

January, 2000
 New Information

Magnum DS Air Circuit Breakers Renewal Parts and Accessories



Magnum Breakers Type MDS in Drawout or Fixed Mounted Configurations

Contents	Pages	Contents	Pages	Contents	Pages
Ordering Instructions	2-3	Cassette (Cell) Attachments	14-15	Trip Units	21-23
Mechanisms and Related Parts	6-7	Secondary Terminal Block Kit		Digitrip 220, 520, 520M, 1150	
Charging Handle w/Stop Pawls Assembly		Secondary Terminal Wire Kit		Trip Unit Mounting Assembly	
Accessories Tray		Cassette Extension Rails		Trip Unit Covers	
Breaker Key Interlock Provision		Cell Rejection Pins		Magnum Test Accessories	24
Mechanism		Cassette Secondary Disconnect Block		Hand Held Tester	
Operations Counter		Back Plane		Portable Tester Kit	
Levering Mechanism Assembly		Cassette Arc Chute Cover		DSII Portable Tester Kit	
Levering Door and Door Mechanism		MDS Type Copper Line & Load Stabs Kit		Tester Adapter Cable	
Opening Springs & Guide		MDS Type Cassette Shutters			
Face Plate & Button & Flags		Breaker Accessories	16		
Current Path	8	Cell Switch Kit			
Stationary (Line) Copper w/Spacer		Cassette Lock Provision			
Moving (Load) Copper w/Fingers and Seal		External Accessories	17-18		
Primary Disconnect (Finger Clusters)		Door Frame and Gasket			
Vertical Adapters		CT Jumper Block Kit			
Electrical Attachments	9-13	Pushbutton External Lock Cover			
Shunt Trip (Opening Coil)		CT Shorting & Jumper Block Kit			
Auxiliary Switch		CT Shorting Block			
Spring Release (Closing Coil)		Mechanical Cable Interlock			
Motor Operator		Mechanical Rod Interlock			
Under Voltage Release		Undervoltage Release Time Delay			
Fixed Breaker Secondary Disconnect Block		Basic Breaker Parts	19-20		
Bell Alarm - Overcurrent Trip Switch (OTS)		Breaker Front Cover			
Breaker Terminal Block Bracket		Arc Chute			
Current Sensors (CT's) and Rating Plugs		Pole Shaft Assembly (w/Bearing Plates, Drive Links and Back Catch)			
Rating Plugs Only		Fixed Breaker Mounting Feet			
Auxiliary Current Transformers		Levering-In Blank Cover			
Auxiliary Power Module		Trip Indicator - Mech Pop-Out Mounting Deck/Linkage			
Ground Fault Alarm/Power Supply Module (ATR)		Making Current Release Switch (MCR)			
Power Relay Module (ATR)		Breaker Pull-Out Handle			
Neutral Current Sensors		Current Sensor Door			



PROCEDURE FOR IDENTIFYING BREAKER TYPE

A — **Magnum DS**

B — **MDSC16**

C — **Low Voltage AC Power Circuit Breaker**
1600 Amp Frame 3 Pole 50/60 Hz

D — **Interruption Ratings in Amps**

Max Volts	Inst Trip	Short Delay
635	100.000A	85.000A
508	100.000A	85.000A
254	100.000A	85.000A

E — **Accessories**

Motor Operator 110 - 125 VAC 50/60 Hz
OTS/Bell Alarm
Trip Unit Power 120 VAC 50/60 Hz
Aux Switches 2A / 2B

F — G.O. # 1234567 It: 001 Seq: 002
Cust P.O. 1234567890
Code:
12/14/99 19:08:03 - 1
CAT#: MDSC163LEA 16MUA AAN2Y NNNXX
Enclosure Requirements: Dwg: 2C13090
Installation and Operating Instructions: 2C12060
Made in USA

MDS Type Breaker

- A** Low voltage air circuit breaker family name
- B** Breaker family designation number
- C** Breaker frame size in amperes
- D** Interrupting capacity rating
- E** Accessories
- F** Catalog number

Ordering Instructions

1. Check the nameplate to identify the type of breaker you have. (If adding accessories or options to existing breakers, you must also provide the information for those accessories.)
2. Identify the part(s) from the photos shown.
3. Determine the Style or Cat# for the required parts.
4. Specify the quantity required.
5. Order the parts from your local Cutler-Hammer distributor.
6. State the method of shipment.

IMPORTANT NOTE:

Some parts require installation by C-HESS (Cutler-Hammer Engineering Services & Systems) or an authorized Cutler-Hammer service center.

The Catalog Number is a 25 digit number located on the breaker's name plate.

An example of this number is:

MDSC183LEA32MUAMNA2YNNNXX

Magnum Circuit Breakers can be identified using either the Cat# or the G.O. (General Order Number) which is located on the breaker's name plate.

An example of this number is:

G.O. #1234567 It: 001

Non-Warranty Repair

Cutler-Hammer offers non-warranty factory repair service for Magnum Breakers. A non-warranty breaker is one that has exceeded its original factory warranty.

The non-warranty repair service features:

- Quality Magnum Breakers repair specified and audited by factory engineers according to procedures.
- Only genuine new Cutler-Hammer replacement parts.
- Original factory specifications and design drawings used by factory trained technicians.
- One year factory warranty issued from date of shipment from repair center.
- Repair lead time of four to six weeks.



