2nd digital input where, in addition, the cathode of the optocoupler is fed-out. F-DI 7 = terminals 1, 2 and 7 F-DI 8 = terminals 3, 4 and 8 F-DI 9 = terminals 5, 6 and 9			
Type: Screw terminal 1 (Page 331)			

¹⁾ DI: Digital input, F-DI: Fail-safe digital input

²⁾ Pure hardware delay

Note

Execution of a test stop

The test stop of the F-DI 5 to F-DI 9 can only be performed if the F-DI is supplied from L2+.

Note

Ensuring the function of digital inputs

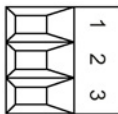
For the digital inputs DIx+ to function, the reference potential must be connected to input DIx- in each case.

This is achieved by using one of the following measures:

1. Providing the ground reference of the digital inputs
 2. A jumper between DIx- and terminal M1
-

5.5.2.12 X533 fail-safe digital output

Table 5- 42 X533: Fail-safe digital output

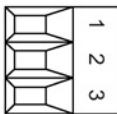
	Terminal	Designation ¹⁾	Technical data	
	1	DI 22	F-DO 2 Voltage: -3 ... +30 V DC Electrical isolation: Yes Reference potential: M1 Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 μs for "1" → "0": typ. 60 μs Switching frequency: max. 100 Hz	
	2	DO 2+		Voltage: 24 V DC Electrical isolation: Yes Reference potential M1 for DO 2+ Terminal L1+, L2+ or L3+ for DO 2- Output voltage "1" signal, with load: > X514.+ -2 V Output current For each output: ≤ 0.5 A Sum of all 4 outputs: ≤ 2 A Residual current for "0" signal: < 0.5 mA Short-circuit protection, automatic restart after a short-circuit Load types: ohmic, capacitive, inductive Output delay ²⁾ for "0" → "1": 300 μs (ohmic load) for "1" → "0": 350 μs (ohmic load) Switching frequency for ohmic load: max. 100 Hz for inductive load: max. 0.5 Hz for lamp load: max. 10 Hz Lamp load: max. 5 W
	3	DO 2-		
An F-DO comprises 2 digital outputs and 1 digital input for feedback signal F-DO 2 = terminals 1, 2, and 3 Type: Screw terminal 1 (Page 331)				

¹⁾ DI: Digital input; DO: Digital output F-DO: Fail-safe digital output

²⁾ Pure hardware delay

5.5.2.13 X535 fail-safe digital output

Table 5- 43 X535: Fail-safe digital output

	Terminal	Designation ¹⁾	Technical data
	1	DI 23	F-DO 3 Voltage: -3 ... +30 V DC Electrical isolation: Yes Reference potential: M1 Input characteristic acc. to IEC 61131-2, type 1 Input voltage (including ripple) "1" signal: 15 ... 30 V "0" signal: -3 ... +5 V Input current at 24 V DC: typ. 3.2 mA for "1" signal: > 0.5 mA Input delay: ²⁾ for "0" → "1": typ. 30 μs for "1" → "0": typ. 60 μs Switching frequency: max. 100 Hz
	2	DO 3+	
	3	DO 3-	
An F-DO comprises 2 digital outputs and 1 digital input for feedback signal F-DO 3 = terminals 1, 2, and 3 Type: Screw terminal 1 (Page 331)			

