

# Electronic Overload Relay CEP7 to CEP7-1

## Product Migration Guide



**SMART MOTOR CONTROL**

# Why Upgrade or Migrate

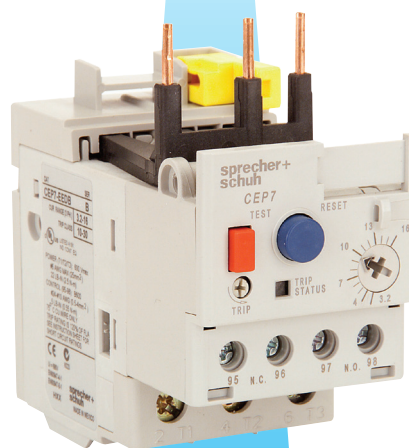
Whilst the CEP7 Overload Relay has been a valuable part of NHP's Motor Protection Portfolio for over 18 years, this product is now obsolete from vendor with very limited stock remaining.

Now is the time to migrate to the CEP7-1 Electronic Overload Relay. The CEP7-1 is the next generation electronic overload relay. It has enhanced features to better safeguard your motor investments, including increased accuracy and repeatability, a self-powered design with lower heat dissipation, and optional expansion capabilities.

## CEP7-1 Features and Benefits

- CEP7-1EE: Trip Class 10 and 20, manual reset only
- CEP7-1EF: Trip Class 10, 15, 20, 30, manual or automatic reset
- 5:1 wide current adjustment range to cover a variety of motor applications
- Supports both single- and three-phase operation in a single component
- A variety of accessories for enhanced protection:
  - Ground fault/jam
  - Remote reset and/or indication
  - Anti-tamper shields
  - DIN rail/panel mounting
  - External CT configurations
- Current measurement-based protection
- Electronic design and thermal memory
- Phase loss protection
- Self-powered and direct-mount design with CA7 contactors

# Now is the time to migrate to the CEP7-1 Electronic Overload Relay



Obsolete CEP7



CEP7-1

# Features Overview

The CEP7-1 Electronic Overload Relay is the newest technology for overload protection and supports both single- and three-phase operation in a single component.

**Module Port**

**Trip Class Selection**  
10, 15, 20, 30

**Selectable DIP Switches**  
10/20 Trip Class

**Latching Mechanism**

**CEP7-1EEB**

**CEP7-1EFAB**

**CEP7-1EEFD**

**Reset**

**Push to stop**

**Push to test**

**Load terminations**

**Trip Current Selection**

**Trip Status Indicator**

**Control terminals**  
95 and 96 / 97 and 98

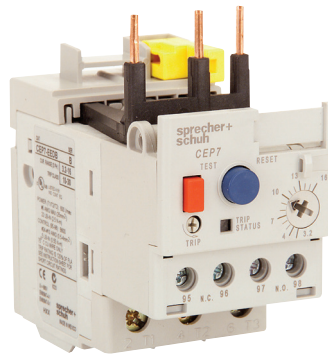
**DIN-Rail / Separate Mount**  
Pass Through versions available

**Direct Mount Mechanical attachment**

# Migration Options and Application

*The CEP7-1 Electronic Overload Relay was designed with migration in mind for users looking to upgrade from a 2nd gen CEP7*

- CEP7-1 improves application coverage with adjustable Trip Class 10 and 20 for the basic CEP7-1EE model
- Identical mounting footprint to CEP7 for direct mount configurations with CA7 contactors
- Equivalent overload performance, features and wiring as compared to 2nd gen CEP7
- CEP7-1 offers optional accessory modules which can be front-mounted on CA7 contactors for ease-of-access and minimising panel space