MAGNUM DS BREAKER CATALOG NUMBER FORMAT

Selection Ordering Form

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

M	D	S							A	-										N	A	X
---	---	---	--	--	--	--	--	--	---	---	--	--	--	--	--	--	--	--	--	---	---	---

4. Interrupt/Withstand

- 4 = 42/42
- 6 = 65/65
- 8 = 85/85
- C = 100/85 - 100/100

5 & 6. Continuous Amperes

- 08 = 800
- 16 = 1600
- 20 = 2000
- 30 = 3000
- 32 = 3200
- 40 = 4000 ABCABC
- 50 = 5000 ABCABC
- 4N = 4000 AABBC
- 5N = 5000 AABBC

7. Poles

- 3 = Three
- 4 = Four

8. Mounting Configuration

- F = Fixed Front
- H = Fixed Horizontal
- V = Fixed Vertical
- W = Drawout Vertical

9. Nameplate Language

- E = English
- A = Spanish
- F = French
- C = Chinese
- P = Portuguese

11 & 12. Sensor/Plugs

- NN = None 10 = 1000
- 02 = 200 12 = 1200
- 05 = 250 16 = 1600
- 03 = 300 20 = 2000
- 04 = 400 25 = 2500
- 06 = 600 30 = 3000
- 07 = 630 32 = 3200
- 08 = 800 40 = 4000
- 50 = 5000

13 & 14. Trip Unit

- NN = Unprotected
- 22 = 220 LI
- 52 = 520 LSI
- 5G = 520 LSIG
- M2 = 520M LSI
- MT = 520M LSI 24/48 Vdc
- MU = 520M LSI 120Vac
- MV = 520M LSI 240Vac
- MG = 520M LSI G
- MH = 520M LSI G 24/48 Vdc
- MM = 520M LSI G 120Vac
- MN = 520M LSI G 240Vac
- ME = 520M LSI G 24/48 Vdc
- MC = 520M LSI G 120Vac
- MF = 520M LSI G 240Vac
- 1A = 1150 LSI 24/48 Vdc
- 1C = 1150 LSI 120Vac
- 1E = 1150 LSI 240Vac
- 1J = 1150 LSI G 24/48 Vdc
- 1K = 1150 LSI G 120Vac
- 1M = 1150 LSI G 240Vac
- 1F = 1150 LSI G 24/48 Vdc
- 1G = 1150 LSI G 120Vac
- 1H = 1150 LSI G 240Vac

15. Shunt Trip

- N = None
- A = 110/127Vac/Vdc
- R = 208/240Vac/Vdc
- C = 24Vdc
- H = 48 Vdc

16. Motor Operator

- M = Manual Operated
- A = 110/125Vac 9 sec
- E = 110/125 Vdc 9 sec
- N = 110/125Vac 5 sec
- W = 110/125 Vdc 5 sec
- T = 220/250 Vdc 5 sec
- P = 220/250Vac 5 sec
- L = 24 Vdc 5 sec
- K = 48 Vdc 5 sec

17. Spring Release

- N = None
- A = 110/127Vac/dc
- R = 208/240Vac/dc
- C = 24Vdc
- H = 48 Vdc
- 1 = 110/127 Vac/dc 2nd ST
- 2 = 208/240Vac/dc 2nd ST
- 3 = 24Vdc 2nd ST
- 4 = 48Vdc 2nd ST
- 7 = 120Vac(capacitor trip)
- 8 = 240Vac (capacitor trip)

19. Auxillary Switch

- N = None
- 2 = 2A/2B
- 4 = 4A/4B
- 6 = 6A/6B

18. UVR/Second ST

- N = None
- A = 110/127Vac I
- R = 208/240Vac I
- C = 24Vdc I
- H = 48Vdc I
- E = 110/125Vdc I
- F = 220/250Vdc I
- G = 32Vdc I
- X = 380/415Vac I
- J = 480Vac I
- K = 600Vac I
- M = 110/127Vac TD
- L = 208/240Vac TD
- P = 24Vdc TD
- Y = 48Vdc TD
- S = 110/125Vdc TD
- T = 220/250Vdc TD
- U = 32Vdc TD
- V = 380/415Vdc TD
- W = 480Vdc TD
- Z = 600Vdc TD
- 1 = 110/127 Vac/dc 2nd ST
- 2 = 208/240Vac/dc 2nd ST
- 3 = 24Vdc 2nd ST
- 4 = 48Vdc 2nd ST
- 7 = 120Vac(capacitor trip)
- 8 = 240Vac (capacitor trip)

20. OTS/Bell Alarm

- N = None
- Y = 2 Form C

21. Padlocks

- N = None
- M = Metal
- P = Plastic
- C = Close PB Metal
- H = Close PB Plastic

22. Operations Counter / Keylock

- | | | |
|---|------|---------|
| X | CNTR | Keylock |
| N | None | None |
| K | None | Kirk |
| C | None | Castell |
| R | None | Ronis |
| A | Cntr | None |
| T | Cntr | Kirk |
| L | Cntr | Castell |
| H | Cntr | Ronis |