¹⁾ DI: Digital input; DO: Digital output F-DO: Fail-safe digital output

²⁾ Pure hardware delay

5.5.3 Connection example

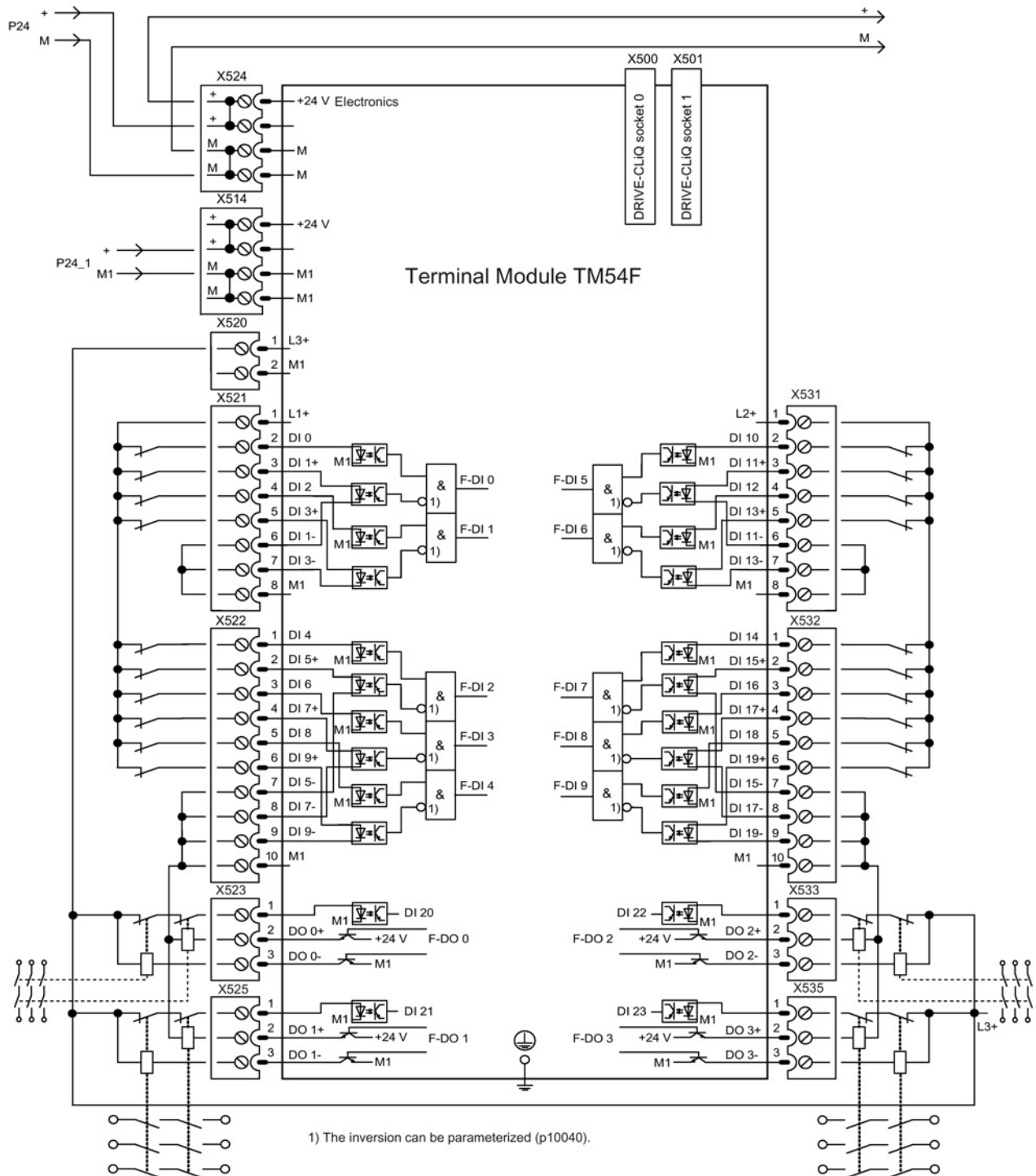


Figure 5-19 Connection example off TM54F

5.5.4 Meaning of the LEDs

Table 5- 44 Meaning of the LEDs on the Terminal Module TM54F

LED	Color	Status	Description, cause	Remedy
READY	-	Off	The electronics power supply is missing or outside the permissible tolerance range.	–
	Green	Continuous light	The component is ready for operation, cyclic DRIVE-CLiQ communication is taking place.	–
	Orange	Continuous light	DRIVE-CLiQ communication is being established.	–
	Red	Continuous light	This component has at least one fault. Remark: The LED is activated irrespective of whether the corresponding messages have been reconfigured.	Remedy and acknowledge fault or safely acknowledge the fault
	Green/red	Flashing light 0.5 Hz	Firmware is being downloaded.	–
		Flashing light 2 Hz	Firmware download is complete. Wait for POWER ON.	Carry out a POWER ON
	Green / orange or Red / orange	Flashing light 1 Hz	Component recognition via LED is activated (p0154 = 1). Remark: Both options depend on the LED status when component recognition is activated. Green / orange: Component is operating without any faults Red/orange: Component signals a fault	–
L1+, L2+	–	Off	The controllable sensor power supply is functioning fault-free.	–
	Red	Continuous light	There is a fault in the controllable sensor power supply.	–
L3+	–	Off	The sensor power supply is operating fault-free.	
	Red	Continuous light	The sensor power supply has a fault.	
Fail-safe inputs / double inputs				
F_DI z (input x, (x+1)+, (x+1)-)	LED	LED		–
	x	x+1	NC contact/NC contact¹⁾: (z = 0 ... 9, x = 0, 2, ... 18)	
