



SIRIUS 3UF5-SIMOCODE-DP Motor Protection and Control Devices

General

The motor current flowing at any particular time is detected in each phase via current transformers and continuously checked by a microprocessor.

If there is an overload of >110% of the set current I_n , a current imbalance of >40% I_n or a phase failure, the unit is tripped in accordance with the set tripping characteristic CLASS 5/10/15/20/25/30.

Resetting, either by pressing the TEST/RESET button on the unit or by remote or automatic RESET, is only possible when the recovery time of 5 minutes has elapsed. An extension of the recovery time and an emergency start are possible.

If the thermistor sensor responds or an earth-fault occurs, the unit is tripped without any delay.

If the thermistor is tripped, resetting is only possible when the temperature in the motor coil has fallen to 5 K below the response temperature of the thermistor.

When an earth-fault causes tripping, the unit can be reset immediately after clearing the fault.

A test of the current detection function of the unit, the thermistor and earth-fault inputs and the tripping function of the auxiliary contacts can be initiated by pressing the TEST/RESET button (>5 s).

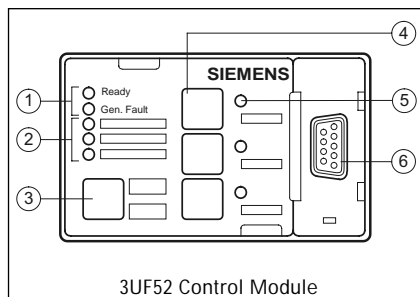
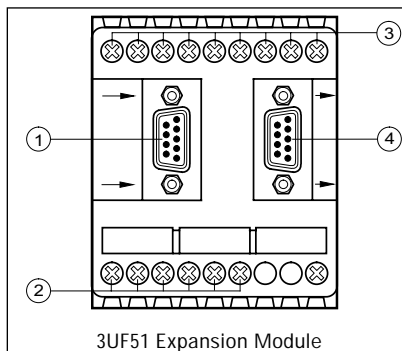
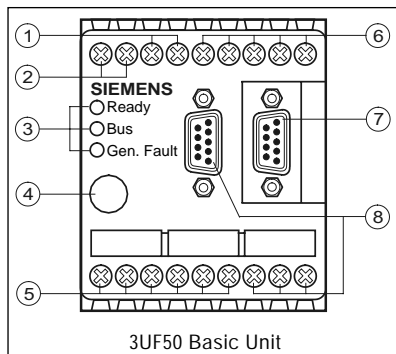
The integrated self-monitoring system ensures that the unit is also tripped when an internal fault occurs.

The 3UF50 unit is operated (i.e. switched on and off) either from the local control points connected to the inputs, the automatic level via the bus, the 3UF52 control unit, or a personal computer.

Standards

EC 60 947-4-1/DIN VDE 0660 Part 102

EC 60 947-5-1/DIN VDE 0680 Part 200



- ① Connection of a thermistor detector circuit for motor protection
Optimal: Connection of a summation current transformer for earth fault monitoring.
- ② Connection of the control supply voltage 24 V DC/115 V AC/230 V AC.
- ③ 3 LED displays.
- ④ Unit test, manual reset:
Automatic reset parameterizable
Remote reset via bus or input.
- ⑤ 3 + 1 relay outputs: Function assignment parameterizable.
- ⑥ 4 optocoupler inputs:
24 V DC internally supplied, function assignment parameterizable.
- ⑦ System interface:
Connection of expansion module, control module, hand-held terminal or PC.
- ⑧ Bus connection PROFIBUS-DP; standard 9-pole SUB-D socket, terminal for withdrawable units.

- ① System interface:
Connection to the basic unit.
Supply from the basic unit.
- ② 3 + 1 relay outputs: Function assignment parameterizable.
- ③ 8 optocoupler inputs:
24 V DC/115 V AC/230 V AC externally supplied.
- ④ System interface:
Connection to the control module or PC.

- ① 2 status LEDs.
- ② 3 LED displays: Function assignment parameterizable.
- ③ Unit test, manual reset.
- ④ Control buttons: Function assignment parameterizable.
- ⑤ 3 LED displays: Function assignment parameterizable.
- ⑥ System interface: Connection of the control module or PC.