23. Multi Breaker Interlock

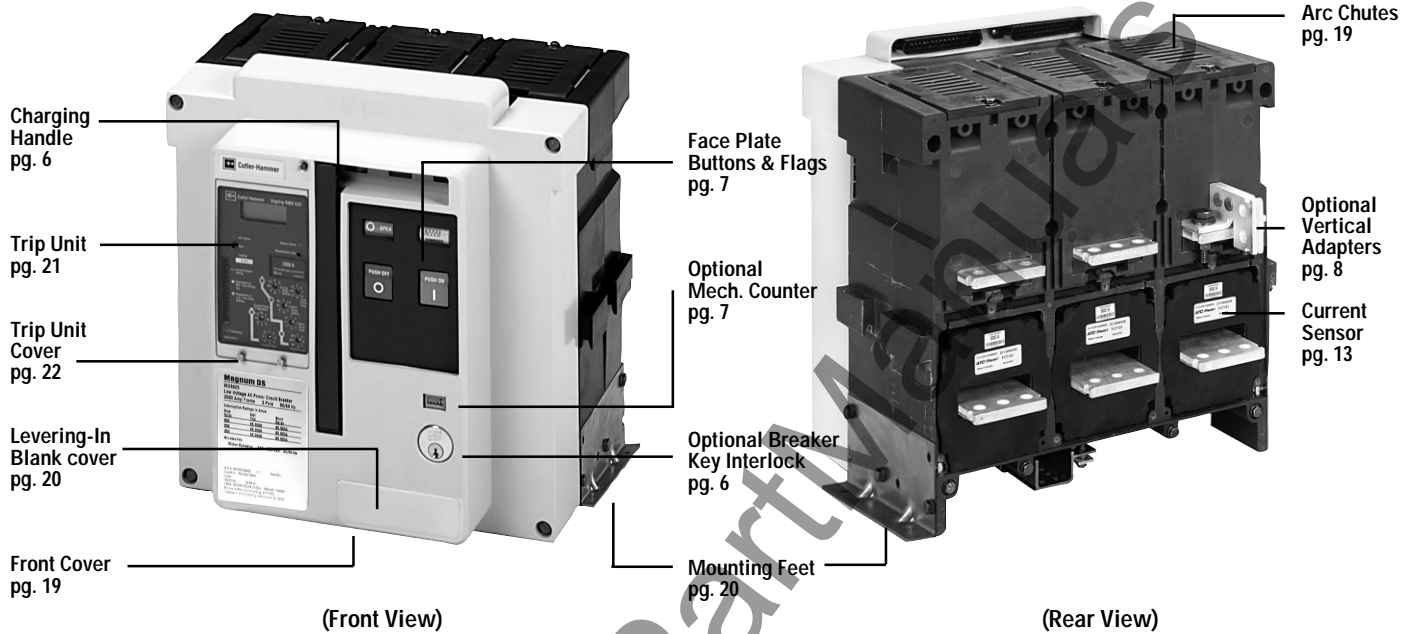
- N = None
- Y = Provision Installed

24. Shipping Instructions

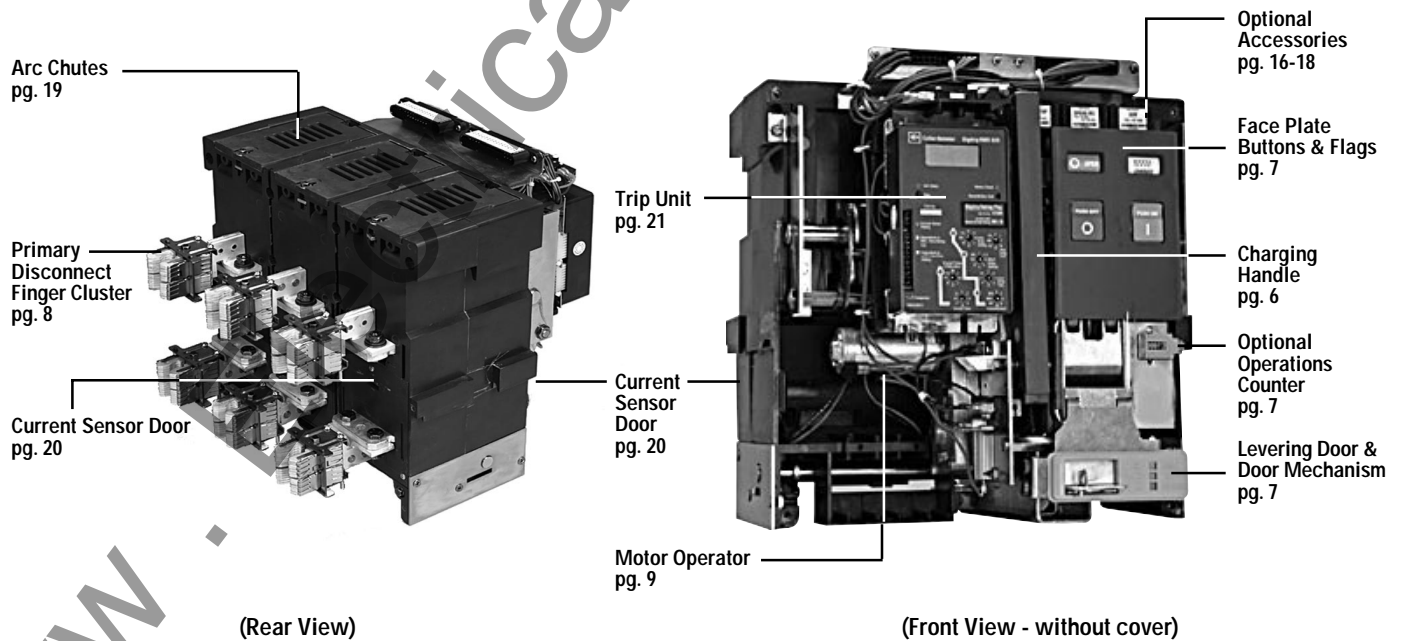
- A = Breaker Alone
- C = Breaker and cassette (DO only)