**2nd Gen CEP7 Overload Types**

	CEP7-ED1	CEP7-EE
Model	CEP7 Electronic Overload Relay	CEP7 Electronic Overload Relay
Type	Basic	Advanced
Rated Current (Range)	0.1...45A	0.1...800A
Nominal Operating Voltage	690V AC	690 / 1000V AC
Rated Operating Frequency	50 / 60 Hz (sinusoidal)	50 / 60 Hz (sinusoidal)
Operating Temperature (open)	-20...+60°C	-20...+60°C
Overload Type	Electronic	Electronic
Trip Class (Fixed)	10	–
Trip Class (Adjustable)	–	10, 15, 20, 30
Reset Type	Manual Only	Automatic or Manual
Adjustment Range	5:1	5:1
Rated Impulse Strength	6kV AC	6kV AC
Phase Loss Protection	Yes	Yes
Phase Imbalance Protection	Yes	Yes
Overcurrent (Jam) Protection	No	With Accessory
Ground (Earth) Protection	No	With Accessory
N/C Trip Contact	Yes	Yes
N/O Alarm Contact	Yes	Yes
Direct Mounts to Contactors	CA7	CA7, CA9
Pass Through / Separate Mount Models Available	Yes	Yes

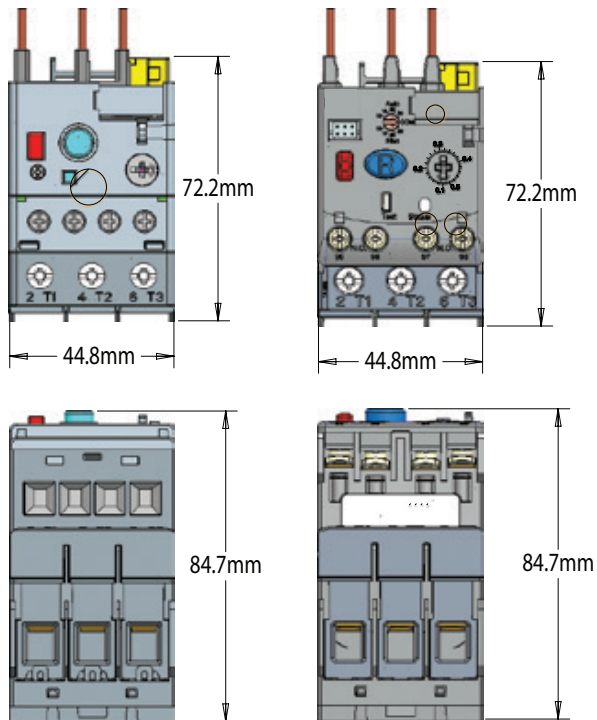
**3rd Gen CEP7 Overload Types**

CEP7-1EE	CEP7-1EF
CEP7-1 Electronic Overload Relay	CEP7-1 Electronic Overload Relay
Basic	Advanced
0.1...100A (Single- or Three- phase)	0.1...800A (Single- or Three- phase)
690V AC (Contactor Mount) 1000V AC (Pass Through)	690V AC (Contactor Mount) 1000V AC (Pass Through)
45...65 Hz	45...65 Hz
-20...+65°C	-20...+65°C
Electronic	Electronic
–	–
10, 20	10, 15, 20, 30
Manual Only	Automatic or Manual
5:1	5:1
6kV AC	6kV AC
Yes	Yes
Yes	Yes
No	With Protection Accessory
No	With Protection Accessory
Yes	Yes
Yes	Yes
CA7	CA7
Yes	Yes

