



GENERATOR PROTECTION

FEEDER PROTECTION

VOLTAGE & FREQUENCY PROTECTION

TRANSFORMER



SIL-G

SIL-C

SIL-S

SIU-C

TRANSFORMATION SUBSTATION

TRANSMISSION LINE

TEST SYSTEM

FEEDER & GENERATOR PROTECTION

RECLOSER CONTROL



FTS

SIL-G

SIL-C

SIL-S

SIR-A

SIR-A

SIR-C

DISTRIBUTION LINE

Secondary Distribution

RECLOSER CONTROL & FEEDER PROTECTION

FEEDER PROTECTION

FEEDER & GENERATOR PROTECTION



SIR-C

SIL-A

SIL-C

SIL-S

Self Powered Range

RMU's PROTECTION / MRMU's PROTECTION



KEMA Labs



SIA-B Specific CTs

SIA-B Standard CTs



SIA-C



CTs

SF6 & METALCLAD SWITCHGEAR PROTECTION



SIA-F

	SIL-A	SIU-C	SIL G	SIL-C
Type	OC & EF PROTECTION	VOLTAGE & FREQUENCY PROTECTION	LINE, FEEDER AND GENERATOR PROTECTION	LINE, FEEDER AND GENERATOR PROTECTION
Auxiliary Supply	24-230 Vdc/Vac	24-230 Vdc/Vac	24-48Vdc or 48-230 Vac/dc or 24-230 Vac/dc	24-230 Vdc/Vac
Consumption	3,3 – 4,5 W	< 6 W. 24-230 Vdc/Vac < 10VA	24-48 Vdc and 48-230 Vac/dc < 10VA. 24-230Vac/dc < 20VA	24-230Vac/dc < 20VA
Current measurement	Standard CT > 0,5VA	n/a	Standard CT > 0,5VA	Standard CT > 0,5VA
LPCT	n/a	n/a	n/a	n/a
Voltage measurement	n/a	VT or directly to the low voltage line	VT or directly to the low voltage line	VT or directly to the low voltage line
VT connection type	n/a	Adjustable	Adjustable	Adjustable
50	2	n/a	2	2
50G	2	n/a	1	1
50N	2	n/a	1	1
50/51	2	n/a	4 levels of 67 *	4 levels of 67 *
50/51G	2	n/a	2 levels of 67G *	2 levels of 67G *
50/51N	2	n/a	2 levels of 67N *	2 levels of 67N *
67GI	1	n/a	1	1
67NI	1	n/a	1	1
50/51/67G	1	n/a	*	*
50/51/67	n/a	n/a	*	*
SOFT	1	n/a	1	1
64REF	1	n/a	1	1
52	1	1	1	1
BF	1	1	1	1
49	1	n/a	1	1
49T	1	1	1	1
79	1	1	1	1
HLT	n/a	√	√	√
46	1	n/a	1	1
CLP	1	n/a	1	1
74TCS	1	1	1	1
74CCS	n/a	1	n/a	n/a

	SIL-A	SIU-C	SIL G	SIL-C
Trip Block	1	n/a	1	1
68 (Trip Bus)	1	1	1	1
86	√	√	1	1
46BC	√	n/a	1	1
60CTS	1	n/a	1	1
60VTS	n/a	n/a	1	1
Programmable Logic	V3	V3	√	√
37	1	n/a	1	1
59	n/a	2	2	2
59N	1	3	2	2
47	n/a	1	1	1
27	n/a	4	2	2
27V1	n/a	2	1	1
32/40	n/a	n/a	4	4
81U/O	n/a	8	4	4
25	n/a	1	1	1
24	n/a	2	2	2
59-L	n/a	1	1	1
27-L	n/a	1	1	1
81R	n/a	6	4	4
78	n/a	2	1	1
IRIG-B	n/a	Optional	Optional	Optional
Counters	√	√	√	√
Commands	√	√	√	√
Sett. Group	4	4	4	4
Inputs	3 / 5 / 6 / 9	11	8 / 16 / 24 / 8 + 4 AFD	11
Outputs	3 / 4 / 5 / 6 / 7	5	7 / 11 / 18 / 7 + 4 HS-O	5
LEDs	8 configurable	11 configurable	11 configurable	11 configurable
HMI	20x2 LCD + 11 keys	20x4 LCD + 13 key	20x4 LCD + 13 keys	20x4 LCD + 13 keys
52 & 79 HMI	2 LEDs + 4 keys	2 LEDs + 4 keys	2 LEDs + 4 keys	3 LEDs + 4 keys
Event	2048	3072	3072	3072
Fault Report	configurable up to 100	configurable up to 100	configurable up to 100	configurable up to 100

	SIL-A	SIU-C	SIL G	SIL-C
Oscillography	Configurable up to 100 records	configurable up to 100	configurable up to 100	configurable up to 100
Current demand	√	n/a	√	√
Local Port (frontal)	Micro USB	Micro USB	Micro USB	Micro USB
Remote Port (rear)	RS485 or Ethernet	RS485 or Ethernet	RS485 or Ethernet or Fiber Optic	RS485 or Ethernet
Communications Protocols	RS485 (ModBus RTU or IEC60870-5-103 or DNP3.0 Serial) RJ45 (Modbus TCP/IP or DNP3 TCP/IP or IEC 60870-5-104) RJ45 (IEC61850) + SNTP protocol	RS485(ModBus RTU or DNP3.0 Serial or IEC60870-5-103) RJ45 (Modbus TCP/IP or DNP3.0 TCP/IP or IEC60870-5-104) + SNTP protocol	RS485(ModBus RTU or DNP3.0 Serial or IEC60870-5-103) RJ45(Modbus TCP/IP or DNP3.0 TCP/IP or IEC60870-5-104) RJ45(IEC 61850) FO-LC(IEC61850) + SNTP protocol	RS485(ModBus RTU or DNP3.0 Serial or IEC60870-5-103) RJ45 (Modbus TCP/IP or DNP3.0 TCP/IP or IEC60870-5-104) + SNTP protocol
Size of	177 x 107 mm	177 x 107 mm	198 x 187 mm	177 x 107 mm