Timers & controls

Timers & controls

This section features product selection guides from the Timers and Controls Catalog (SS3 Cat. # 1TRC001009C0201). Use the SS3 catalog to view the individual product pages for the series shown in these selection guides. The SS3 is available in print and on CD-ROM.

SS3 Catalog:

This 552 page catalog and application manual provides concise data and application tips unavailable elsewhere. A double indexing system speeds the selection of:

Timers
Time Delay Relays
Encapsulated Timing Modules
Universal Timers
Multifunction Timers
ProgramaCube® Timers and Counters
Voltage Monitors
Current Sensors & Monitors
Phase Monitors
Liquid Level Controls
Accessories
Alternating Relays
Vending Timers and Controls
HVAC/ Timers and Controls
Solid State Flashers
Tower & Obstruction Lighting Controls
Solid State Relays
Motion Detectors
Lamp Dimmers & Motor Speed Controls
Power Factor Monitors
Insulation Monitors

This new edition includes the complete ABB brand of DIN3 mount timers, monitoring relays, and solid state relays.

All products are manufactured within an ISO9000 quality monitoring system. All products are shipped with UL and CSA approvals, and CE certification. Quality designs and rugged encapsulated construction allow the SSAC brand products to be backed by an exclusive 10 Year Product Warranty.

Each data sheet includes complete specifications, illustrations, photos and operational information needed to select one of the over 225 product series. The SS3 is easy-to-use and can be understood by designers, technicians, service contractors and non-technical users.

The SS3 includes informative application notes along with a colorful plant tour, and information about custom product design programs.

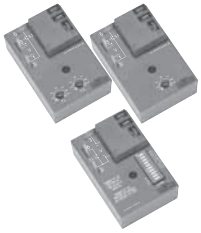
Selection Guide
Multi-function Timers

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	Knob or Switch Adjust Plug-in		S Series Onboard Adjust				E Series Onboard Adjust			Knob or Switch Adjust
										
Series	TRDU	TRU	CT-MFS	CT-MVS	CT-MBS	CT-MBS	CT-MFE	CT-MKE	CT-MFD	ASQU/ASTU DSQU/DSTU
Output Form	DPDT	DPDT	DPDT	DPDT	SPDT	DPDT	SPDT	Solid State	SPDT	Solid State
Function and Features										
Delay on Make (ON-delay)	•	•	•	•	•	•	•	•	•	•
Delay on Break (OFF-delay)	•	•	•	•	•	•	•		•	•
Delay on Break (Inverted)	•									
Single Shot (Pulse Former)	•	•					•		•	•
Single Shot Trailing Edge	•									
Single Shot Retriggerable (Motion Detector)	•	•								
Single Shot (Inverted)	•									
Interval (Impulse ON)	•	•	•	•	•	•	•	•	•	•
Interval, Trailing Edge (Impulse OFF)			•	•	•	•			•	
Interval/Recycling (Equal)	•									
Recycling (Pulse Generator) (Both Time Adjustable)	•									
Recycling (Equal Times ON First)	•	•	•	•	•	•	•	•	•	•
Recycling (Equal Times OFF First)		•	•	•	•	•	•	•	•	
Dual Functions										
Star Delta Motor Starting			•	•		•				
Delay on Make & Delay on Break	•									
Delay on Make & Single Shot	•									
Delay on Make & Interval	•									
Delay on Make (Accumulative) & Interval	•									
Delay on Make & Recycling (Equal)	•									
Delay on Break & Recycle (Equal)	•									
Single Shot & Recycle (Equal Times)	•									
Interval & Delay on Make	•									
General Features										
Instantaneous Contacts			•	•	•	•				
Accumulative Timing	•		•			•				
Solid State Output								•		•
Relay Output	•	•	•	•	•	•	•		•	
Knob or Onboard Adjustment		•	•		•	•	•	•	•	•
Switch Adjustment	•									•
External Adjustment			•	•	•	•				
Dimensions in	1.78 x 2.39 x 3.40		0.89 x 3.07 x 3.98				0.89 x 3.07 x 3.09		0.69 x 2.76 x 2.48	0.69 x 3.0 x 2.41
Dimensions mm	45.2 x 60.7 x 87.4		22.5 x 78 x 101				22.5 x 78 x 78.5		17.5 x 70 x 63	17.5 x 76.2 x 61.2

Selection Guide
ProgramaCube®

To view individual catalog pages,
see Catalog SS3 (1TRC001009C0201)
or www.ssac.com




