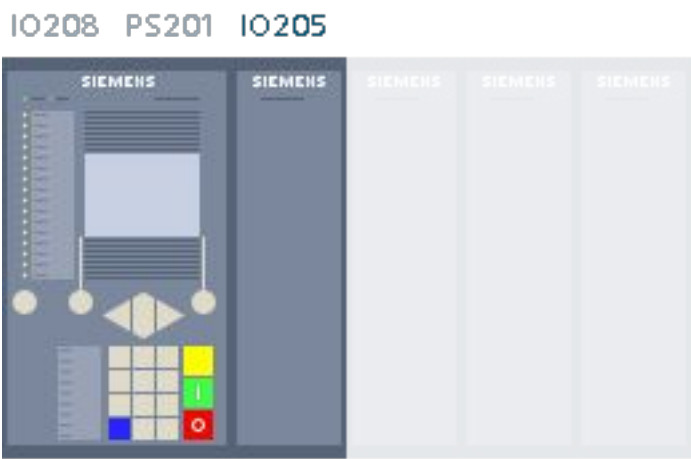


Device: 7VK87 Breaker Management Dev.

Product code

Short: P1D127318
Long: 7VK87BAAAAA00AAAA0AE011112113BAAA000000AC0CH1BA1CE0



Technical Data:

Firmware:	Current version
Binary inputs:	19
Binary outputs:	30 Relays (22 Standard, 8 Fast, 0 High-Speed, 0 Power)
Current transformers:	4 for protection
Voltage transformers:	4 standard
Measuring-transducer inputs:	0 (20 mA or 10 V, fast) 0 (20 mA, standard) 0 (DC 300 V) 0 (20 mA, fast) 0 (temperature)
Housing width:	1/2 x 19"
Housing type:	Flush mounting
Modules in 19" row 1:	IO208, PS201, IO205
LEDs/Push-buttons:	16 LEDs
Operation Panel:	Integrated
Key switch:	Without
Display type:	Small display
Front Design:	Standard
Power Supply:	DC 60 V-250 V, AC 100 V-230 V

Redundant Power Supply: No

Communication/Plug-in modules:

Communications encryption: Normal

Integrated Ethernet port J: DIGSI 5 and IEC 61850/Goose

Plug-in module position E: ETH-BA-2EL: 2x electric Ethernet 100 Mbit/s, RJ45
Communication Protocols: applicable for DIGSI 5, IEC 61850-8-1
MMS and
GOOSE, IEC 60870-5-104, DNP3 TCP, Modbus TCP,
Synchrophasor (IEEE
C37.118 - IP), Profinet IO, SUP, DHCP, SNTP, SNMP, etc.
Redundancy protocols: Line Mode, RSTP, HSR, PRP

Plug-in module position F: Port is available but not assembled

Functions:

Function points class: Base + 40 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 according to the selected function-points class. The device also allows each other selection of functions if the sum of the required function points is within the selected function-points class.

From Version V9.3 on the function-points class "1400+" is withdrawn. With this class function-points exceeding the limit of 1400 were free of charge. The maximum function-points class is now 1400. If a function-points budget of more than 1400 points is required for a device the application Function-Point-Manager need to be applied. All function points are liable to cost.

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: 2 years

Special Approvals: Without

Firmware: Current version

7VK87 Breaker Management Device - Overview Function points calculation

(P1D127318)

Functions Free of Charge

ANSI	Function	Abbr.	Included
	Protection functions for 3-pole tripping	3-pole	✓
	Protection functions for 1-pole tripping	1-pole	✓
	Hardware quantity structure expandable	I/O	✓
38	Temperature supervision	θ>	✓
	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>	20 X ✓
50N/ 51N TD	Overcurrent protection, 1-phase	IN>	✓
74TC	Trip-circuit supervision	TCS	✓
86	Lockout		✓
AFD	Arc-protection (only with plug-in module ARC-CD-3FO)		5 X ✓
	Measured values - standard		✓
	Switching statistic counters		✓
	PQ-Basic measured values: THD (Total Harmonic Distortion) and harmonics (from V8.01) THD voltage aggregation values (from V8.40)		✓
	CFC (Standard, control)		✓
	Inrush current detection		✓
	External trip initiation		✓
	Control		✓
	Protection interface, serial		✓
	Monitoring and supervision		✓
	Fault recording of analog and binary signals		✓

	Frequency-tracking groups (from V7.8)		6 X ✓
	Temperature acquisition via communication protocol		✓