MAGNUM DS FIXED MOUNTED BREAKER 800-3200A

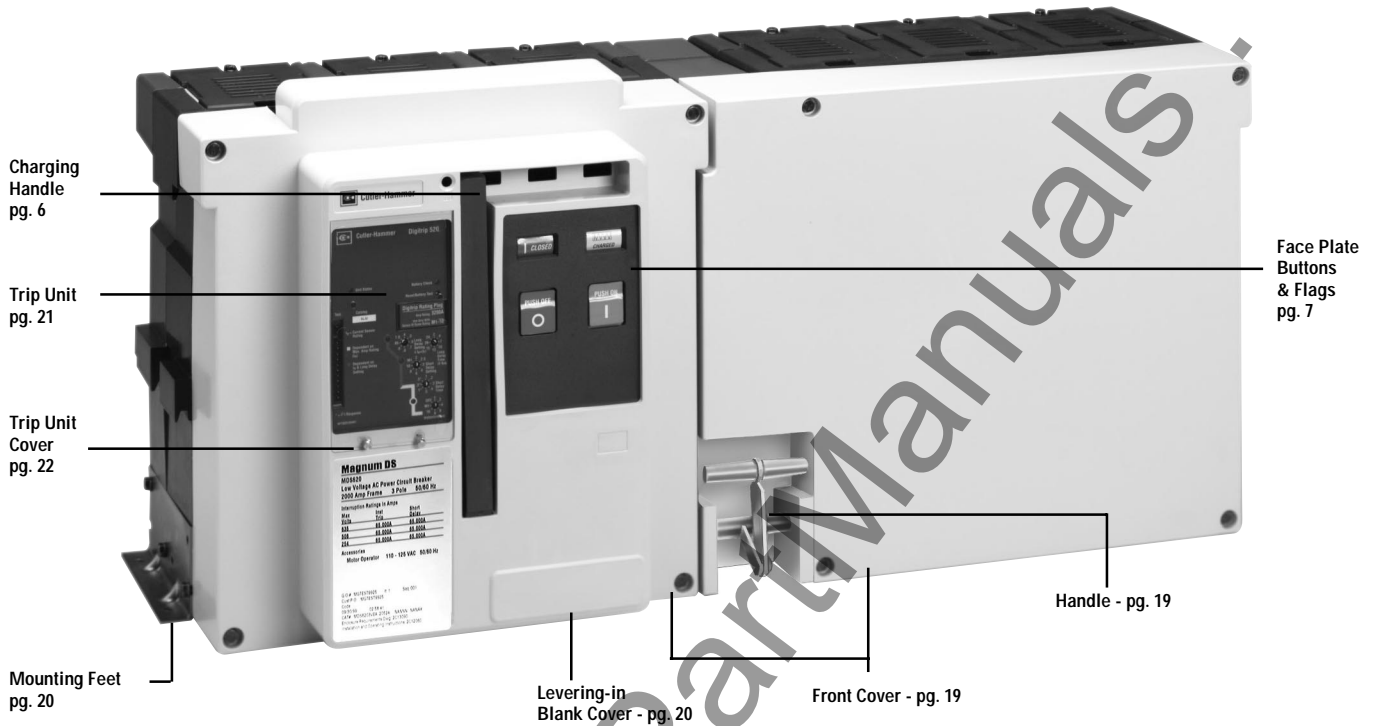


MAGNUM DS DRAWOUT BREAKER 800-3200A

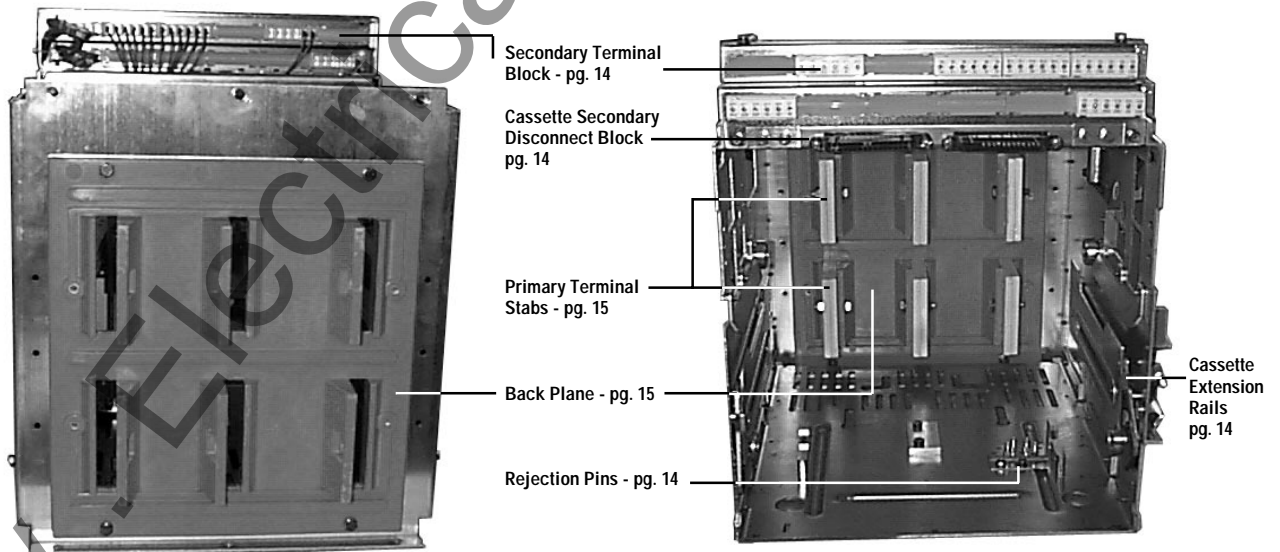




MAGNUM DS FIXED MOUNTED BREAKER TYPE MDS 4000-5000A



MAGNUM DS DRAWOUT BREAKER CASSETTE 800-3200A



(Cassette shown without Stabs)

(Rear View)