Series												
Functions and Features	KSPD	KSPS	KSPU	NHPD	NHPS	NHPU	KRPD	KRPS	HRPD	HRPS	HRPU	HSPZ
Relay Output Resistive Rating							10A	10A	30A	30A	30A	
Solid State Output Rating	1A	1A	1A	6...20A	6...20A	6...20A						1A
Knob or External Adjustment or Fixed	•	•		•	•		•	•	•	•		
Accurate Switch Adjustment			•			•					•	•
Repeat Accuracy 0.5%	•	•		•	•		•	•	•	•		
Repeat Accuracy 0.1%			•			•					•	•
Single Timer Functions		•	•		•	•		•		•	•	
Accumulative Delay on Make (AM)		•	•		•	•		•		•	•	
Alternating Relay (Trailing Edge Flip-Flop) (FT)								•		•	•	
Delay on Break (B)		•	•		•	•		•		•	•	
Delay on Make (M)		•	•		•	•		•		•	•	
Interval (I)		•	•		•	•		•		•	•	
Inverted Delay on Break (UB)		•	•		•	•		•		•	•	
Inverted Single Shot (US)		•	•		•	•		•		•	•	
Leading Edge Flip-Flop (F)		•	•		•	•		•		•	•	
Recycling (RE, RD)		•	•		•	•		•		•	•	
Retriggerable Single Shot (Motion Detector) (PSD)		•	•		•	•		•		•	•	
Retriggerable Single Shot (Motion Detector) (PSE)		•	•		•	•		•		•	•	
Single Shot (S, SD)		•	•		•	•		•		•	•	
Trailing Edge Single Shot (TS)		•	•		•	•		•		•	•	
Dual Timer Functions	•			•			•		•			•
Accumulative Delay on Make/Interval (AMI)	•			•			•		•			•
Delay on Break/Recycle (BRE)	•			•			•		•			•
Delay on Make / Delay on Break (MB)	•			•			•		•			•
Delay on Make/Interval (MI)	•			•			•		•			•
Delay on Make/Recycle (MRE)	•			•			•		•			•
Delay on Make/Single Shot (MS)	•			•			•		•			•
Interval/Delay on Make (IM)	•			•			•		•			•
Interval/Recycle (IRE)	•			•			•		•			•
Recycling (RXE, RXD)	•			•			•		•			•
Single Shot/Recycle (SRE)	•			•			•		•			•
Single Shot/Lockout (SL)	•			•			•		•			•
Counter Functions			•			•					•	
Counter Pulse Output (C)			•			•					•	
Counter Interval Output (CI)			•			•					•	

New ProgramaCube® Products


KRPD


HRPD/HRID


HSPZ


ERPQ


HRPU/HRIU

Selection Guide
Solid State Timers with Relay Outputs

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	S Series Onboard Adjust	Plug-in Switch Adjust	Plug-in Knob Adjust	E Range Onboard Adjust	D Range Onboard Adjust
					
Dedicated Function	Series	Series	Series	Series	Series
Delay on Make (ON-Delay)	CT-ERS (a) CT-ERS (i)	TDM	TRM PRLM	CT-ERE	CT-ERD
Interval (Impulse ON)	CT-VWS	TDI	TRS PRLS	CT-VWE	CT-VWD
Interval, Trailing Edge (Impulse OFF)	CT-AWS (te)			CT-AWE	
Interval, True Trailing Edge (Impulse OFF)				CT-AWE	
Recycling Equal Times	CT-EBS (e)	TRU		CT-EBE	CT-EBD
Recycling, Unequal Times (Pulse Generator)	CT-TGS	TDR			CT-TGD
Single Shot (Pulse Former)		TDS	TRS PRLS		
Delay on Break (OFF - delay)	CT-AHS CT-APS	TDB	TRB PRLB	CT-AHE	CT-AHD
True Delay on Break (OFF - delay)	CT-ARS (tb)			CT-ARE (tb)	
Delay on Make / Delay on Break	CT-EAS (i),(e) CT-EVS (a)	TDMB			
Star Delta	CT-YDAV CT-YDEW			CT-SDE CT-YDE	
Delayed Interval (Single Pulse Generator)	CT-PGS	TRDU			
Time Delay & Adjustment					
Time Delay Range	0.05 s to 300 h (!)	0.1 s to 2.8 h (!) TRDU to 1705 h	0.05 s to 10 m (!) TRU 16 h	0.1 s to 300 s (!)	.05 s to 100 h
Repeat Accuracy	≤ 0.2%	≤ 0.1%	≤ 2%	≤ 1%	≤ 0.5%
Knob Adjust			•		
Onboard Adjust	•			•	•
Switch Adjust		•			
External Adjust	Some Series		TR Series		
Factory Fixed			•		
General Features					
DIN Rail Mounting (35 mm)	•	Socket Required	Socket Required	•	•
Surface Mounting	Adaptor Required	Socket Required	Socket Required	Adaptor Required	Adaptor Required
Output Relay	SPDT or DPDT (i)	SPDT or DPDT	SPDT or DPDT	SPDT	SPDT
Resistive Rating at Contacts	4 A	10 A	10 A	4 A	6 A
	•	Socket Required	Socket Required	•	•
Screw Terminals	in	0.89 x 3.07 x 3.98	1.78 x 2.39 x 3.20	1.78 x 2.39 x 3.62	0.89 x 3.07 x 3.09	.69 x 2.76 x 2.48
Dimensions	mm	22.5 x 78 x 101	45.2 x 60.7 x 81.3	45.2 x 60.7 x 91.6	22.5 x 78 x 78.5	17.5 x 70 x 63

