# sprecher+ schuh

# Directly Mounted CEP7 Solid State Overload Relays, Manual Reset 000

	Directly Mounts	Adiustment	Trip Class 10	)
Overload Relay	to Contactor 2	Range (A)	Catalog Number	Price
	Manual Reset for 30	Applications •		
		0.10.5	CEP7-ED1AB	77
		0.21.0	CEP7-ED1BB	77
	CA7-9CA7-23 CAN7-12, CAN7-16	1.05.0	CEP7-ED1CB	77
200		3.216	CEP7-ED1DB	77
UOL		5.427	CEP7-ED1EB	77
0 m = (2)		1.05.0	CEP7-ED1CD	123
	CA7-30CA7-43	3.216	CEP7-ED1DD	123
	CAN7-37, CAN7-43	5.427	CEP7-ED1ED	123
		945	CEP7-ED1FD	123

## Directly Mounted CEP7 Solid State Overload Relays, Automatic/Manual Reset 0000

	Directly Mounts		Adjustable Trip 10, 15, 20 & 3	
Overload Relay	to Contactor 2	Adjustment Range (A)	Catalog Number	Price
Auto	omatic or Manual Reset	for 30 Application	ons <b>0</b>	
		0.10.5	CEP7-EEAB	88
	CA7 0 CA7 00	0.21.0	CEP7-EEBB	88
	CA7-9CA7-23 CAN7-12, CAN7-16	1.05.0	CEP7-EECB	88
	OAN7-12, OAN7-10	3.2 16	CEP7-EEDB	88
		5.427	CEP7-EEEB	88
200-		1.05.0	CEP7-EECD	138
101	CA7-30CA7-43	3.216	CEP7-EEDD	138
0000	CAN7-37, CAN7-43	5.427	CEP7-EEED	138
		945	CEP7-EEFD	138
		5.427	CEP7-EEEE	158
	CA7-60CA7-97	945	CEP7-EEFE	158
	CAN7-85	1890	CEP7-EEGE	164
		60120	CEP7-EEVE	164
Auto	omatic or Manual Reset	for 10 Application	ons <b>0</b>	
		1.05 <b>.</b> 0	CEP7S-EEPB	88
	CA7-9CA7-23 CAN7-12, CAN7-16	3.216	CEP7S-EERB	88
200-	,	5.227	CEP7S-EESB	88
	CA7-30CA7-43 CAN7-37, CAN7-43	945	CEP7S-EETD	138
	CA7-60CA7-85 CAN7-85	1890	CEP7S-EEUE	164



Most industrial applications usually call for an overload relay that must be manually reset in the event of a trip. This allows the cause of the overload to be identified before the motor is restarted. An overload relay that resets automatically is generally for specialized, or remote applications, such as rooftop AC units where restarting the motor will not harm people or equipment.

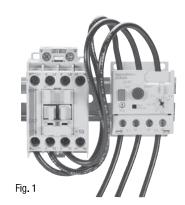
- 3-phase CEP7 units are only designed for 30 applications. Single phase CEP7S units are only designed for single phase applications.
- This reference is not intended to be a guide for selecting contactors. Size overload relays using the full load current of the motor.
- The reset time of a CEP7 set in the automatic mode is approximately 120 seconds.
- CEP7 overload relays do not work with Variable Frequency Drives, DC Applications or Softstarters with braking options.

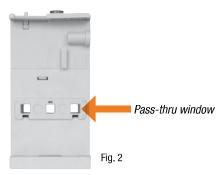
# sprecher+ schuh

# Pass-Thru CEP7 Solid State Overload Relays @

		-		
	Separate Mount Adjustment		Trip Class 10	
Overload Relay	for use with ②	Range (A)	Catalog Number	Price
М	anual Reset for 30 A	pplications 04		
	CA8-0912 CA7-9CA7-23 CAN7-12CAN7-37	1.05.0	CEP7-ED1CP	
		3 <b>.</b> 2 16	CEP7-ED1DP	77
Fig. 1		5.427	CEP7-ED1EP	

	O Manual	0.45	Adjustable Trip 10, 15, 20 &	
Overload Relay	Separate Mount for use with ②	Adjustment Range (A)	Catalog Number	Price
Automati	c or Manual Reset fo	r 3Ø Applications	004	
A		1.05.0	CEP7-EECP	
3	CA8-0912 CA7-9CA7-23 CAN7-12CAN7-37	3.2 16	CEP7-EEDP	88
Fig. 1		5.427	CEP7-EEEP	
Automati	c or Manual Reset fo	r 10 Applications	004	
A	<b>f</b>		CEP7S-EEPP	
CA7-9(	CA8-0912 CA7-9CA7-23 CAN7-12CAN7-37	3.216	CEP7S-EERP	88
		5.227	CEP7S-EESP	





## **Description**

Fig. 1 - The Pass-Thru version of the CEP7 permits separate mounting of the overload

Fig. 2 - Motor load side cables simply passthru a window in the overload relay body. The internal current transformers monitor the current flow.