	–	Red	Continuous light	Different signal states at input x and x+1
	–	–	Off	No signal at input x and no signal at input x+1
			NC contact/NO contact¹⁾: (z = 0 ... 9, x = 0, 2, ... 18)	
	–	Red	Continuous light	Same signal states at input x and x+1
	–	–	Off	No signal at input x and no signal at input x+1
	LED	LED		
	x	x+1	NC contact/NC contact¹⁾: (z = 0 ... 9, x = 0, 2, ... 18)	
	Green	Green	Continuous light	One signal at input x and one signal at input x+1
			NC contact/NO contact¹⁾: (z = 0 ... 9, x = 0, 2, ... 18)	
	Green	Green	Continuous light	One signal at input x and no signal at input x+1

LED	Color	Status	Description, cause	Remedy
Single digital inputs, not fail-safe				
DI x	–	Off	No signal at digital input x (x = 20 ... 23)	–
	Green	Continuous light	Signal at digital input x	–
Fail-safe digital outputs with associated readback channel				
F_DO y (0+..3+, 0-..3-)	Green	Continuous light	Output y (y = 0 ... 3) has an active signal	–
Readback input DI 2y for output F_DO y (y = 0 ... 3) for test stop. The status of the LEDs also depends on the type of external circuit.				
DI 2y	–	Off	One of the two output lines y+ or y- or both lines of output y carry a signal	–
	Green	Continuous light	Both output lines y+ and y- carry no signal	–

- ¹⁾ Inputs x+1 (DI 1+, 3+, .. 19+) can be individually set using a parameter
Additional information can be taken from the following reference:
Reference: /LH1/ SINAMICS S120/S150 List Manual

Cause and rectification of faults

Additional information about the cause and resolving faults can be taken from the following references:

- Reference: /LH1/SINAMICS S120/S150 List Manual
- Reference: /IH1/ SINAMICS S120 Commissioning Manual with STARTER