(a) = includes time accumulation; (e) = equal time delays; (i) = includes an instantaneous contact; (tb) = true delay on break; (te) = trailing edge triggered;
A = amps resistive rating; (!) = most series consult catalog pages

Selection Guide
Solid State Timers with Relay Outputs

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	HR Series Onboard & External Adjust or Fixed	ERD Series Knob & External Adjust or Fixed	OR Series Knob & External Adjust or Fixed	KR Series Onboard & External Adjust or Fixed
				
Dedicated Function	Series	Series	Series	Series
Delay on Make (ON Delay)	HRDM HRPS	ERDM	ORM	KRDM KRPS
Interval (Impulse ON)	HRDI HRPS	ERDI	ORS	KRDI KRPS
Recycling Equal Times	HRD3 (e) HRPS	ERD3 (e)		KRD3 (e) KRPS
Recycling (Pulse Generator)	HRDR HRPD			KRDR KRPD
Single Shot (Pulse Former)	HRDS HRD9 (r) HRPS	ERDI	ORS	KRDS KRD9 (r)
Delay on Break (On Release)	HRDB HRPS		ORB	KRDB KRPS
Delay on Make / Delay on Break	HRPD			KRPD
Delayed Interval (Single Pulse Generator)	HRPD			KRPD
Other Functions Available	•			•
Time Delay & Adjustment				
Time Delay Range	0.1 s to 1000 m	0.1 s to 500 m (!)	0.05 to 300 s (!)	0.1 s to 1000 m
Repeat Accuracy	≤ 0.5%	≤ 0.5% to 2%	≤ 2%	≤ 0.5%
Knob Adjust		•	•	
Onboard Adjust	•			•
Switch Adjust				•
External Adjust	•	•	•	•
Factory Fixed	•	•	•	•
General Features				
DIN Rail Mounting	Adaptor Required			Adaptor Required
Surface Mounting	•	•	•	•
DPDT Relay/Resistive Rating		10 A	10 A	
SPDT Relay/Resistive Rating	SPDT 30 A	10 A	10 A	10 A
Popular AC & DC Voltages	•	•	ORB, ORS AC Only	•
Encapsulated	•	•		•
Quick Connects	•	•	•	•
Dimensions in	2.02 x 3.02 x 1.50	2.50 x 3.50 x 1.70	2.12 x 3.69 x 1.88	2.0 x 2.0 x 1.21
mm	51.3 x 76.7 x 38.1	63.5 x 88.9 x 43.2	53.9 x 93.7 x 47.8	50.8 x 50.8 x 30.7

(e) = equal time delays; (r) = retriggerable; (!) = Most series consult catalog pages

Selection Guide
Solid State Timers with Solid State Output

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	Digi-Timer Onboard, Switch, Fixed, or External Adjust 	MicroTime Onboard or Switch Adjust 	Digi-Timer Onboard, Switch, Fixed or External Adjust 	E Range Knob Adjust 
Dedicated Function	Series	Series	Series	Series
Delay on Make (ON Delay)	TSD1 KSD1		TDU KSDU	CT-EKE
Delay on Make Normally Closed	TSD4 KSD4			
Delay on Break (OFF-delay)			TDUB	CT-AKE
Delay on Break (2 Terminal)	TSDB KSDB	ASQU/ASTU DSQU/DSTU		
Single Shot (Pulse Former)	TSD7		TDUS	
Single Shot (Motion Detector)	TSDS KSDS	ASQU/ASTU DSQU/DSTU		
Interval (Impulse ON)	KSPS (r)		TDUI	
Interval (DC Volts Only)	TSD2	ASQU/ASTU		
Interval (2 Terminal)	KSD2	DSQU/DSTU		
Recycling (Delays Separately Adjustable)	TSD6 (d)			
	TSD7			
Recycling (Equal Delays)	ESDR TSDR KSDR			
Percentage Delay on Make/ Delay on Break Delay on Make/Interval	TSD3 (e) KSD3 (e)	ASQU/ASTU DSQU/DSTU		
	PT			
	KSPD			
	ESD5 KSPD			
Time Delay & Adjustment				
Typical Time Delay Range	0.1 s to 1000 m	0.1 s to 100 m	0.1 s to 170 m (!)	0.1 to 300 s
Repeat Accuracy	≤ 0.1 to 1%	≤ 0.1 to 1%	≤ 0.5%	≤ 1%
Onboard Adjustment	•	AS_U Series DS_U Series	TDU_ Series	•
Switch Adjustment				
External Adjustment	•		KSDU Series	
Factory Fixed	Except PT and KSDR Series			
General Features				
DIN Rail Mounting	Adaptor Required	•	Adaptor Required	•
Surface Mounting	•	•	•	Adaptor Required
Output Rating	1 A	0.7 A	1 A	0.7 to 0.8 A
Popular AC Voltages	•	•	•	•
Popular DC Voltages	•	•	•	CT-AKE AC Only
Screw Terminals		•		•
Quick Connects	•	•	•	
Dimensions in	2.0 x 2.0 x 1.21	0.69 x 3.0 x 2.41	2.0 x 2.0 x 1.21	0.89 x 4.09 x 3.27
mm	50.8 x 50.8 x 30.7	17.5 x 76.2 x 61.2	50.8 x 50.8 x 30.7	22.5 x 104 x 83