#### **Benefits**

- No need for a panel mount adapter as required with direct-connect versions
- Eliminates 3 to 6 wire terminations
- Designed for use with CA8 or CA7 Contactors
- Easily replaces outdated overload relays in existing starter assemblies
- Provides state-of-the-art accuracy and motor protection

- 3-phase CEP7 units are only designed for 3Ø applications. Single phase CEP7S units are only designed for single phase applications.
- This reference is not intended to be a guide for selecting contactors. Size overload relays using the full load current of the motor.
- The reset time of a CEP7 set in the automatic mode is approximately 180 seconds.
- CEP7 overload relays do not work with Variable Frequency Drives, DC Applications or Softstarters with braking options.
- Pass-Thru windows will accept one power wire up to #10 AWG wire (6mm²).



# Large Amp CEP7 Solid State Overload Relays, Automatic and Manual Reset 02000

	Directly Mounts to	Mounts to		Selectable Trip Class (10,15,20 & 30)	
Overload Relay	Contactor 2	CT Ratio	Adjustment Range (A)	Catalog Number	Price
	Automatic or Manual Re	set for 30 Applic	ations <b>0</b> 0		
0 0	CA6-115CA6-180 CA6-115-ElCA6-180-El	150:5	30150	CEP7-EEHF	508
	CAN6-180(EI)	200:5	40200	CEP7-EEJF	508
en su su		200:5	40200	CEP7-EEJG	888
1	CA6-210-ElCA6-420-El CAN6-300-El	300:5	60300	CEP7-EEKG	888
		500:5	100500	CEP7-EELG	888
g. 11	CAC COO EL CAC OCO EL	600:5	120600	СЕР7-ЕЕМН	1397
CEP7-EEHF	CA6-630-EICA6-860-EI	800:5	160800	CEP7-EENH	1397



Lug or Accessory	Description	For Use With	Catalog Number	Price
	Main Terminal Set, ⊕  Dual Conductor, Touch Safe  • Accommodation for dual connections to each pole  • Accepts flat or round conductors	CEP7-EEHF CEP7-EEJF	CA6-HB2	
CA6-HB	Touch safe to IP20 according to IEC 60529     Eliminates need for Terminal Shields     (price as complete set, containing 2 blocks, 6 lugs)	CEP7-EEJG CEP7-EEKG CEP7-EELG	CA6-HB3	
	Screw Type Lugs -  • Accepts round conductors only	CEP7-EEHF CEP7-EEJF	CA6-L180	
CA6-L180 CA6-L420	Copper construction     (set of 3 lugs)	CEP7-EEJG CEP7-EEKG CEP7-EELG	CA6-L420	See page A99
CAG-L630	Screw Type Lugs -  • Accommodation for dual connections to each pole  • Copper construction accepts round conductors only (set of 3 lugs)	CEP7-EEMH CEP7-EENH	CA6-L630	
CA6-L860	Screw Type Lugs -     Accommodation for dual connections to each pole     Copper construction accepts round conductors only (set of 3 lugs)	CEP7-EEMH CEP7-EENH	CA6-L860	
10 to 11 1	Main Terminal Cover - <b>⑤</b> • CA6 touch protection • Line or load (price each) • IP20; IEC60529 & DIN 40 050 protection	CA6-115(-EI) to 180(-EI) CA6-210-EI to 420-EI CA6-630-EI to 860-EI	CA6-TC180 CA6-TC420 CA6-TC860	See page A101

- 3-phase CEP7 units are only designed for 3Ø applications.
- This reference is not intended to be a guide for selecting contactors. Size overload relays using the full load current of the motor.
- $\ensuremath{\mathfrak{O}}$  The reset time of a CEP7 set in the automatic mode is approximately 180 seconds.
- CEP7 Overload relays do not work with Variable Frequency Drives or any Sprecher + Schuh Softstarter with braking options.
- $\ensuremath{\mbox{\bf 6}}$  Terminal covers not necessary when using CA6-HB-\_ insulated lugs.
- © CEP7-EEHF...CEP7-EENH include current transformers used to monitor high amperage.