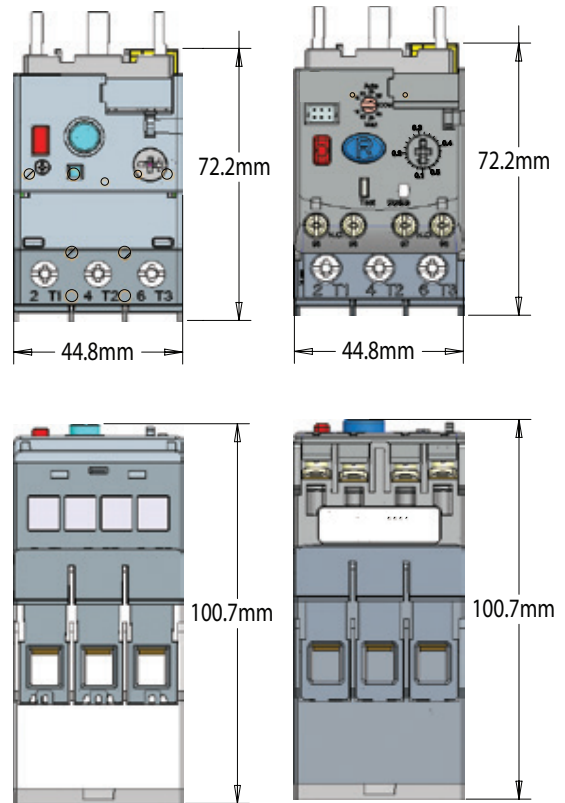
# Dimensional Comparison of CEP7 to CEP7-1

The mounting footprint of the CEP7 as compared to the CEP7-1 is identical for direct-mount configurations with CA7 contactors. The mounting footprint of the CEP7 and CEP7-1 pass-through versions is also relatively the same, however, the CEP7-1 offers an extended current sensing range by comparison. In addition, the CEP7-1 offers its own dedicated selection of DIN rail/panel-mount adapters.

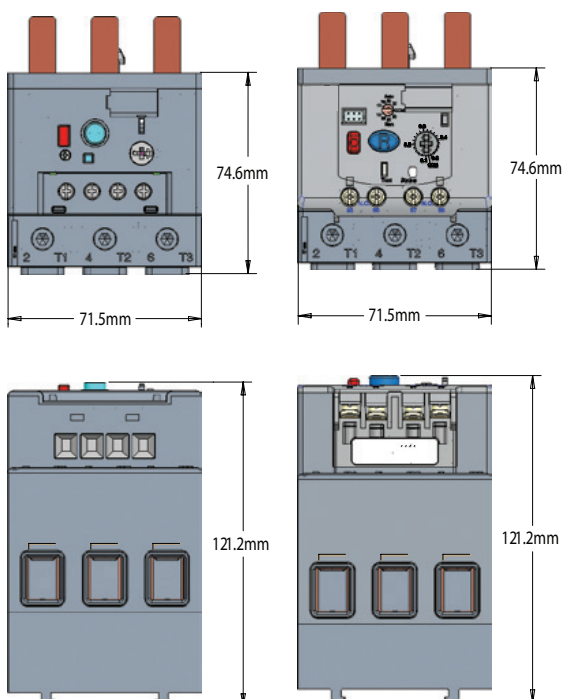
CEP7 vs CEP7-1 – for CEP7-1\_\_B



CEP7 vs CEP7-1 – for CEP7-1\_\_D



CEP7 vs CEP7-1 – for CEP7-1\_\_E



Dimensions are shown in millimeters. Drawing scales vary by size of contactors and are intended to provide approximate visual comparisons only.

# Frequently Asked Questions

## What is the difference between EF and EE models?

The CEP7-1 portfolio is divided into two offerings: a Basic (Cat. No. CEP7-1EE) and Advanced (Cat. No. CEP7-1EF) version, supporting both single- and three-phase operation in a single component.

The Basic offering allows adjustable trip current and limited trip class selection.

The Advanced version offers the same adjustable trip current, a larger selection of trip classes, and the ability to connect additional accessory modules. Additional Information can be found in the CEP7-1 Tech Data Documentation from the NHP website.

## What network communication options are available for the new CEP7-1?

There are no communication options available with the CEP7-1. If you require an overload relay with EtherNet/IP or DeviceNet communication capabilities, contact your local NHP Sales Representative for a solution.

## Will there be separate catalogue numbers for single phase and three phase options?

No. Both CEP7-1 versions support single- and three-phase operation in a single component.