(d) = DC Volts Only; (e) = equal time delays; (s) = 3 or 4 channel sequencer; (!) = most series consult catalog pages; (r) = retriggerable

Selection Guide
Solid State Timers

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	Onboard, Fixed, or External Adjust 	Digi-Power Onboard, Fixed or External Adjust 	Digi-Set Switch Adjust 	PC Mount / Wires Fixed 	Surface Mount 2.5 x 3.5 
Dedicated Function	Series	Series	Series	Series	Series
Delay on Make (ON Delay)	TMV/TSU TS1	THDM THD1 TH1		MSM	
Delay on Make Normally Closed	TS4	THD4			
Delay on Break (OFF - delay)	TSB	THDB			EISB (ii)
Single Shot (Pulse Former)	TSS	THDS THS			
Interval (Single Pulse on Operate)	TS2	THD2 TH2			
Interval (DC Volts Only)	TS6 (d)				
Interval (2 Terminal)		THD7			
Recycling (Delays Separately Adjust)		PTHA	RS		
Recycling (Equal Delays)		THD3			SQ (s) (e)
Percentage		PTHF			
Delay on Make/ Delay on Break		NHPD			
Delay on Make/Interval		NHPD			
Other Functions Available		•			
Time Delay Adjustment					
Typical Time Delay Range	0.05 to 600 s	0.1 s to 1000 m	0.1 s to 255.75 h	0.05 to 180 s	0.2 s to 1000 m
Repeat Accuracy	≤ 0.5 to 2%	≤ 0.5%	≤ 0.1%	≤ 5%	≤ 0.5%
Onboard Adjustment	Some (!)	Most (!)			
Switch Adjustment			•		
External Adjustment	•	•			•
Factory Fixed	•	•		•	•
General Features					
DIN Rail Mounting	Adaptor Required				
Surface Mounting	•	•	•	•	•
Output Rating	1A	6, 10, or 20 A	1 A	0.5 A	1 A
Popular AC Voltages	•	•	•	•	•
Popular DC Voltages	•	Delay On Make Only	•	•	
Screw Terminals				6“ Wire Leads or PC Board Mount	
Male Quick Connects	•	•	•		
Dimensions in	2.0 x 2.0 x 1.21	2.0 x 2.0 x 1.51	3 x 2 x 1.5	0.94 x 1.5	2.5 x 3.5 x 1.22
mm	50.8 x 50.8 x 30.7	50.8 x 50.8 x 38.4	76.7 x 51.3 x 38.1	23.8 x 38.1	63.5 x 88.9 x 31

(d) = DC Volts only; (e) = equal time delays; (ii) = isolated input; (s) = 3 or 4 channel sequencer; (!) Some Series consult catalog pages