#### Accessories - CEP7 Side Mount Modules **QQ**

Accessory	Description	For use with	Catalog Number	Price
CEPZ-EBB	Remote Reset Module (Series B)  • Dip switch adjustable reset mode & type  - Automatic or Manual reset mode  - 1- or 3-Phase relay type operation  • Provision for reset after trip from remote pilot device	Side-mount to any CEP7-EE	CEP7-ERR	100
CEP7-EJM	Jam Protection and Remote Reset Module   • Dip switch adjustable Jam Protection  - Jam set points -150%, 200%, 300%, or 400% FLA  - Trip delay- 0.5, 1, 2, or 4 sec.  • Provision for reset after trip from remote pilot device		СЕР7-ЕЈМ	110
CEP7-EPT	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Side-mount to any CEP7-EE CEP7S-EE_	CEP7-EPT	125
PROFIBUS CEP7-EPRB	Network Communication Modules  Delivers direct access to motor performance and diagnostic data on a field bus based network in addition to seamless control  Includes integrated I/O 2 inputs 1 output  Operational and diagnostic data Average motor current Percentage of thermal capacity usage Device status	Side-mount to any	CEP7-EPRB	415
Trip and warning identification Trip history (last five trips)  Protective functions Overload warning - 1100% TCU Jam protection; - Trip setting 150600% FLA - Trip delay 0.525 seconds - Warning setting 100600% FLA Underload warning - 20100% FLA		CEP7-EE_ CEP7S-EE_	CEP7-ETN	422

- Side mount modules must have 24 240V, 47 63HZ or DC applied to terminals A1 and A2 for control power. CEP7-EPRB and CEP7-ETN require 20.4 - 26.4 VDC only. See B18 for more information.
- See Technical Data, Wiring, and DIP Switch set up starting on.page B16
- Opynamic inhibit: Protective function is enabled after the motor current goes above 150% and then falls below 125%.

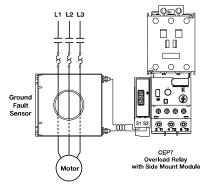


#### Accessories - CEP7 Side Mount Modules 09

Accessory	Description	For use with	Catalog Number	Price
CEP7-EGF	Ground Fault Protection and Remote Reset Module @@  Dip switch adjustable Ground Fault Protection  > GF Current range set points  - 20100ma  - 100500mA  - 0.21.0A  - 1.05.0A  > GF Trip level 20%-100%  • LED status indication  • Provision for reset after trip from remote pilot device	Side-mount to any CEP -EE CEP7S-EE_	CEP7-EGF	110
CEP7-EGJ	Ground Fault/Jam Protection and Remote Reset Module 23  Dip switch adjustable Ground Fault Protection same as CEP7-EGF shown above.  Jam trip when the motor current exceeds 400% FLA setting when enabled.  LED status indication  Provision for reset after trip from remote pilot device	Must use with CIP -CBCT Current Sensor	CEP7-EGJ	145
	Adjustment Cover for External Modules	All modules with DIP Switches	CEP7-EMC	13

#### **CEP7 Ground Fault Sensor Installation**

Ground Fault Sensor Control Wiring



# **CEP7 Ground Fault Sensor Selection €**

Ground fault current is sensed by passing all lines carrying current to and from a motor through the window of a special current transformer called a ground fault sensor. If all the current to the motor returns through the lines in the sensor window, no significant current will be induced in the sensor secondary. If, however, ground fault current returns via a path external to the sensor, such as via the conduit walls, a current will be induced in the sensor secondary. This current will be sensed and amplified by solid state circuits. If the ground fault current is larger than the selected ground fault trip level of the overload relay, the overload relay will trip.

Sensor Type	Maximum Current	Frequency	Turns Ratio	Sensor Window I.D.	Maximum Recommended Cable Size	For use with CEP7-EGF and CEP7-EGJ and contactor	Catalog Number	Price
	45A	50/60 Hz	1000:1	19.1mm (0.75 in.)	8 AWG @ 600V <b>4</b>	CA7-9CA7-37	CEP7-CBCT1	50
	90A	50/60 Hz	1000:1	39.6mm (1.56 in.)	2 AWG @ 600V <b>4</b>	CA7-9CA7-85	CEP7-CBCT2	175
	180A	50/60 Hz	1000:1	63.5 mm (2.50 in.)	250MCM (120mm²) @ 600V 4	CA7-09CA6-180	CEP7-CBCT3	226
	420A	50/60 Hz	1000:1	82.3 mm (3.25 in.)	350MCM (185mm²) @ 600V <b>⑤</b>	CA7-09CA6-420	CEP7-CBCT4	287

- Side mount modules must have 24 240V, 47 63HZ or DC applied to terminals A1 and A2 for control power. See B18 for more information.
- ATTENTION: The CEP7 Overload relay is not a ground fault circuit interrupter for personnel protection as defined in Article 100 of the NEC.
- 3 See Application Details starting on page B16.
- For a three phase system with one cable per phase.
- For a three phase system with two cables per phase.
- Opposite the protective function is enabled after the motor current goes above 150% and then falls below 125%.