5.5.5 Dimension drawing

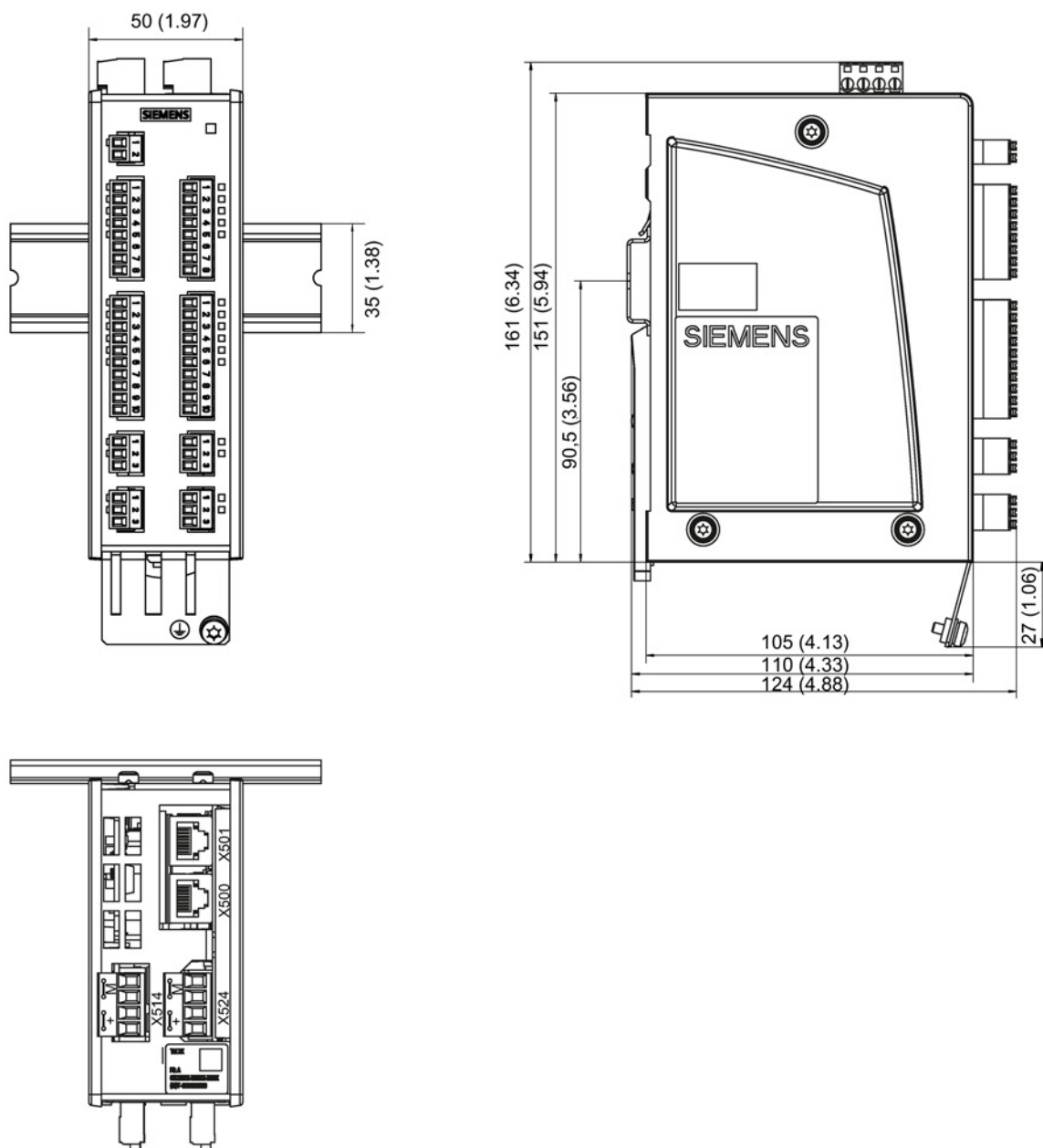


Figure 5-20 Dimension drawing of Terminal Module TM54F, all data in mm and (inches)

5.5.6 Installation

Installation

1. Tilt the component backwards slightly and attach it to the DIN rail using the hooks.
2. Swivel the component onto the DIN rail until you hear the mounting slide at the rear latch into position.
3. Slide the component along the mounting rail to either the left or the right into its final position.

Removal

1. First shift the mounting slide downwards at the lug to release the interlocking with the mounting rail.
2. Swivel the component to the front and withdraw it upwards from the DIN rail.