Selection Guide
Voltage Monitors

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	Three Phase											
									Available 4th Quarter, 2005			
Functions and Features	WVM	DLM	DLA	PLM	PLMU	PLR	PLS	RLM	HLM	TVM	TVW	CM-MPS
General Features												
DIN Rail Mounting	w/a	•	•	w/s	w/s	w/s	w/s		w/a		w/a	•
Surface Mounting	•	•	•	w/s	w/s	w/s	w/s	•	•	•	•	w/a
8-Pin Plug-In				•	•	•	•					
Screw Terminals	•	•	•									•
Quick Connects								•	•	•	•	
Output												
DPDT Relay(s)			•									•
SPDT Relay	•	•		•	•	•	•	•	•	•	•	
SPST-NO												
Line V Connection												
Wired Phase-to-Phase	•	•	•	•	•	•	•	•	•	•	•	•
Universal Voltage			•		•				•			
Phase-to-Neutral												
Single Phase												
Trip Point(s) Adjustable	•	•	•	•	•	•		•	•		V	•
Trip Point(s) Fixed										•	•	
Supply Voltage Required												
Protection												
Phase Sequence	•	•	•	•	•	•	•	•	•	•	•	•
Phase Loss (!)	•	•	•	•	•	•		•	•	•	•	•
Motor (On Start Up Only)						•						
Motor (While Operating)	•	•	•	•	•			•	•	•	•	•
Undervoltage	•	•	•	•	•	•		•	•	•	•	•
Overvoltage	•	•	•		•				•	•	•	•
Unbalance (Asymmetry)	•	•	•	•	•			•	•	•	•	•
Rapid Recycling	•				•					•	•	
Time Delays & Reset												
Trip Delay	•	•	•	•	•			•	•	•	•	
Restart Delay	•				•					•	•	
Automatic Restart	•	•	•	•	•	•	•	•	•	•	•	•
Manual Reset	•											
Indicator LED(s)												
Output ON/OFF	•	•	•	•	•	•		•	•	•	•	•
Supply ON/OFF												
Fault(s)	•		•						•	•	•	•
Timing	•		•		•				•	•	•	
Dimensions in	4.4 x 6.9 x 2.4	1.97 x 2.95 x 4.33		1.78 x 2.39 x ≤ 3.2				3.12 x 4.5 x 1.35		2.0 x 2.0 x ≤ 1.86		
mm	111.8 x 175.3 x 61	50 x 75 x 110		45.2 x 60.7 x ≤ 81.3				79.3 x 114.3 x 34.3		50.8 x 50.8 x ≤ 47.2		

w/a = with adaptor; w/s = with socket; v = Line voltage adjustable on some models

! Phase loss protection for resistive and non-rotating loads. Motor protection can be affected by regenerated voltages.

Selection Guide
Voltage Monitors

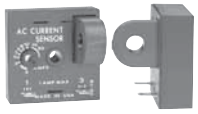
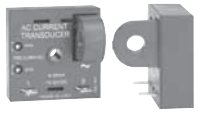
To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com

	Three Phase								Single Phase			
												
Functions and Features	CM-ASN	CM-PVN	CM-PFN	CM-ASS	CM-PFS	CM-PBE	CM-PFE	CM-PVE	KVM	CM-EFN	CM-ESN	CM-ESS
General Features												
DIN Rail Mounting	•	•	•	•	•	•	•	•	w/a	•	•	•
Surface Mounting	w/a	w/a	w/a	w/a	w/a	w/a	w/a	w/a	•	w/a	w/a	w/a
8-Pin Plug-In												
Screw Terminals	•	•	•	•	•	•	•	•		•	•	•
Quick Connects									•			
Output												
DPDT Relay(s)	•	•	•		•					•	•	
SPDT Relay				•			•					•
SPST-NO						•		•	•			
Line V Connection												
Wired Phase-to-Phase	•	•	•	•	•	•	•	•				
Universal Voltage					•		•					
Phase-to-Neutral						•		•	•			
Single Phase						•		•	•	•	•	•
Trip Point(s) Adjustable	•	•				•		•	•	•	•	•
Trip Point(s) Fixed			•							•	•	•
Supply Voltage Required	•	•	•			•		•		•	•	•
Protection												
Phase Sequence	•	•	•	•	•		•					
Phase Loss (!)	•	•	•	•	•	•	•	•				
Motor (On Start Up Only)		•	•		•	•	•	•				
Motor (While Operating)	•			•								
Undervoltage		•	•			•		•	•	•	•	•
Overvoltage		•	•					•		•	•	•
Unbalance (Asymmetry)	•			•								
Rapid Recycling		•										
Time Delays & Reset												
Trip Delay	•	•	•			•		•		•	•	
Restart Delay		•	•	•						•	•	
Automatic Restart	•	•	•	•	•	•	•	•		•	•	•
Manual Reset												
Indicator LED(s)												
Output ON/OFF	•	•	•	•		•	•	•	•	•	•	•
Supply ON/OFF	•	•	•		•					•	•	•
Fault(s)	•	•	•							•		
Timing												
Dimensions in	1.77 x 3.07 x ≤ 3.98			0.886 x 3.07 x ≤ 3.98		0.886 x 3.07 x 3.09			2 x 2 x 1.21	1.77 x 3.07 x ≤ 3.98	0.886 x 3.07 x ≤ 3.98	
mm	45 x 78x ≤ 101			22.5 x 78 x ≤ 101		22.5 x 78 x 78.5			50.8 x 50.8 x 30.7	45 x 78 x ≤ 101	22.5 x 78 x ≤ 101	

w/a = with adaptor; w/s = with socket

! Phase loss protection for resistive and non-rotating loads. Motor protection can be affected by regenerated voltages.