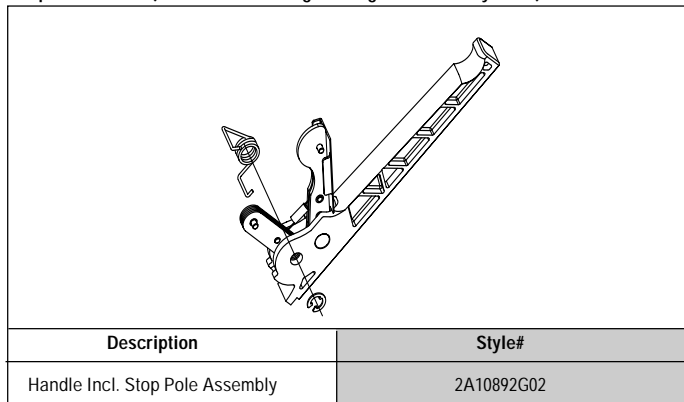
(Front View)



MECHANISM AND RELATED PARTS

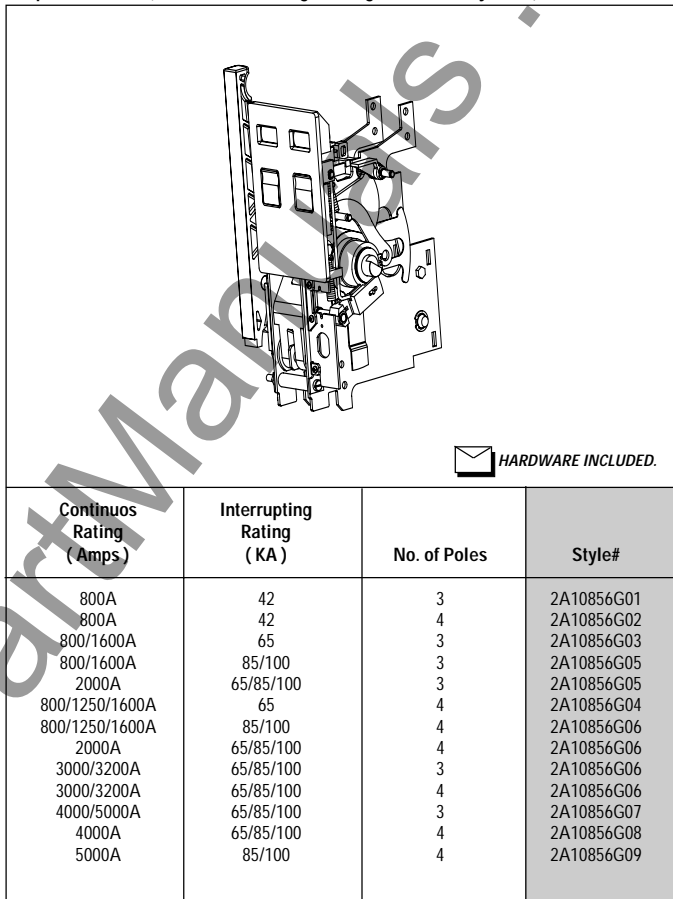
Charging Handle w/Stop Pawls Assembly

Requires C-HESS (Cutler-Hammer Engineering Services & Systems) Installation



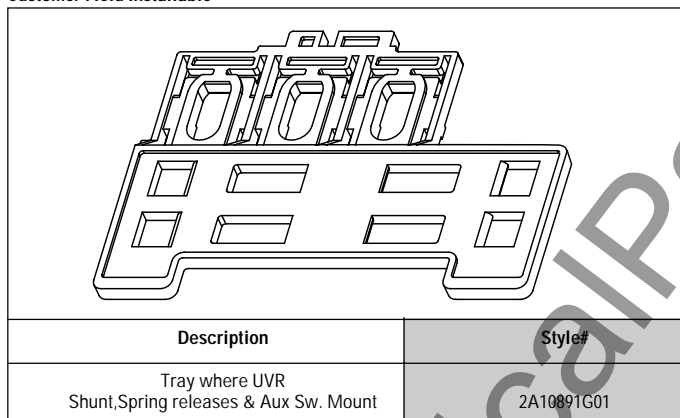
Mechanism*

Requires C-HESS (Cutler-Hammer Engineering Services & Systems) Installation



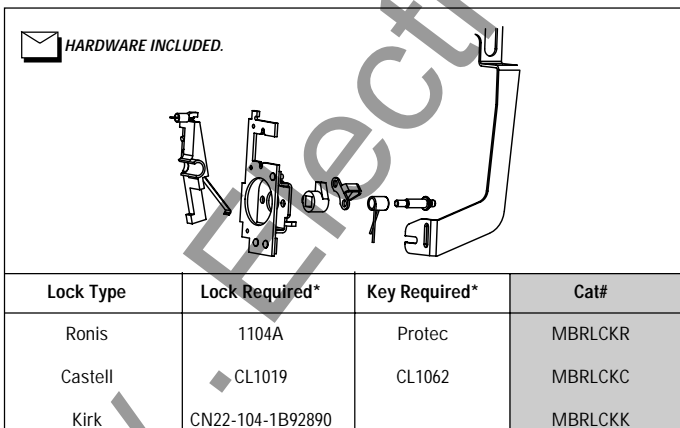
Accessories Tray

Customer Field Installable



Breaker Key Interlock Provision

Customer Field Installable



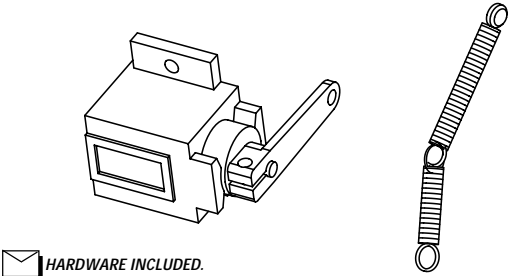
* CH Does Not supply lock or Key, only the provision


* Includes charging handle.