Description

Intelligent motor protection	Communication with a programmable controller (automatic level)	Application of operating data	Evaluation of statistical data	Controlling a load feeder
SIMOCODE-DP protects electrical equipment such as single-phase, three-phase motors and transformers.	SIMOCODE-DP offers powerful communication between individual control level and automatic level via PROFIBUS-DP and the PROFIBUS-DP extension to the standard (DPV1).	SIMOCODE-DP collects operating data and makes it available for the user via the bus, via the hand-held terminal or by means of the Win-SIMOCODE-DP/Smart or Professional software.	SIMOCODE-DP evaluates statistical data and makes it available for the user via the bus or by means of the Win-SIMOCODE-DP/Smart or Professional software.	SIMOCODE-DP makes it possible to control a motor via the bus, manually (3UF52 control module or locally) via the hand-held terminal or by means of the Win-SIMOCODE-DP/Smart or Professional software.
<p>For rated currents from .25 A to 820 A</p> <p>Trip classes CLASS 5/10/15/20/25/30</p> <p>Overload, phase-failure, current unbalance and earth-fault detection as well as locked-rotor protection and PTC, KTY or NTC thermistor motor protection</p> <p>Protection of EEx e motors</p> <p>Two overload setting ranges for two-speed motors</p> <p>Programmable current limit value for process protection</p> <p>Recovery time 5 min. fixed-setting, extension up to 60 min. possible</p> <p>Emergency start</p> <p>Combined Test/Reset button</p> <p>Manual/Automatic Reset Remote Reset via the bus or external button</p> <p>High tripping precision</p> <p>Self monitoring</p> <p>Temperature range -25°C to +60°C</p>	<p>Data volume: 4/12 bytes I/O cyclical 20 bytes diagnosis 213 bytes parameter data</p> <p>Parameterization of the device via the bus. Transfer rate, address and basic type must always be set with Win-SIMOCODE-DP/Smart or Professional via the system interface (RS 232).</p> <p>All operating and diagnostic data are available for the superordinated automatic level.</p> <p>In case of a bus failure, failure of the communication processor or failure of the programmable controller CPU, SIMOCODE-DP switches off or retains its operational status (programmable). Manual control is enabled!</p> <p>Control commands can be given from the automatic level.</p>	<p>Maximum phase current in % of the current setting I_e</p> <p>Alarm/tripping —Overload —Current unbalance —Threshold thermistor motor protection overrange —Earth fault —Current limit value out of range</p>	<p>Maximum phase current of the last tripping in % of the current setting I_e</p> <p>Cause of the last tripping</p> <p>Operating hours</p> <p>Number of starts</p> <p>Number of trippings</p>	<p>Parameterizable control functions: —Direct online starting —Reversing starters —Start-delta starting —Dahlander circuit —Pole reversal —Solenoid valve control —Gate valve control —SIKOSTART 3RW22 —Individual control functions by means of logic blocks such as: 4 truth tables, 2 timers, 2 counters and 4 signal matching blocks</p> <p>Monitoring the process signals: —Running time monitoring when starting and stopping —Locking i.e. with reversing drives between clockwise and anti-clockwise rotation —Current-dependent changeover switching from star to delta with star-delta starting</p> <p>Control commands with manual operation: —From the switchboard using the 3UF52 —Locally i.e. with enclosed pushbuttons —Via the hand-held terminal —Via the system interface by using the Win-SIMOCODE-DP/Smart or Professional software.</p> <p>Control commands with automatic operation: —Via the bus from the application program</p> <p>Here operator enabling can be permitted and a key-operated switch for manual/automatic changeover can be integrated.</p>

Function blocks	Communication interface	Transfer rate	Transmission medium max. distance	Number of stations
<ul style="list-style-type: none"> —Time-graded starting after failure of the voltage in the main circuit —System protection OFF —Ready to close —Test mode (cold startup) —Evaluation of external error —Watchdog for undervoltage OFF —Evaluation of external alarm —Emergency start 	<ul style="list-style-type: none"> —PROFIBUS-DP —PROFIBUS-DPV1 —RS 485 interface type —Connection via terminals (conductor cross-sections as for auxiliary contacts or 9-pole SUB-D socket) 	9.6; 45.45; 93.75; 187.5; 500; 1500 kbits/s	<ul style="list-style-type: none"> —twisted, shielded two-wire cable —via optical link modules with plastic or glass-fiber optic cables —9.6 km with two-wire cables —425 m with plastic fibers —93 km with glass fibers 	<ul style="list-style-type: none"> —32 per segment —when using as RS 485 repeater up to 122