## Is the CEP7-1 compatible with CAT7N DOL Starters?

The CEP7-1 is not compatible with CAT7N DOL enclosures. However, a new, compatible enclosure is anticipated for 2022. In the interim if you require an overload device for use with the CAT7N DOL Starter please select from the Sprecher + Schuh CT7N thermal overload range.

## Type 2 Co-ordination with Tembreak Pro MCCB?

The new CEP7-1 can be used with Tembreak Pro MCCB's for Type 2 Co-ordination. NHP's Type 2 tables have been updated to include the CEP7-1 series, if you require a copy of these tables contact your local NHP Sales Representative.

## Is there a thermistor input module available for CEP7-1?

There is no thermistor input option or module available with the CEP7-1 range. If you require a thermistor input device for use with motor protection then consider Sprecher + Schuh RT7-E2 thermistor relay product or contact your local NHP Sales Representative for a solution.

## Are CEP7 2<sup>nd</sup> generation accessories compatible with CEP7-1, and vice versa?

Most CEP7 2<sup>nd</sup> generation accessories are not suitable for use with CEP7-1 product and vice versa. However, the Remote Indication and Display (Cat. No. CEP7-ERID) and Ground Fault Sensors (Cat. No. CEP7-CBCT\_) can be used with either series of products.

## For support contact your local NHP Sales Representative.

# Component Cross-reference Information

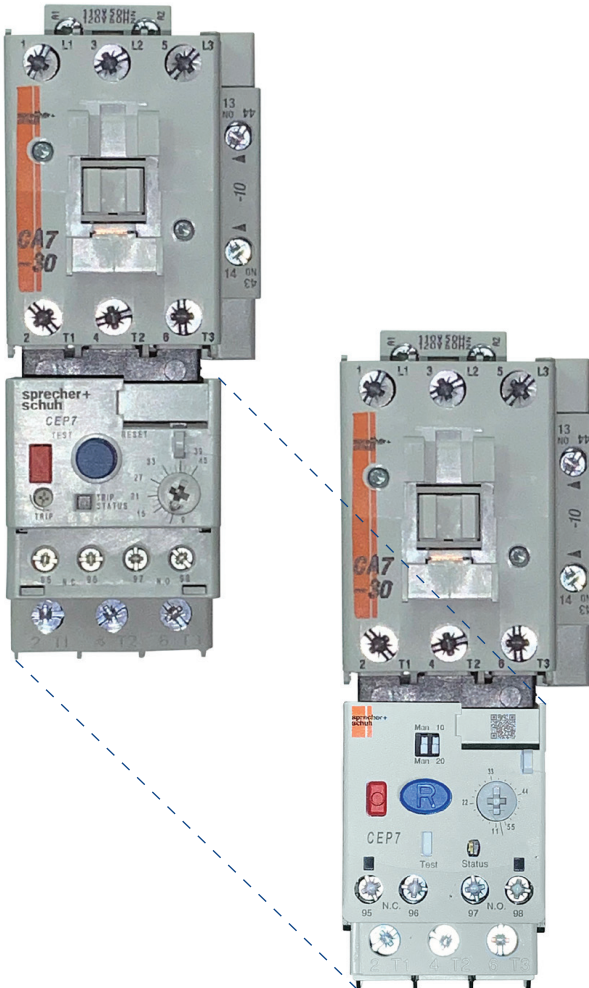
For this migration, there are two types of replacement categories as classified by NHP / Sprecher + Schuh. The following tables reference both replacement categories depending on the overload configuration. Examples of both categories are also provided below but are for reference only. Other configurations can and will vary by application.