#### **Accessories**

Accessory	Description	For use with	Catalog Number	Price
sprecher+schuh	Remote Indication Display "Intellibutton" © Connects, communicates, and receives power from CEP7 Side Mount Modules to remotely view status of CEP7-EE Overload Relays  Display Overload Status Condition Phase Module Phase Module Reset Loss Fauit  Remote Reset	CEP7-EJM CEP7-EGF CEP7-EGJ CEP7-EPT CEP7-ERR	CEP7-ERID	100
	Replacement Parts Kit for CEP7-ERID Includes (1) each Mounting Ring (Plastic), Terminal Block Plug, and L.E.D. Fault Code Label	CEP7-ERID	CEP7-NCRID	27
<u> </u>	DIN-rail / Panel Adaptor	CEP7-ED1B CEP7(S)-EEB	CEP7-EPB	29
	For separate mounting of overload relay to back pan or top hat DIN-rail	CEP7-ED1D CEP7(S)-EED	CEP7-EPD	29
		CEP7(S)-EEE	CEP7-EPE	35
	Current Adjustment Shield Prevents inadvertent adjustment of the current setting	all CEP7-ED1 CEP7-EE	CEP7-BC8	13
R]	Solenoid Remote Reset ② - For remote resetting of the solid state overload relay. Replace ★ in Catalog Number with Coil Code.	CEP7 a <b>ll</b>	CEP7-EMR*	81
R	External Reset Button Used for manually resetting overloads mounted in enclosures	all CEP7	Use D7 Reset - See Section H.	~
Id State	External Reset Button Adaptor Provides a larger "target area" for resetting the overload relay when using an External Reset Button	CEP7-ED1(all), CEP7-EE_B, CEP7-EE_D, CEP7- EE_E, CEP7-EE_P <b>●</b>	CEP7-ERA	14

#### **Solenoid Remote Reset Coil Codes**

(Replace ★ with coil code below)

A.C. Coil Code	Voltage Range 50 / 60 Hz 🗿
J	24V
D	120V
A	240V

D.C. Coil Code	Voltage ©
<b>Z24</b>	24VDC
<b>Z48</b>	48VDC
Z01	115VDC

- At the time of this printing CEP7-ERA does not fit CEP7-EE(HF...HH) without removing the CEP7 cover.
- $\hbox{\Large\it @} \ \, {\rm Solenoid} \ \, {\rm Reset} \ \, {\rm Modules} \ \, {\rm only} \ \, {\rm mount} \ \, {\rm on} \ \, {\rm CEP7} \ \, {\rm Series} \ \, {\rm C} \ \, {\rm or} \ \, {\rm later}.$
- 3 See page B21 for additional details on installation and LED functions.
- Coil consumption of AC coils is 8VA.
- Coil consumption of DC coils is 12 watts.



# **CEP7 Intelli-button Reset Kit with Side Mount Module** (For use on CEP7(S)-EE\_)

Accessory	Description	Kit includes	Catalog Number	Price
uprecher+schuh	Remote Reset Only	CEP7-ERID CEP7-ERR	CEP7-IB1	200
R	Jam and Remote Reset	CEP7-ERID CEP7-EJM (B)	CEP7-IB2	210
	Thermistor Relay and Remote Reset	CEP7-ERID CEP7-EPT	CEP7-IB3	225
SPECher + schul		CEP7-ERID CEP7-EGF CEP7-CBCT1 (45A)	CEP7-IB4	260
	Ground Fault and Remote Reset	CEP7-ERID CEP7-EGF CEP7-CBCT2 (90A)	CEP7-IB5	385
		CEP7-ERID CEP7-EGF CEP7-CBCT3 (180A)	CEP7-IB6	436
		CEP7-EGF CEP7-CBCT4 (420A)	CEP7-IB7	497
Sprecher+ schuh		CEP7-ERID CEP7-EGJ CEP7-CBCT1 (45A)	CEP7-IB8	295
	Ground Fault and Jam and Remote Reset Module	CEP7-ERID CEP7-EGJ CEP7-CBCT2 (90A)	CEP7-IB9	420
		CEP7-ERID CEP7-EGJ CEP7-CBCT3 (180A)	CEP7-IB10	471
		CEP7-ERID CEP7-EGJ CEP7-CBCT4 (420A)	CEP7-IB11	532