Functions with Costs

ANSI	Function	Abbr.	Included	Quantity	Value	Points
	IEC 61850-9-2 Merging Unit function (Note: Max. 2 streams per MU function, each MU function requires a ETH-BD-2FO plug-in module)	MU		0	200	0
	Process Bus Client function (Note: This function requires a ETH-BD-2FO plug-in module)	PB client		0	100	0
	IEC 61850-9-2 Merging Unit function for 7SS85 CU (Note: Only for communication with a 7SS85 with Significant properties: "CU: ...". This function requires a ETH-BD-2FO plug-in module)	MU (7SS85 CU)		0	295	0
	IEEE 1588v2/PTP Grandmaster Clock (Note: This function requires a ETH-BD-2FO, with V9.20)	GMC		0	200	0
25	Synchrocheck, synchronization function	Sync	1 X ✓	1	60	0
27	Undervoltage protection: "3-phase" or "positive-sequence system V1" or "universal Vx"	V<		0	5	0
27R, 59R	Rate-of-voltage-change protection (from V8.30)	dV/dt		0	5	0
32, 37	Power protection active/reactive power	P<>, Q<>		0	10	0
37	Undercurrent	I<		0	10	0
46	Negative-sequence overcurrent protection	I2>		0	10	0
46	Negative-sequence overcurrent protection with direction			0	15	0
47	Overvoltage protection, negative-sequence system	V2>		0	5	0
50/51 TD	Overcurrent protection, phases	I>		1	20	20

50N/ 51N TD	Overcurrent protection, ground	IN>		1	10	10
50BF	Circuit-breaker failure protection, 1-/3-pole	CBFP	1 X ✓	1	25	0
50RS	Circuit-breaker restrike protection	CBRS		0	20	0
50EF	End-fault protection (Note: Only useable for distributed busbar protection with 7SS85 CU with V8.40)			1	5	5
52PD	Circuit-breaker pole discrepancy	CBPD		1	5	5
59, 59N	Overvoltage protection: "3-phase" or "zero-sequence system V0" or "universal Vx"	V>		0	5	0
60	Voltage-comparison supervision	$\Delta U >$		0	5	0
67	Directional overcurrent protection, phases			0	40	0
67N	Directional overcurrent protection for ground faults in grounded systems			0	30	0
79	Automatic reclosing, 1-/3-pole	AR	1 X ✓	1	55	0
SAD	Secondary Arc Detection (SAD) during 1-pole AR-cycles (from V8.30); Note: SAD additionally requires the function points for "Automatic reclosing, 1-/3-pole"	SAD		0	15	0
81	Frequency protection: "f>" or "f<" or "df/dt"	f<>; df/dt<>		0	5	0
81U	Underfrequency load-shedding	f<(UFLS)		0	15	0
	Vector-jump protection	$\Delta \varphi >$		0	20	0
87N	Restricted ground-fault protection	ΔI_N		0	15	0
90V	Automatic voltage controller for two-winding transformer			0	150	0
90V	Automatic voltage controller for two-winding transformer with parallel operation			0	180	0

	Number of two-winding transformers with parallel operation (Note: only together with the function "Automatic voltage controller for two-winding transformer with parallel operation")		2 X ✓	2	5	0
90V	Automatic voltage controller for three-winding transformer			0	200	0
90V	Automatic voltage controller for grid coupling transformer			0	175	0
FL	Fault locator, single-sided	FL-one		0	25	0
PMU	Synchrophasor measurement	PMU		0	40	0
	Measured values - extended: Min, Max, Avg			0	3	0
	PQ-Basic measured values: Voltage unbalance (from V8.40)			0	20	0
	PQ-Basic measured values: Voltage variations - voltage dips, swells and interruptions (from V8.40)			0	30	0
	PQ-Basic measured values: TDD - Total Demand Distortion (from V8.40)			0	10	0
	CFC arithmetic			0	40	0
	Circuit-breaker monitoring (from V9.20)	ΣI_x , I^2t , 2P, tO , tC , pole scatter, discrepancy		0	10	0
	Disconnecter monitoring (from V9.50)	tO , tC		0	5	0
	Switching sequences function			0	5	0
PoW	Point-on-wave switching (from V7.90)	PoW		0	425	0
	Point-on-wave with residual flux estimation (from V9.80)	PoW		0	465	0
	Circuit-breaker		4 X ✓	4	3	0
	Disconnecter/Grounding switch		4 X ✓	4	3	0
	Multiplexing of protection interface			0	50	0
SSR	Slow-scan recorder (Mod.: from V8.80, Non-Mod.: from V9.40)	SSR	1 X ✓	1	40	0

CR	Continuous recorder (Mod.: from V9.20, Non-Mod.: from V9.40)	CR	1 X ✓	1	25	0
	PQ-10/12 cycle values for continuous recorder (from V9.20)	CR		0	25	0
TR	Trend recorder (Mod.: from V9.30, Non-Mod.: from V9.40)	TR	1 X ✓	1	25	0
	PQ-Trend value for Trend Recorder (from V9.30)	TR		0	25	0
	PQ-Flicker values for Trend Recorder (from V9.30)	TR		0	25	0
	Region France: Overload protection for lines 'PSL-PSC'			0	10	0
	Region France: Overcurrent protection 'MAXI-L'			0	10	0
	Region France: Power-system decoupling protection 'PDA'			0	10	0
	Region France: Overload protection for transformers			0	10	0
	Cyber Security: Role-Based Access Control (from V7.8)			0	25	0
	Cyber Security: IEEE 802.1x based network authentication (from V8.3)			0	10	0
Total:						40