## Example 1 – CEP7/CEP7-1 Direct-Mount to CA7

## Example 2 – CEP7 Mounted to CA6 Contactor/CEP7-1 Pass-Thru Overload Requiring External CTs

### Direct Replacement

### Engineered Replacement



Current Transformer Kit (Cat. No. CTKIT\*\*\*A) required which includes pass through overload and three current transformers

### Direct Replacement<sup>1)</sup>

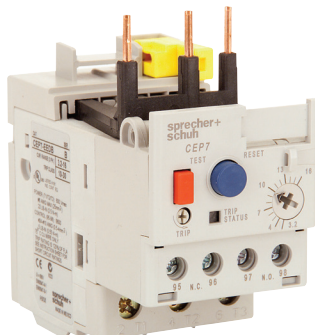
a product that can be used in place of an earlier product without any user modifications or adjustments. A direct replacement provides backwards compatible form, fit, and function by emulating the earlier product.

### Engineered Replacement

a product or family that can be used to migrate an earlier product or family and requires engineering changes to existing applications. An engineered replacement means that there is a form, fit or function change of the application that is not backward compatible and that does not emulate the earlier product.

1) CEP7-1 is not compatible with CAT7N DOL enclosures. However, a new, compatible enclosure is anticipated for 2022. In the interim if you require an overload device for use with the CAT7N DOL Starter please select from the Sprecher + Schuh CT7N thermal overload range.

# Component Cross-reference Tables



## Directly Mounted CEP7 Overload Relays, Manual Reset for Three Phase Applications

For Use With	2nd Generation		Replacement Category	3rd Generation	
	Amp Range	Catalogue No.		Amp Range	Catalogue No.
	Class 10 Manual Reset			Class 10/20 Manual Reset Only	
CA7-9...23	0.1...0.5	CEP7-ED1AB	Direct Replacement →	0.1...0.5	CEP7-1EEAB
	0.2...1.0	CEP7-ED1BB	Direct Replacement →	0.2...1.0	CEP7-1EEBB
	1.0...5.0	CEP7-ED1CB	Direct Replacement →	1.0...5.0	CEP7-1EECB
	3.2...16	CEP7-ED1DB	Direct Replacement →	3.2...16	CEP7-1EEDB
	5.4...27	CEP7-ED1EB	Direct Replacement →	5.4...27	CEP7-1EEEB
CA7-30...55	9...45	CEP7-ED1FD	Direct Replacement →	11...55	CEP7-1EEFD

## Directly Mounted CEP7 Overload Relays, Automatic or Manual Reset for Three Phase Applications

For Use With	2nd Generation		Replacement Category	3rd Generation	
	Amp Range	Catalogue No.		Amp Range	Catalogue No.
	Class 10...30 Automatic or Manual Reset			Class 10...30 Automatic or Manual Reset	
CA7-9...23	0.1...0.5	CEP7-EEAB	Direct Replacement →	0.1...0.5	CEP7-1EFAB
	0.2...1.0	CEP7-EEBB	Direct Replacement →	0.2...1.0	CEP7-1EFBB
	1.0...5.0	CEP7-EECB	Direct Replacement →	1.0...5.0	CEP7-1EFCB
	3.2...16	CEP7-EEDB	Direct Replacement →	3.2...16	CEP7-1EFDB
	5.4...27	CEP7-EEEB	Direct Replacement →	5.4...27	CEP7-1EFEB
CA7-30...55	5.4...27	CEP7-EEED	Direct Replacement →	5.4...27	CEP7-1EFED
	9...45	CEP7-EEFD	Direct Replacement →	11...55	CEP7-1EFFD
	11...55	CEP7-EEQD	Direct Replacement →	11...55	CEP7-1EFFD
CA7-60...97	9...45	CEP7-EEFE	Direct Replacement →	11...55	No direct replacement; CEP7-1EFFD + CEP7-1EPD
	18...90	CEP7-EEGE	Direct Replacement →	20...100	CEP7-1EFGE
	60...120	CEP7-EEVE	Direct Replacement →	20...100	CEP7-1EFGE
CA9-116...146	30...150	CEP7-EEHJ	Engineered Replacement →	80...400	CTKIT400A <sup>1)</sup>
CA9-190...205	40...200	CEP7-EEJJ	Engineered Replacement →	80...400	CTKIT400A <sup>1)</sup>

1) Current transformer kit which includes one Allen-Bradley E100 overload relay (Catalogue No. 193-1EF\*Z) and three current transformers, class 5P10. The overload relay in each kit, has the nominated current range on the setting dial.