Selection and Ordering Data		Rated Control Supply Voltage	Setting Range Amperage	Width mm	Contactor Fitting	Catalog No	Price \$
		24 VDC	1.25 [Ⓞ] -6.3 6.3-25 25-100 50-205 125-500 200-820	70 70 70 120 145 230	— — — 3TF50-3TF52 3TF53-3TF57 3TF68, 3TF69	3UF5001-3.B.0-1 3UF5011-3.B.0-1 3UF5021-3.B.0-1 3UF5031-3.B.0-1 3UF5041-3.B.0-1 3UF5051-3.B.0-1	887. 887. 887. 1086. 1164. 1164.
115 VAC	1.25 [Ⓞ] -6.3 6.3-25 25-100 50-205 125-500 200-820	70 70 70 120 145 230	— — — 3TF50-3TF52 3TF53-3TF57 3TF68, 3TF69	3UF5001-3.J.0-1 3UF5011-3.J.0-1 3UF5021-3.J.0-1 3UF5031-3.J.0-1 3UF5041-3.J.0-1 3UF5051-3.J.0-1	769. 769. 769. 968. 1048. 1048.		
230 VAC	1.25 [Ⓞ] -6.3 6.3-25 25-100 50-205 125-500 200-820	70 70 70 120 145 230	— — — 3TF50-3TF52 3TF53-3TF57 3TF68, 3TF69	3UF5001-3.N.0-1 3UF5011-3.N.0-1 3UF5021-3.N.0-1 3UF5031-3.N.0-1 3UF5041-3.N.0-1 3UF5051-3.N.0-1	769. 769. 769. 968. 1048. 1048.		
Order Options						Example: 3UF50 51-3.N.0-1 Catalog No Supplements	Price \$
Input for thermistor motor protection						A	None
Input for earth fault detection (external) (Detection of earth fault currents of 0.3 A, 0.5 A or 1A with the 3UL22 0.-A summation current transformers, see Part 4)						B	None
Behavior of the outputs in case of control supply voltage failure monostable bistable						0 1	None
Accessories						Catalog No	Price \$
3UF51 Expansion Module							
8 inputs, 4 outputs for snap-on mounting onto 35 mm standard mounting rail to EN 50 022 External supply voltage of inputs 230 V DC 115 V AC 24 V DC						3UF5100-0AN00 3UF5100-0AJ00 3UF5100-0AB00	440. 440. 440.
3UF52 Operator Control Module							
for flush mounting in cubicle door, pluggable to 3UF50 basic unit or 3UF51 expansion module only						3UF5202-1AA00-1	255.
3RW29 Connecting Cable							
for PC communication via the RS 232 system interface, 5 m long						3RW2920-1DA00	146.
3UF57 System Manual							
English with description of communication via PROFIBUS-DP and configuration example						3UF5700-0AA00-1	25.
3UF59/3UF19 Plug Connectors/Connecting Cables with Plugs							
for connection from the basic unit to the expansion module 9-pole, 0.03 m flat plug, shielded						3UF5900-1AA00	46.
for connection from the basic unit to the expansion module or operator control module 9-pole, 0.5 m long, shielded plug 45° angular 9-pole, 2.0 m long, shielded plug 45° angular 9-pole, 2.5 m long, shielded plug 45° angular 9-pole, 0.5 m long, with flat plug, shielded 9-pole, 1.0 m long, with flat plug, shielded						3UF1900-1AA00 3UF1900-1BA00 3UF1900-1CA00 3UF1900-1DA00 3UF1900-1EA00	46. 46. 46. 46. 46.
for connection from the basic unit/expansion module to the cubicle door Possibility for parameterizing, control and visualization with the hand-held terminal or PC from the cubicle door. 9-pole, 0.5 m long, with flat plug and socket, shielded 9-pole, 1.0 m long, with flat plug and socket, shielded						3UF5900-0AA00 3UF5900-0BA00	46. 46.

3UF5001-3UF5021—Basic Unit



3UF5031-3UF5051—Basic Unit



3UF51—Expansion Module



3UF52—Operator Control Module

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IEC Control

[Ⓞ]The current setting range from 0.25 A to 1.25 A is attained by looping the main conducting paths.

