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MANUFACTURER DECLARATION

NS-PROTECTION

SG125CX-P2

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Manufacturer Declaration SG125CX-P2 NS-protection / Herstellererklärung SG125CX-P2 NA-Schutz

To whom it may concern,
Sehr geehrte Damen und Herren,

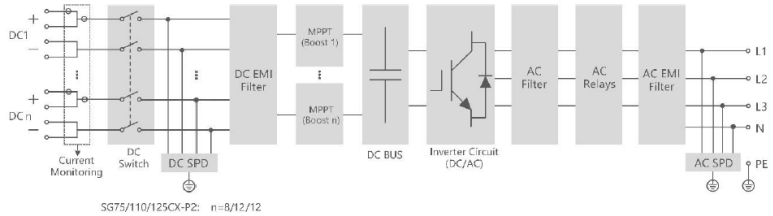
The NS-Protection is always active at SG125CX-P2. It is permanently on, not depending on Firmware settings or Gridcode settings.

Der NA-Schutz im SG125CX-P2 ist immer aktiv. Er ist immer an, unabhängig von Firmware-Einstellungen oder Gridcode Auswahl.

Here the PGU double-couple relais and redundant DSP description from EN50549-2 Test Report:

Im folgenden ist aus dem EN50549-2 Test Report die Beschreibung zu Doppelkuppelrelais und redundanten Signalprozessor hierzu:

Interface relays disconnect the equipment from utility in case any one of following faults occurred:



SG75/110/125CX-P2: n=8/12/12

1. PV array insulation resistance fault
2. Residual current fault
3. Over & under grid voltage
4. Over & under grid frequecny
5. Islanding operation
6. Over DC injection current

The protection device makes up of two in series, communicative coupled AC relays so that the equipment could be effectively separated from utitlity even any one of relays short circuited or works unnormally.

The controlling section is also redundant built, one master DSP, and one slave DSP. The master DSP carries out the main calculation and driving instructions. Slave DSP is responsible for the redundant relay independently. In case any one of two chips breaks down or runs a wrong program, which result to the loss of protection funciton, the another chip could indicate the fault and disconnect the equipment immediately.

Model Difference:
All series models are technical equivalent in both hard- and software.
All tests were conducted on model SG125CX-P2 to represent other family models.

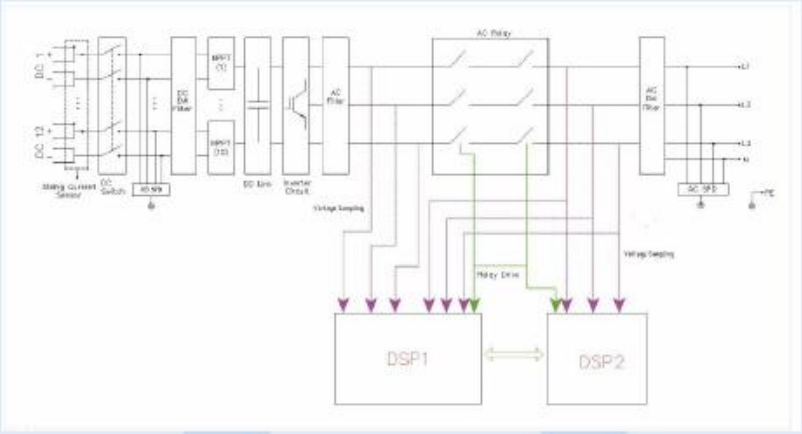
Here the general electrical scheme from SG125CX-P2 VDE AR-N 4110 certificate with more details about the double-couple relays and redundant DSPs :

Hier der generelle elektrische Schaltplan aus dem SG125CX-P2 VDE-AR-N-4110 Einheitenzertifikat mit mehr Details zu Doppelkuppelrelais und redundanten DSPs: (Signalprozessoren)

Unit Certificate

Nr.: 968/GI 1464.02/24 Grid Integration of Distributed Energy Resources

Schematic overview of the PGU:



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Here the PGU disconnection time description from the SG125CX-P2 EN50549-2 test report:

Hier die Beschreibung der Entkoppelzeiten mit Markierungen , aus dem SG125CX-P2 EN50549-2 Test Report:

4.4	PGU Disconnection from the grid					P
Function	Settings		Measurement			
			3ph	U1	U2	U3
Overvoltage U>	Min. threshold	1.00Un	1.007Un	1.007Un	1.007Un	1.007Un
	Max. Time	180s	180.0s	179.0s	180.0s	179.5s
	Max. threshold	1.30Un	1.290Un	1.290Un	1.290Un	1.290Un
	Min. Time	0ms	64.5ms	80.3ms	75.5ms	82.5ms
Overvoltage U>>	Min. threshold	1.00Un	1.000Un	1.000Un	1.000Un	1.000Un
	Max. Time	100ms	75.0ms	72.0ms	64.8ms	68.0ms
	Max. threshold	1.30Un	1.300Un	1.300Un	1.300Un	1.300Un
	Min. Time	0ms	60.50ms	52.75ms	76.00ms	80.75ms
Undervoltage U<	Min. Threshold	0.10Un	0.105Un	0.105Un	0.105Un	0.105Un
	Min. Time	0ms	74.0ms	72.0ms	72.2ms	74.8ms
	Max. Threshold	1.00Un	1.000Un	1.000Un	1.000Un	1.000Un
	Max. time	2.4s	2.37s	2.38s	2.37s	2.38s
Undervoltage U<<	Min. Threshold	0.10Un	0.105Un	0.105Un	0.105Un	0.105Un
	Min. Time	0ms	76.6ms	76.2ms	77.2ms	77.8ms
	Max. Threshold	1.00Un	1.001Un	1.001Un	1.001Un	1.001Un
	Max. time	800ms	756.7ms	740.3ms	748.2ms	750.5ms
Overfrequency f>	Min. Threshold	50.0Hz	50.04Hz	–	–	–
	Max. time	5s	4.816s	–	–	–
	Max. Threshold	55.0Hz	55.05Hz	–	–	–
	Min. time	0ms	69.5ms	–	–	–
Overfrequency f>>	Min. Threshold	50.0Hz	50.03Hz	–	–	–
	Max. Time	100ms	94.25ms	–	–	–
	Max. Threshold	55.0Hz	55.04Hz	–	–	–
	Min. Time	0ms	68.25ms	–	–	–
Overfrequency f<	Min. Threshold	45.0Hz	44.96Hz	–	–	–
	Min. Time	0ms	81.75ms	–	–	–
	Max. Threshold	50.0Hz	49.97Hz	–	–	–
	Max. time	100ms	99.50ms	–	–	–
Resetting ratios			Overvoltage protection		Undervoltage protection	

Here the PGU test description from SG125CX-P2 EN50549-2 test report with the trigger being the grid conditions:

Hier die Beschreibung der Leistungseinheit aus dem SG125CX-P2 EN50549-2 Test Report dass die Netzbedingungen zum Auslösen geführt haben.

	>0.98	<1.02
The test of the whole trip circuit led to a successful shut down.	Yes	
Operating time of the disconnection device	N/A	
Verification of the failure of the auxiliary supply led to an instantaneous shutdown.	N/A	
Disconnection time of the whole trip circuit	N/A	
Remark:		
General information:		
Type:	Integrated power relays	
Serial number:	N/A	
Measurement period	24.09.2021 / 9:00 to 15:00	
Measuring point of the protection device:	LV side	
Voltage transformer ratio:	N/A	
All tests were performed on:	Single PGU	
The measurement was performed at:	Connection terminal of PGU	
The test was conducted at the test terminal without disconnecting wires.	Yes.	
No other parameter than the trip threshold and the disconnection time has been changed.	No other parameters changed	

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Kind regards / *Mit freundlichen Grüßen*

SUNGROW POWER SUPPLY CO., LTD.
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Company

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