Selection Guide
Current Monitoring

	Sensing/Control Relays			Analog Output	
To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com					
	Adjustable, AC over & undercurrent trip points w/selectable response modes.	Selectable AC over or undercurrent; adjustable trip point & delay.	Low cost AC current switch; direct connection to digital PLC input; sinking or sourcing.	Current transducer; linear output proportional to the RMS AC current.	Current transducer; linear output proportional to the RMS AC current.
Series	ECSW	ECS	TCS	TCSA	DCSA
Functions and Features					
General Features					
DIN Rail Mounting			w/adaptor	w/adaptor	•
Surface Mounting	•	•	•	•	w/adaptor
Screw Terminals	•				•
Quick Connects		•	•	•	
Output					
Linear 4 to 20 mA				•	•
SPDT Relay	•	•			
1 A Solid State			•		
Monitored Current					
AC	•	•	•	•	•
DC					
Input or Output Voltage					
24 VAC	•	•			
24 … 240 V AC			Self-Powered		
110 … 130 V AC	•	•			
220 … 240 V AC	•	•			
12 & 24 V DC	•	•		Loop Powered	Loop Powered
3 … 50 V DC			Self-Powered		
Trip Range(s)					
Fixed			•		
Adjustable	•	•	•	•	•
3 mA … 1 A					
2 … 45 A fixed / 2… 20 adjustable			•		
0 … 50 A				•	•
0.5 … 50 A	•	•			
Delay(s)					
Trip Delay	•	•			
Start up Delay	•	•			
Indicator LED(s)					
Output ON/OFF	•				
Supply ON/OFF					
Fault(s)	•	•			
Timing	•				
Dimensions in	2.50 x 3.50 x 1.75		2.0 x 2.0 x 1.75		0.71 x 2.44 x 2.56
mm	63.5 x 88.9 x 44.5		50.8 x 50.8 x 44.5		18 x 62 x 65

Selection Guide
Current Monitoring

	Current Indicator	Motor Load Monitor	AC/DC Current Sensors	AC/DC Current Sensors
To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	 Monitor AC current flow with visual indication up to 500 feet from source.	 2 Relay outputs; monitors under & over loading.	 AC/DC version w/selectable over or undercurrent; relay output.	 AC/DC undercurrent trip points as low as 3mA; adjustable hysteresis; relay output.
Series	LCS/LPM	CM-LWN	CM-SRN	CM-SRS
Functions and Features				
General Features				
DIN Rail Mounting		•	•	•
Surface Mounting		w/adaptor	w/adaptor	w/adaptor
Screw Terminals		•	•	•
Quick Connects				
Wire Leads	•			
Output				
DPDT Relay		2 SPDT	•	
SPDT Relay				•
SPST Solid State				
Analog	•			
Monitored Current				
AC	•	•	•	•
DC			•	•
Supply Voltage				
24 VAC				•
24 … 240 V AC/DC		•	•	
42 … 48 V AC				•
110 … 130 V AC		•	•	•
220 … 240 V AC		•	•	•
380 … 415 V AC		•	•	
480 ... 500 V AC		•		
Trip Range(s)				
Fixed	•			
Adjustable		•	•	•
3 mA … 1 A			•	•
3 mA … 15 A			•	
0.5 ... 20 A		•		
0.5 … 50 A	•			
Hystersis Adjustable			•	•
Delay(s)				
Trip		•	•	
Inrush		•		
Indicator LED(s)				
Output ON/OFF		•	•	•
Supply ON/OFF		•	•	•
Fault(s)		•		
Timing				
Dimensions in	0.98 x 1.51 x 0.46	1.77 x 3.07 x ≤ 3.98	1.77 x 3.07 x ≤ 3.98	0.886 x 3.07 x ≤ 3.98
Dimensions mm	24.89 x 38.35 x 11.68	45 x 78 x ≤ 101	45 x 78 x ≤ 101	22.5 x 78 x ≤ 101