## Directly Mounted CEP7 Overload Relays, Automatic or Manual Reset for Three Phase Applications

For Use With	2nd Generation		Replacement Category	3rd Generation	
	Amp Range	Catalogue No.		Amp Range	Catalogue No.
	Class 10...30 Automatic or Manual Reset			Class 10...30 Automatic or Manual Reset	
CA6-115...180	30...150	CEP7-EEHF	Engineered Replacement →	80...400	CTKIT400A <sup>1)</sup>
	40...200	CEP7-EEJF	Engineered Replacement →	80...400	CTKIT400A <sup>1)</sup>
CA6-210...300	40...200	CEP7-EEJG	Engineered Replacement →	80...400	CTKIT400A <sup>1)</sup>
	60...300	CEP7-EEKG	Engineered Replacement →	80...400	CTKIT400A <sup>1)</sup>
	100...500	CEP7-EELG	Engineered Replacement →	120...600	CTKIT600A <sup>1)</sup>
CA6-630...860	120...600	CEP7-EEMH	Engineered Replacement →	120...600	CTKIT600A <sup>1)</sup>
	160...800	CEP7-EENH	Engineered Replacement →	160...800	CTKIT800A <sup>1)</sup>

## DIN Rail / Panel Mount Pass Through CEP7 Overload Relays, Automatic or Manual Reset for Three Phase Applications

For Use With	2nd Generation		Replacement Category	3rd Generation	
	Amp Range	Catalogue No.		Amp Range	Catalogue No.
	Class 10...30 Automatic or Manual Reset			Class 10...30 Automatic or Manual Reset	
CA8-09...12 CA7-9...23	1.0...5.0	CEP7-EECP	Direct Replacement →	1.0...5.0	CEP7-1EFCP
	3.2...16	CEP7-EEDP	Direct Replacement →	3.2...16	CEP7-1EFD P
	5.4...27	CEP7-EEEP	Direct Replacement →	5.4...27	CEP7-1EFEP

## Directly Mounted CEP7 Overload Relays, Automatic or Manual Reset for Single Phase Applications

For Use With	2nd Generation		Replacement Category	3rd Generation	
	Amp Range	Catalogue No.		Amp Range	Catalogue No.
	Class 10...30 Automatic or Manual Reset			Class 10...30 Automatic or Manual Reset	
CA7-9...23	1.0...5.0	CEP7S-EEP B	Direct Replacement →	1.0...5.0	CEP7-1EFCB
	3.2...16	CEP7S-EER B	Direct Replacement →	3.2...16	CEP7-1EFDB
	5.4...27	CEP7S-EES B	Direct Replacement →	5.4...27	CEP7-1EFEB
CA7-30...55	9...45	CEP7S-EETD	Direct Replacement →	11...55	CEP7-1EFFD
CA7-60...97	18...90	CEP7S-EEUE	Direct Replacement →	20...100	CEP7-1EFGE

## DIN Rail / Panel Mount Pass Through CEP7 Overload Relays, Automatic or Manual Reset for Single Phase Applications

For Use With	2nd Generation		Replacement Category	3rd Generation	
	Amp Range	Catalogue No.		Amp Range	Catalogue No.
	Class 10...30 Automatic or Manual Reset			Class 10...30 Automatic or Manual Reset	
CA8-09...12 CA7-9...23	1.0...5.0	CEP7S-EECP	Direct Replacement →	1.0...5.0	CEP7-1EFCP
	3.2...16	CEP7S-EEDP	Direct Replacement →	3.2...16	CEP7-1EFD P
	5.4...27	CEP7S-EEEP	Direct Replacement →	5.4...27	CEP7-1EFEP

1) Current transformer kit which includes one Allen-Bradley E100 overload relay (Cat. No. 193-1EF\*Z) and three current transformers, class 5P10. The overload relay in each kit, has the nominated current range on the setting dial.