MECHANISM AND RELATED PARTS

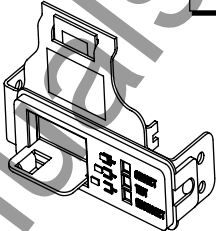
Operations Counter Customer field installable




 **HARDWARE INCLUDED.**

Description	Cat#
Mechanical Counter	MCOUNT

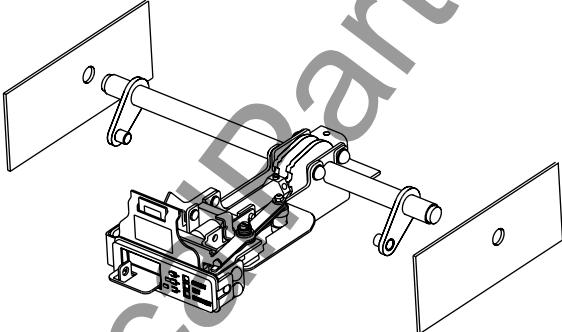
Levering Door and Door Mechanism Customer field installable




 **HARDWARE INCLUDED.**

Breaker Type	Style#
MDS Breaker	2A10894G02

Levering Mechanism Assembly Customer field installable

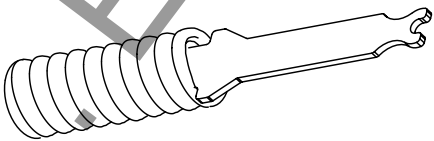


 **HARDWARE INCLUDED.**

Breaker Type	Continuous Rating	No. Poles	Style#
MDS Breaker	Up to 3200A	3	2A10855G05
MDS Breaker	Up to 3200A	4	2A10855G06
MDS Breaker	4000A and Above	3	2A10855G07
MDS Breaker	4000A and Above	4	2A10855G08

Includes Levering Door & Door Mechanism

Opening Spring & Guide Customer field installable

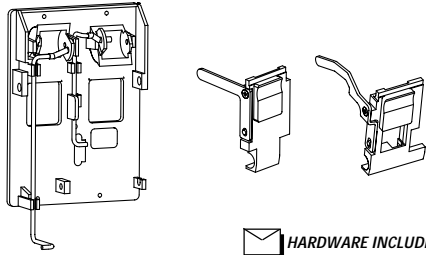



Description*	Style#
Returns Pole Shaft to Open Position	2A10893G01

* Need 2 sets for 4000A and above breakers

Face Plate, Buttons & Flags

Requires C-HESS (Cutler-Hammer Engineering Services & Systems) Installation



 **HARDWARE INCLUDED.**

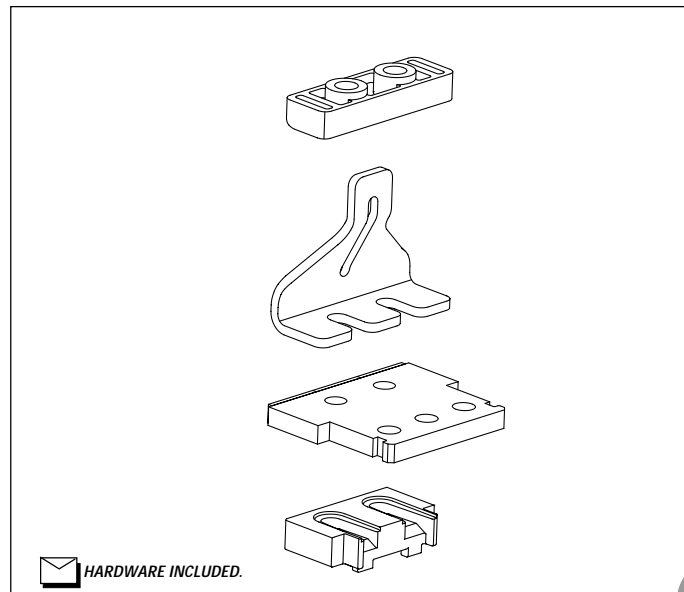
Description	Style#
Face Plate, Buttons & Flags	2A10895G01



CURRENT PATH

Stationary (Line) Copper w/Spacer

Customer field installable



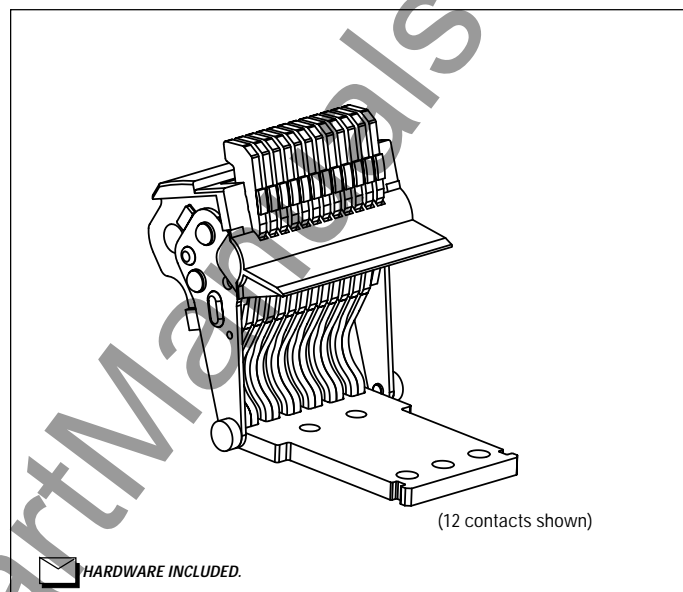
HARDWARE INCLUDED.