Selection Guide
Liquid Level Controls

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com

	Open PC Board			Plug-in Package			DIN Mount 22.5 mm Fixed
							
	Monitor and control conductive liquid levels when filling or emptying tanks. Low cost open board design.			Monitor and control conductive liquid levels when filling or emptying tanks. Convenient plug-in packaging.			Monitor and control conductive liquid levels to prevent dry running and overflow.
Series	LLC1	LLC2	LLC8	LLC4	LLC5	LLC6	CM-ENE
Functions and Features							
General Features							
Single Probe & Common	•		•	•		•	•
Dual Probe & Common		•			•		
DIN Rail Mounting				w/socket	w/socket	w/socket	•
Surface Mounting	•	•	•	w/socket	w/socket	w/socket	w/adaptor
Plug-In Socket Required				8 pin	8 pin	11 pin	
Screw Terminals		•		w/socket	w/socket	w/socket	•
Quick Connects	•	•	•				
Output Form							
Isolated Output (2) = Two Outputs	SPDT	SPDT	SPDT	SPDT	SPDT		SP-NO
Non-Isolated Output	SPST					SPDT	
Sensing Range							
6K ... 20K Ω							
1K or 5K ... 100K Ω		•			•		•
1K or 5K ... 250K Ω	•		•	•		•	
250 Ω ... 500K Ω							
Set Point: A = Adjustable; F = Fixed	A or F	A or F	F	A or F	A or F	F	F
Trip Delay Fixed	1...60 s		1...60 s	1...60 s		1...60 s	≅ 200 ms
Probe Voltage							
12 V AC	•	•	•	•	•	•	
20 V AC or 30 V AC							•
Logic Type							
Drain/Emptying	•	•		•	•		•
Fill	•	•		•	•		
Low Level Cut Off			•			•	
Input Voltage							
24 V AC	•	•	•	•	•	•	•
24 ... 240 V AC/DC							
110 ... 130 V AC	•	•	•	•	•	•	•
220 ... 240 V AC	•	•	•	•	•	•	•
380 ... 415 V AC							
Indicator LED (s)							
Output(s) ON/OFF			•		•	•	•
Supply ON/OFF							•
Dimensions in	2.75 x 3.5 x ≤ 2.0	3.0 x 4.0 x 2.0	2.19 x 2.5 x 1.88	1.78 x 2.39 x 2.91 (LLC5 D = 3.30)			0.886 x 3.07 x 3.09
mm	69.9 x 88.9 x ≤ 50.8	76.2 x 101.6 x 50.8	55.6 x 63.5 x 47.8	45.2 x 60.7 x 73.9 (LLC5 D = 83.8)			22.5 x 78 x 78.5

Selection Guide
Liquid Level Controls

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com	DIN Mount 22.5 mm Adjustable		DIN Mount 45 mm Adjustable		Alternating Relays & Duplexors			Insulation Monitors
								
	Monitor and control conductive liquid levels when filling or emptying tanks. Thin profile Snap-ON mounting package.		Monitor and control conductive liquid levels when filling or emptying tanks w/time-dependent features.		Provides equal run time for two loads. Automatically changes lead load upon the opening of the control switch input. Industry standard wiring.			Monitors the insulation resistance between ungrounded AC/DC systems and ground.
Series	CM-ENS	CM-ENS UP/DOWN	CM-ENN	CM-ENN UP/DOWN	ARP_1	ARP_2	ARP_3	CM-IWN C558.03
Functions and Features								
General Features								
Single Probe & Common								
Dual Probe & Common	•	•	•	•				
DIN Rail Mounting	•	•	•	•	w/socket	w/socket	w/socket	•
Surface Mounting	w/adaptor	w/adaptor	w/adaptor	w/adaptor	w/socket	w/socket	w/socket	
Plug-In Socket Required					8 pin	11 pin	8 pin	•
Screw Terminals	•	•	•	•	w/socket	w/socket	w/socket	
Quick Connects								
Output Form								
Isolated Output (2) = Two Outputs	SPDT	SPDT	(2)SPDT	(2)SPDT	SPDT	DPDT		SPDT or DPDT
Non-Isolated Output							DPDT-X	
Sensing Range								
6K ... 20K Ω								
1K or 5K ... 100K Ω	•	•		•				
1K to 500K Ω								•
250 Ω ... 500K Ω			•					
Set Point: A=Adjustable; F=Fixed	A	A	A	A				
Trip Delay Fixed	250 ms	250 ms	0.1...10s Adj	01...10s Adj				
Probe Voltage								
20 V AC or 30 V AC	•	•	•	•				
Logic Type								
Drain/Emptying	•	Selectable	•	Selectable				
Fill	•	Selectable	•	Selectable				
Alarm Levels				Low & High				
Alternating/Duplexing					•	•	•	•
Set Point Control								
24 V AC	•	•	•	•	•	•	•	
24 ... 240 V AC/DC			•	•				•
110 ... 130 V AC	•	•	•	•	•	•	•	•
220 ... 240 V AC	•	•	•	•	•	•	•	•
380 ... 415 V AC	•		•	•				
Indicator LED (s)								
Output(s) ON/OFF	•	•	•	•	Loads A/B	Loads A/B	Loads A/B	•
Supply ON/OFF	•	•	•	•				•
Dimensions in	0.886 x 3.07 x ≤ 3.98		1.77 x 3.07 x ≤ 3.98		1.78 x 2.39 x 3.20			1.77 x 3.07 x 3.98
mm	22.5 x 78 x ≤ 101		45 x 78 x ≤ 101		45.2 x 60.7 x 81.3			48 x 78 x ≤ 101

Semiconductor Contactor R100.xx and R300.xx
Solid-State Relays R111, R12x and R31x
Benefits and Advantages