For Use With	2nd Generation	Replacement Category	3rd Generation		
	Catalogue No.		For Use With	Catalogue No.	
<b>Side Mount Modules</b>					
Side mount to any CEP7-EE_, CEP7S-EE_	CEP7-ERR	Direct Replacement	→	CEP7-1EF	CEP7-1ERR
	CEP7-EJM	Direct Replacement	→	CEP7-1EF	CEP7-1EGJ
	CEP7-EPT	Direct Replacement	→	-	No direct replacement
	CEP7-ETN	Direct Replacement	→	-	No direct replacement
	CEP7-EDN	Direct Replacement	→	-	No direct replacement
	CEP7-EPRB	Direct Replacement	→	-	No direct replacement
Side mount to any CEP7-EE_, CEP7S-EE, must be used with CEP7-CBCT_ Current Sensor	CEP7-EGF	Direct Replacement	→	CEP7-1EF	CEP7-1EGJ
	CEP7-EGJ	Direct Replacement	→	CEP7-1EF	CEP7-1EGJ
All modules with DIP switches	CEP7-EMC	Direct Replacement	→	CEP7-1EGJ	CEP7-1EMC

### Accessories

CEP7-EJM, CEP7-EGF, CEP7-EGJ, CEP7-EPT, CEP7-ERR	CEP7-ERID	Direct Replacement	→	CEP7-1ERR, CEP7-1EGJ	CEP7-ERID
CEP7-ED1...B, CEP7(S)-EE...B	CEP7-EPB	Direct Replacement	→	CEP7-1__B	CEP7-1EPB
CEP7-ED1...D, CEP7(S)-EE...D	CEP7-EPD	Direct Replacement	→	CEP7-1__D	CEP7-1EPD
CEP7(S)-EE...E	CEP7-EPE	Direct Replacement	→	CEP7-1__E	CEP7-1EPE
All CEP7-ED1, CEP7-EE	CEP7-BC8	Direct Replacement	→	CEP7-1__	CEP7-1BC8
CEP7 all	CEP7-EMRA	Direct Replacement	→	CEP7-1__	CEP7-1EMRA
CEP7 all	CEP7-EMRD	Direct Replacement	→	CEP7-1__	CEP7-1EMRD
CEP7 all	CEP7-EMRJ	Direct Replacement	→	-	No direct replacement
CEP7 all	CEP7-EMRZ01	Direct Replacement	→	-	No direct replacement
CEP7 all	CEP7-EMRZ24	Direct Replacement	→	CEP7-1__	CEP7-1EMRZ
CEP7 all	CEP7-EMRZ48	Direct Replacement	→	CEP7-1__	No direct replacement
CEP7-ED1 (all), CEP7-EE_B, CEP7-EE_D, CEP7-EE_E, CEP7-EE_P	CEP7-ERA	Direct Replacement	→	CEP7-1__	CEP7-1ERA

### CEP7 Ground Fault Sensor Selection

For use with CEP7-EGF and CEP7-EGJ and contactor...	CA7-9...37	45A	CEP7-CBCT1	Direct Replacement	→	Still current
	CA7-9...85	90A	CEP7-CBCT2	Direct Replacement	→	Still current
	CA7-9... CA9-190	180A	CEP7-CBCT3	Direct Replacement	→	Still current
	CA7-9... CA9-400	420A	CEP7-CBCT4	Direct Replacement	→	Still current



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The NHP logo consists of the letters 'NHP' in a bold, white, sans-serif font, centered within a dark blue square background.

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