Copper thickness In (mm)	No. of contacts	No. Poles (Qty.)	Style#
3/8 (9.5)	1	3	2A10896G01
3/8 (9.5)	2	3	2A10896G02
3/8 (9.5)	3	3	2A10896G03
1 (25.4)	3	3	2A10896G04
3/8 (9.5)	1	4	2A10896G05
3/8 (9.5)	2	4	2A10896G06
3/8 (9.5)	3	4	2A10896G07
1 (25.4)	3	4	2A10896G08

*4000-5000A require 2 kits

Moving (Load) Copper w/Fingers and Seal

Customer field installable



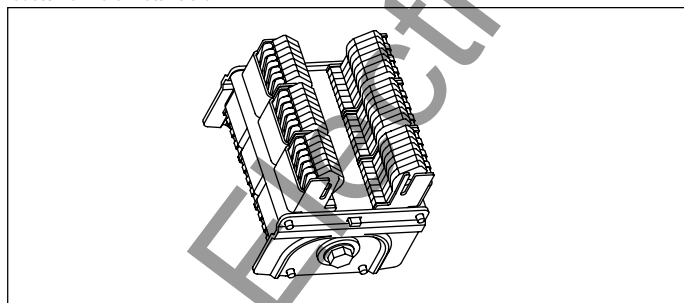
HARDWARE INCLUDED.

Copper thickness In (mm)	No. of contacts	No. Poles (Qty.)	Style#
3/8 (9.5)	4	3	2A10897G01
3/8 (9.5)	8	3	2A10897G02
3/8 (9.5)	12	3	2A10897G03
1 (25.4)	12	3	2A10897G04
3/8 (9.5)	4	4	2A10897G05
3/8 (9.5)	8	4	2A10897G06
3/8 (9.5)	12	4	2A10897G07
1 (25.4)	12	4	2A10897G08

*4000-5000A require 2 kits

Primary Disconnects (Finger Clusters)

Customer field installable

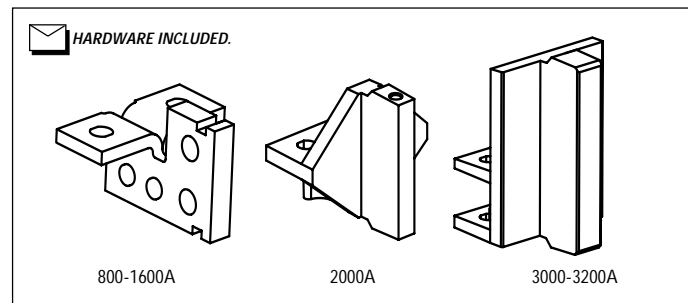


Breaker Type	Continuous rating (Amps)	Interrupting Capacity (KA)	3 Poles Style# (Qty. 6)	4 Poles Style# (Qty. 8)
MDS	800A	42	2A10898G09	2A10898G13
MDS	800/1600A	65	2A10898G10	2A10898G14
MDS	800/1600A	85/100	2A10898G11	2A10898G15
MDS	2000A	65/85/100	2A10898G11	2A10898G15
MDS	3200A	65/85/100	2A10898G12	2A10898G16
MDS	4000A	85/100	2A10898G11*	2A10898G15*
MDS	5000A	85/100	2A10898G12*	2A10898G16*

* Order 2 kits.

Vertical Adapters

Customer field installable



HARDWARE INCLUDED.

Continuous rating (Amps)	Interrupting Capacity (KA)	3 Poles Cat# (Qty. 6)	4 Pole Cat# (Qty. 8)
800-1600A	40/65	MVADP16	MVADP416
800-1600A	85/100	MVADP20	MVADP420
2000A	65/85/100	MVADP20	MVADP420
3200A	65/85/100	MVADP32	MVADP432
4000A	65	MVADP40*	MVADP440*
4000/5000A	85/100	MVADP50*	MVADP450*

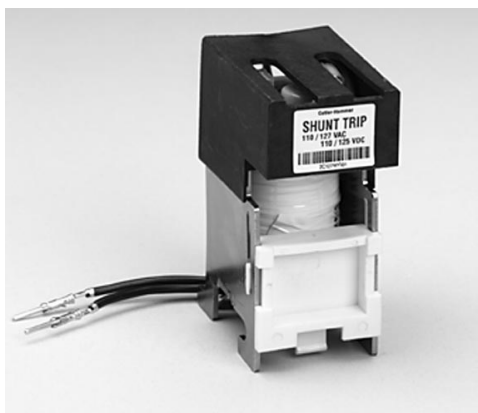
* Quantity will be 12 for 3 pole or 16 for 4 pole.



ELECTRICAL ATTACHMENTS

Shunt Trip (Opening Coil)

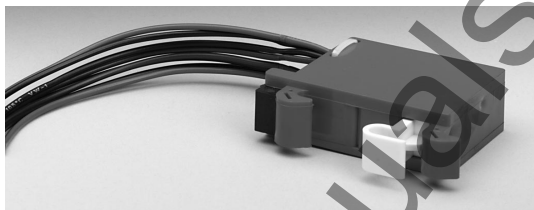
Customer field installable



Control Voltage	Cat#
110-127 Vac/Vdc	MST1
208-240 Vac/Vdc	MST2
24 Vdc	MST3
48 Vdc	MST4