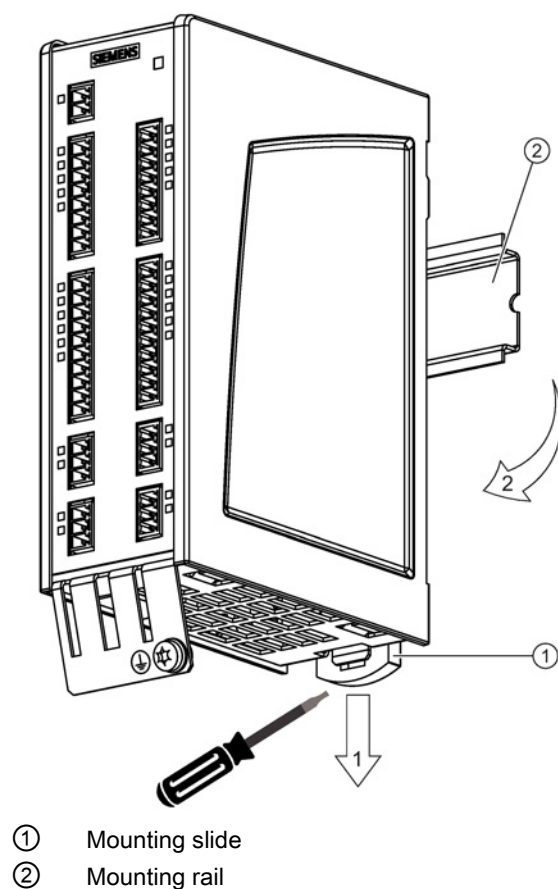
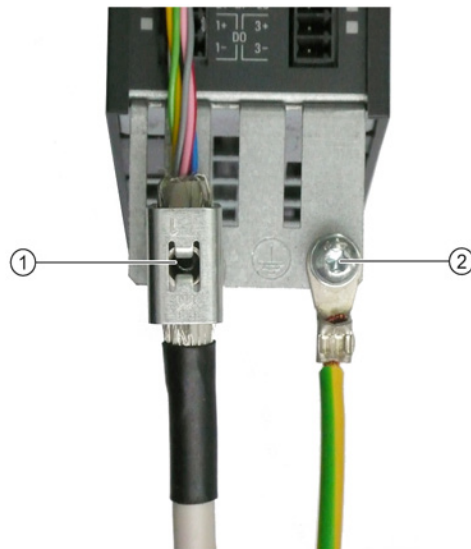


Figure 5-21 Removing from a DIN mounting rail

5.5.7 Protective conductor connection and shield support

It is always advisable to shield the digital input and output wiring.

The following diagram shows a typical Weidmüller shield connection clamp for the shield support.



- ① Shield connection terminal, Weidmüller company, type: KLBUE CO1, Article number: 1753311001
- ② Protective conductor connection M4 / 1.8 Nm

Figure 5-22 Protective conductor connection and shield support

NOTICE

Damage or faulty operation due to incorrect shielding or inadmissible cable lengths

If the correct shielding procedures or the permissible cable lengths are not observed, it can cause damage or the machine may malfunction.

- Only use shielded cables.
- Do not exceed the cable lengths stated in the technical data.

5.5.8 Technical data

Table 5- 45 Technical data

6SL3055-0AA00-3BA.	Unit	Value
Current requirement X524 (at 24 V DC) without DRIVE-CLiQ supply	mA	160
Current requirement X514 (at 24 V DC) without digital outputs and sensor power supply	mA	38
Sensor power supply with and without forced dormant error detection (L1+, L2+, L3+)		
Voltage	V	24
Max. load current per output	A	0.5
Max. cable length for the 24 V supply: For longer cable lengths, surge protection device "Weidmüller type No. MCZ OVP TAZ DIODE 24 VDC" should be used.	m	30
Power loss	W	4.5 at 24 V
PE/ground connection		At the housing with M4 screw
Weight	kg	Approx. 0.9

5.6 Terminal Module TM120

5.6.1 Description

The Terminal Module TM120 is a DRIVE-CLiQ component for safe electrically isolated temperature evaluation. It can be used for 1FN, 1FW6, and third-party motors in which the temperature sensors cannot be installed with safe electrical separation. The TM120 is installed in the control cabinet and can be snapped on to a DIN rail (EN 60715).

When a TM120 is being used, temperature evaluation and encoder evaluation functions are separated off from one another. The TM120 can detect the motor temperature via 4 channels with different temperature sensors. An encoder is evaluated using Sensor Modules (e.g. SMC., SME.). This means that when connected to a Sensor Module SMC, the TM120 represents a control cabinet alternative to the SME120/SME125.

The TM120 contains the following interfaces:

Table 5- 46 Overview of the TM120 interfaces

Type	Quantity
DRIVE-CLiQ interfaces	2
Temperature sensor inputs	4