R100.xx range

R100.20

R100.45

R300.xx range

R 300.20

To View Individual Catalog Pages See Catalog SS3 (1TRC001009C0201) or www.ssac.com

R111 range

R111/45

R12x range

R122/50

R31x range

R311/25

- **Compact design**
- **Zero voltage or instantaneous tripping**
- **LED display**
- **Protected against electric shock**
- **Integrated heat sink**
- **Ready for use**
- **Mounting on 35 mm DIN rail or screw mounting on plate**

Properties

- Load current range 20 A, 30 A and 45 A
- DC control
- Single-pole, thre-pole
- Switching by thyristors
- Peak inverse voltage 1200 V
- Insulation voltage > 4000 V
- Connecting terminals for 2 x 2.5 mm^2 or 1 x 4 mm^2

Special properties

- The semiconductor relay R100.45-SG is internally protected against overload with overload signaling via signaling output.
- Cables with a conductor cross section up to 1 x 25 mm^2 can be connected to the output terminals of the semiconductor relays R100.45 and R100.45-SG.

Application

- Contactless and wear-free switching of ohmic and inductive 1-phase and 3-phase AC loads with high switching frequency.

Approvals

- Depending on the device:

- **Standard design**
- **Zero voltage tripping, radio interference suppressed**
- **LED display**
- **Screw mounting or snap-on mounting with adapter for 35 mm DIN rail according to DIN EN 50022**

Properties

- R11x and R12x range - load side:
  Thyristors for AC-51 and AC-53 up to 690 V AC and 100 A
- R31x - load side:
  Alternistor for AC-51 and AC-53 up to 530 V AC and 50 A with internal RC circuit and overvoltage protection
- Electrical isolation by means of optocoupler between control circuit and load circuit
- Protection against electric shock:
  R111 and R115 range with additional terminal cover
- Control side protected against reversed polarity

Special properties of R31x range

- Screw mounting

Application

- Contactless and wear-free switching of 1-phase and 3-phase AC loads up to a power factor of cos φ = 0.5.

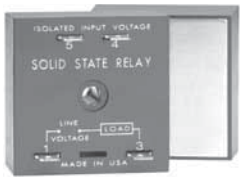
Approvals

-

To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com

Selection Guide
Tower and Obstruction Lighting Controls ①

Flasher · Solid State Beacon Flasher



P/N	Voltage	Description
FS155-30RF	120 V AC	Beacon Flasher for High RF Installations, 2500 W (200 A Inrush Maximum) Meets FAA-AC NO: 150/5345-43E
FS165-30RF	230 V AC	
FS155-30T	120 V AC	Beacon Flasher for FM, TV, Chimneys, Bridges, Smoke Stacks, and Low RF Applications, 2500 W (200 A Inrush Maximum) Meets FAA-AC NO: 150/5345-43E
FS165-30T	230 V AC	
FA155-2	120 V AC	Auxiliary Unit for Synchronous Flashing of Additional Beacons, 2500 W (200 A Inrush Maximum)
FA165-2	230 V AC	
FA155	120 V AC	Auxiliary Unit Provides Alternate Operation for Constant Line Loading, 2500 W (200 A Inrush Maximum) (not shown)
FA165	230 V AC	

Photo Control · Accurate Dusk to Dawn Control

PCR10	120 V AC	Precision Photo Control Calibrated to FAA and FCC Specifications for Tower and Obstruction Lighting. Two SPST N.O. 20 A Contacts. Without Cast Aluminum Housing. Meets FAA-AC NO: 150/5345-43E
PCR12	230 V AC	
PCR11	120 V AC	As Above With Cast Aluminum Housing (as shown)
PCR13	230 V AC	

Lamp Alarm Relays · Senses Lamp Failure

SCR430T	120 V AC	Universal Light Alarm Relay. Senses the Failure of One Lamp Out of 1, 2, 3, or 4 Lamps; 116 or 620 W, 120 V AC Lamps SPDT - 10 A Isolated Alarm Contacts. Meets FAA-AC NO: 150/5345-43E
SCR630T	230 V AC	
SCR490D	120 V AC	Side Light Alarm Relay. Senses the Failure of One Lamp Out of 2, 3, 4, 5, 6, 7, 8, or 9; Steadily Burning 116 W, 120 V AC Lamps SPDT - 10 A Isolated Alarm Contacts (not shown)

Beacon Alarm Relay · Senses Lamp Failure and Flasher Failure

FB120A	120 V AC	Flasher and Beacon Lamp Alarm Relay Senses Failure of Beacon Lamps Senses Failure of Beacon Flasher Two Line Voltage Alarm Outputs SPDT - 10 A Isolated Alarm Contacts Meets FAA-AC No: 150/5345-43E
FB230A	230 V AC	

① To view individual catalog pages, see Catalog SS3 (1TRC001009C0201) or www.ssac.com

Notes