#### **Technical Information**

				CEP7-ED1B CEP7-EEB	CEP7-ED1EDFD CEP7-EED	CEP7-EEE	
Rated Insulation Voltage - $U_i$ $V_i$		690 AC					
Rated Insulation Strength- U <sub>imp</sub> [kV]			[kV]	6 AC			
Rated Opera	ation Voltage - <i>U</i> <sub>e</sub>		[V]	690 AC (IEC) / 600 AC (UL/CSA)			
Rated Opera	ating Frequency		[Hz]	50/60			
	oss Sections nal Type						
Termi	Terminal Screw		M5	M5	M8		
<del></del>	Flexible with	One conductor Torque	[mm²] [Nm]	1 x (2.516) 2.5	1 x (2.516) 2.5	1 x (450) 24	
	wire end ferru <b>l</b> e	Two conductors Torque	[mm²] [Nm]	2 x (2.510) <b>●</b> 3.4	2 x (2.510) <b>●</b> 3.4	2 x (425) 4	
<del>[-]</del>	Course stranded / solid	One conductor Torque Two conductors Torque	[mm²] [Nm] [mm²] [Nm]	1 x (2.525) 2.5 2 x (616) <b>●</b> 3.4	1 x (2.525) 2.5 2 x (616) <b>●</b> 3.4	1 x (450) 4 2 x (435) 4	
<del>[:]]</del>	Stranded / Solid	One conductor Torque Two conductors Torque	[AWG] [Ib-in] [AWG] [Ib-in]	1 x (146) 22 2 x (146) <b>●</b> 30	1 x (146) 22 2 x (146) <b>●</b> 30	1 x (121/0) 5 2 x (82) 5	
Pozidrive Scr	rewdriver Size	·	-	2	2		
Slotted screwdriver [mm]		1 x 6	1 x 6				
Hexagon Socket Size [mm]				4			

			CEP7-EE_F	CEP7-EE_G	CEP7-	EE_H	
Rated Insulation Voltage - U		VI	1000 AC				
Rated Insulation Strength- U		[kV]	6 AC				
Rated Operation Voltage - U		VI	1000 AC (IEC) / 600 AC (UL/CSA)				
Rated Operating Frequency		[Hz]	50/60				
Terminal Power		•	¥	¥	₹		
Туре			Hexagonal Bolt	Hexagonal Bolt	Hexagonal Bolt		
Direct Connection		M8 x 25	M10 x 30	M12 x 40			
Recommended Torque		[Nm]	11	4	68		
		[ <b>l</b> b-in]	100	380	600		
With Main Terminal Set (CA6HB)			With CA6-HB2	With CA6-HB3			
	sm. opening	[mm²]	16 <b></b> 50	25240	-	-	
	lg. opening	[mm²]	16120	25240	~		
	sm. opening	[mm²]	1650	25240	~		
	lg. opening	[mm²]	16120	25240	~		
	b max.	[mm]	20	25	-		
CA6-HB	s. sm. opening	[mm]	39	620	~	•	
	lg. opening	[mm]	314	620	~		
Recommended Torque		[Nm]	1012	2025			
Wire size per UL/CSA	sm. opening	[AWG]	#61 / 0	#4600MCM	~		
	lg. opening	[AWG]	#6250MCM	#4600MCM	~		
Recommended Torque		[lb-in]	90110	180220	~		
With Screw-type Lugs - Copper Cl	lad (CA6-L)				W/CEP7-EEMH	W/CEP7-EEHH	
CA6-L180		[AWG]	#6250 MCM	~	~	~	
Recommended Torque	_	[lb-in]	90110		~	~	
CA6-L420		[AWG]	~	#2350 MCM	~	~	
Recommended Torque	_	[lb-in]	~	75	~	~-	
CA6-L630		[AWG]		~-	2/0500 MCM	~	
Recommended Torque	_	[lb-in]	Į.	~	400	~	
CA6-L860 [AWG]		~	~	~	2/0500 MCM		
Recommended Torque	Recommended Torque [lb-in]		~	~	~	400	

<sup>•</sup> For multiple conductor applications the same style and size of wire must be used.