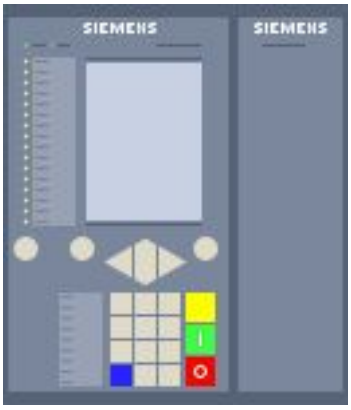
SIEMENS

SIPROTEC 5
Configuration
Jun 11, 2019 10:11 AM

Device: 7SJ85 Overcurrent Protection

Product code
Short: P1J639857
Long: 7SJ85-DAAA-AA0-0AAAA0-AH0111-13111A-DCD000-000AC0-CB2BA1-CD0



Firmware:	Current version
Housing width:	1/2 x 19''
Housing type:	Flush mounting
Binary inputs:	21
Binary outputs:	15 Relays (7 Standard, 6 Fast, 0 High-Speed, 2 Power)
Current transformers:	3 for protection, 1 for measurement and sensitive ground-current detection
Voltage transformers:	4
Measuring-transducer inputs:	0 (20 mA or 10 V, fast) 0 (20 mA, standard)
CPU:	CP300
Modules in 19'' row 1:	IO202 , PS201 , IO204
Modules in 19'' row 2:	
LEDs/Push-buttons:	16 LEDs
Operation Panel:	Integrated
Key switch:	Without
Display type:	Large display
Front Design:	Standard
Power Supply:	DC 60 V-250 V, AC 100 V-230 V

Communication/Plug-in modules:

Communications encryption:	Normal
Integrated Ethernet port J:	for DIGSI 5
Plug-in module position E:	USART-AD-1FO: 1 x optic serial 2 km, 820 nm, ST connector, for serial protocols, e.g. IEC60870-5-103, DNP3.0 etc. and protection interface
Plug-in module position F:	ARC-CD-3FO: Arc Protection module for the connection of up to 3 optical sensors The arc protection module ARC-CD-3FO cannot be used in the following devices: 7SS8, 7KE8

Functions:

Function points class:	Base + 100 function points

Note on function-points class
The function-points class results from the sum of the function points of the selected functions. You can apply these functions as selected. The device allows also each other selection of functions as long as the sum of the required function points is within the selected function-points class. With the maximum function-points class of 1400 it is possible to activate all the functions in the device. The function-points exceeding 1400 are free of charge. In the engineering phase DIGSI 5 checks that the selected configuration is suitable (capable of running in the device) before loading it to the device.

Miscellaneous:

Warranty:	5 years
Firmware:	Current version

SIEMENS

SIPROTEC 5
Configuration
Jun 11, 2019 10:11 AM

Functional scope 7SJ85 Overcurrent Protection:

ANSI	Function	Abbr.	Always included	Add selected Qty.	x	Value	=	Result Points	Qty.
	Protection functions for 3-pole tripping	3-pole	✔						✔
	Hardware quantity structure expandable	I/O	✔						✔
	Process Bus Client Protocol (Note: This function requires at least one dedicated ETH-BD-2FO plug-in module, with V8.0)	PB client			x	100	=		
	IEC61850-9-2 Merging Unit stream (Note: This function requires a dedicated ETH-BD-2FO per stream, with V8.0)	MU			x	200	=		
24	Overexcitation protection	V/f			x	25	=		
25	Synchrocheck, synchronization function	Sync			x	50	=		
25	Synchrocheck, synchronization function with balancing commands (from V7.82)	Sync			x	80	=		
32, 37	Power protection active/reactive power	P<>, Q<>			x	10	=		
27	Undervoltage protection: "3-phase" or "positive-sequence system V1" or "universal Vx"	V<			x	5	=		
	Undervoltage-controlled reactive power protection	Q>/V<			x	15	=		
32R	Reverse-power protection	- P<			x	5	=		
37	Undercurrent	I<	✔						✔
38	Temperature supervision	>	✔						✔
46	Negative-sequence overcurrent protection	I2>	✔						✔
46	Unbalanced-load protection (thermal)	$I2^2$ t>	✔						✔
46	Negative-sequence overcurrent protection with direction	I2>, (V2,I2)			x	10	=		
47	Overvoltage protection, negative-sequence system	V2>			x	5	=		
49	Thermal overload protection	, I^2t	✔						✔
49	Thermal overload protection, user-defined characteristic	, I^2t	✔						✔

SIEMENS

SIPROTEC 5
Configuration
Jun 11, 2019 10:11 AM

Functional scope 7SJ85 Overcurrent Protection:

ANSI	Function	Abbr.	Always included	Add selected Qty.	x	Value	=	Result Points	Qty.
49	Thermal overload protection for RLC filter elements of a capacitor bank	, I²t			x	10	=		
50N/ 51N TD	Overcurrent protection, ground	IN>	✔						✔
50/51 TD	Overcurrent protection, phases	I>	2x		x	30	=		2x
	Instantaneous tripping at switch onto fault	SOTF	✔						✔
50HS	Instantaneous high-current tripping	I>>>	✔						✔
50/51 TD	Overcurrent protection with positive-sequence current I1 (from V7.9)	I1>	✔						✔
50N/ 51N TD	Overcurrent protection, 1-phase	IN>	✔						✔
50Ns/ 51Ns	Sensitive ground-current detection for systems with resonant or isolated neutral systems incl. a) 3I0>, b) admittance Y0>, c) 3I0-harm> (from V7.8)	INs>	✔						✔
	Ground-fault detection via pulse pattern detection; Note: this stage additionally requires the function 50Ns/51Ns or 67Ns "Sensitive ground-fault detection for systems with resonant or isolated neutral"	IN-pulse			x	15	=		
	Intermittent ground-fault protection	Iie>			x	20	=		
50/51 TD	Overcurrent protection for RLC filter elements of a capacitor bank	I>			x	10	=		
50BF	Circuit-breaker failure protection, 3-pole	CBFP			x	5	=		
50RS	Circuit-breaker restrike protection	CBRS			x	20	=		
51V	Overcurrent protection, voltage dependent	t=f(I,V)			x	10	=		
	Peak overvoltage protection, 3-phase, for capacitors	V> cap.			x	30	=		
59, 59N	Overvoltage protection: "3-phase" or "zero-sequence system V0" or "universal Vx"	V>			x	5	=		

SIEMENS

SIPROTEC 5
Configuration
Jun 11, 2019 10:11 AM

Functional scope 7SJ85 Overcurrent Protection:

ANSI	Function	Abbr.	Always included	Add selected Qty.	x	Value	=	Result Points	Qty.
60C	Current-unbalance protection for capacitor banks	Iunbal>			x	50	=		
60	Voltage-comparison supervision	U>			x	5	=		
67	Directional overcurrent protection, phases	I>, (V,I)			x	15	=		
67N	Directional overcurrent protection, ground	IN>, (V,I)			x	15	=		
67Ns	Dir. sensitive ground-fault detection for systems with resonant or isolated neutral incl. a) 3I0>, b) V0>, c) Cos-/ SinPhi, d) Transient ground-fault fct., e) Phi(V,I), f) admittance				x	30	=		
	Directional stage with a harmonic; Note: this stage additionally requires the function "67Ns Dir. sensitive ground-fault detection for systems with resonant or isolated neutral"	(V0h,I0h)			x	10	=		
	Directional intermittent ground-fault protection	Iie dir>			x	20	=		
74TC	Trip-circuit supervision	TCS	✔						✔
74CC	Closed-circuit supervision (from V7.9)	CCS	✔						✔
79	Automatic reclosing, 3-pole	AR			x	35	=		
81	Frequency protection: "f>" or "f<" or "df/ dt"	f<>; df/ dt<>			x	5	=		
81U	Underfrequency load-shedding	f<(UFLS)			x	15	=		
	Vector-jump protection	>			x	20	=		
86	Lockout		✔						✔
87N T	Restricted ground-fault protection	IN			x	15	=		
87C	Differential protection, capacitor bank	I			x	95	=		
87V	Voltage differential protection, capacitor bank	V			x	50	=		
90V	Automatic Voltage controller for two-winding transformer				x	150	=		
90V	Automatic Voltage controller for two-winding transformer with parallel operation				x	180	=		

SIEMENS

SIPROTEC 5
Configuration
Jun 11, 2019 10:11 AM

Functional scope 7SJ85 Overcurrent Protection:

ANSI	Function	Abbr.	Always included	Add selected Qty.	x	Value	=	Result Points	Qty.
	Number of two-winding transformers with parallel operation (Note: only together with the function "Automatic Voltage controller for two-winding transformer with parallel operation"		2x		x	5	=		2x
90V	Automatic Voltage controller for three-winding transformer				x	200	=		
90V	Automatic Voltage controller for grid coupling transformer				x	175	=		
FL	Fault locator, single-sided	FL-one			x	25	=		
FL	Fault locator plus (from V7.9)	FL plus			x	45	=		
PMU	Synchrophasor measurement (1 PMU transmits up to max. 8 voltages and 8 currents)	PMU			x	40	=		
AFD	Arc-protection (only with plug-in module ARC-CD-3FO)		✔						✔
	Measured values, standard		✔						✔
	Measured values, extended: Min, Max, Avg				x	3	=		
	Switching statistic counters		✔						✔
	Circuit-breaker wear monitoring	Ix, I²t, 2P			x	10	=		
	CFC (Standard, control)		✔						✔
	CFC arithmetic				x	40	=		
	Switching sequences function				x	5	=		
	Inrush current detection		✔						✔
	External trip initiation		✔						✔
	Control		✔						✔
PoW	Point-on-Wave Switching (from V7.9)	PoW			x	425	=		
	Fault recording of analog and binary signals		✔						✔
	Monitoring and supervision		✔						✔
	Protection interface, serial		✔						✔
	Circuit-breaker		4x		x	3	=		4x

SIEMENS

SIPROTEC 5
Configuration
Jun 11, 2019 10:11 AM

Functional scope 7SJ85 Overcurrent Protection:

ANSI	Function	Abbr.	Always included	Add selected Qty.	x	Value	=	Points	Result Qty.
	Disconnector/Grounding switch		4x		x	3	=		4x
	Frequency-tracking groups (from V7.8)		✔						✔
	Temperature acquisition via communication protocol		✔						✔
	Cyber Security: Role-Based Access Control (from V7.8)				x	25	=		
							Sum:	0	