Auxiliary Switch

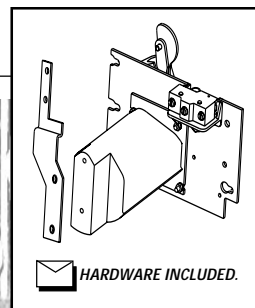
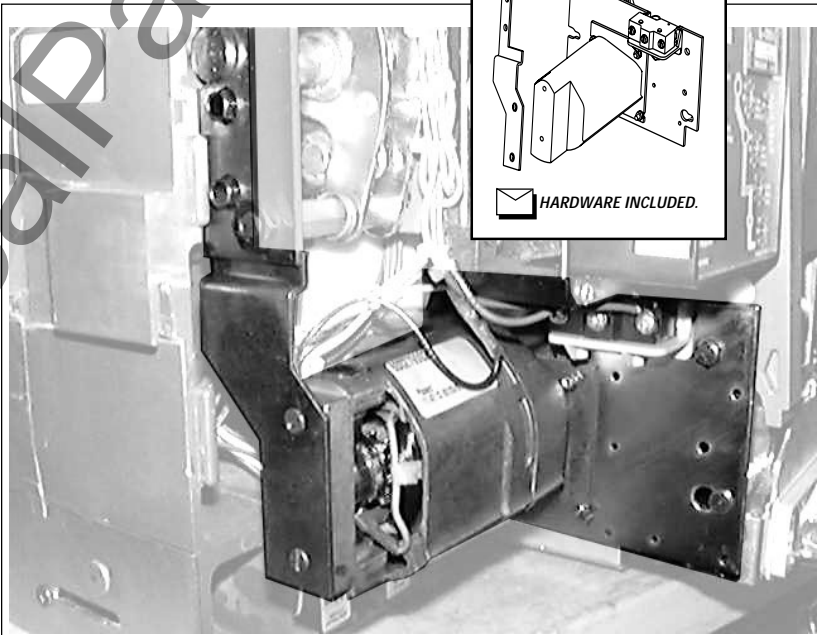
Customer field installable



Description	Cat#
2a/2b contacts	MAUX2

Motor Operator

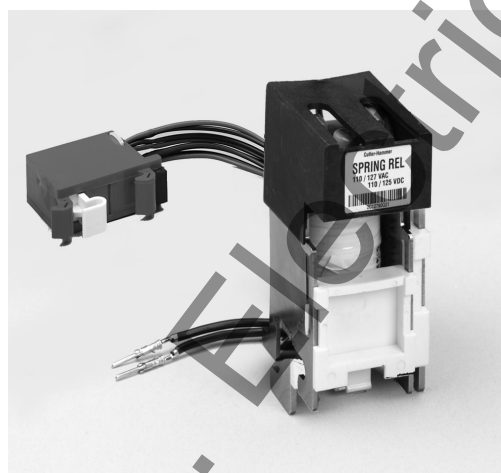
Customer field installable



Control Voltage	Spring Recharge Time	Cat#
110-125 Vac	9 Secs	MMOTA
48 Vdc	9 Secs	MMOTH
110-125 Vdc	9 Secs	MMOTE
110-125 Vac	5 Secs	MMOTN
208-240 Vac	5 Secs	MMOTP
24 Vdc	5 Secs	MMOTK
48 Vdc	5 Secs	MMOTL
110-125 Vdc	5 Secs	MMOTW
208-240 Vdc	5 Secs	MMOTT

Spring Release (Closing Coil)

Customer field installable



Control Voltage	Cat#
110-127 Vac/Vdc	MSRA
208-240 Vac/Vdc	MSRR
24 Vdc	MSRC
48 Vdc	MSRH



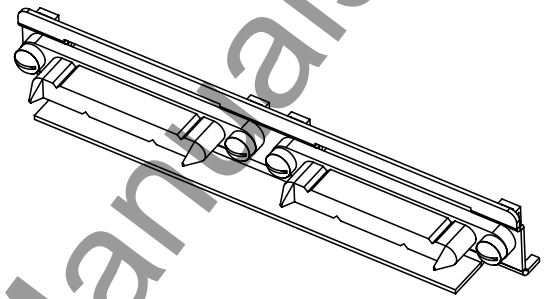
ELECTRICAL ATTACHMENTS

Under Voltage Release Customer field installable



Control Voltage	Cat#
110-125 Vac	MUVRA
208-240 Vac	MUVRR
24 Vdc	MUVRC
32 Vdc	MUVRG
48 Vdc	MUVRH
110-125 Vdc	MUVRE
208-240 Vdc	MUVRF
380-415 Vac	MUVRX
480 Vac	MUVRJ

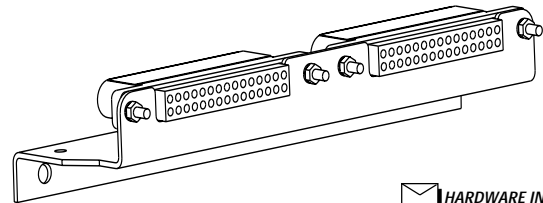
Fixed Breaker Secondary Disconnect Block Customer field installable



HARDWARE INCLUDED.

Description	Style#
"2 - 30 Position connectors Labeled and assembled to Mounting tray"	2A10899G01

Breaker Terminal Block Bracket Customer field installable



HARDWARE INCLUDED.

Description	Style#
"2 - 30 Position connectors Labeled for external wiring"	2A10854G01

Bell Alarm - Overcurrent Trip Switch (OTS) Customer field installable



HARDWARE INCLUDED.

Description	Cat#
2 Form C Alarm Switches	MOTS



ELECTRICAL ATTACHMENTS

Current Sensors (CT's) and Rating Plugs

Customer field installable



Frame size (Amps)	Sensor & RP Rating (Amps)	Description	No. Poles	Cat#
Up to 3200A	200A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0200
Up to 3200A	250A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0250
Up to 3200A	300A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0300
Up to 3200A	400A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0400
Up to 3200A	600A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0600
Up to 3200A	630A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0630
Up to 3200A	800A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG0800
Up to 3200A	1000A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG1000
Up to 3200A	1200A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG1200
Up to 3200A	1250A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG1250
Up to 3200A	1600A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG1600
Up to 3200A	2000A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG2000
Up to 3200A	2500A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG2500
Up to 3200A	3000A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG3000
Up to 3200A	3200A	"3 Sensors, 1 R.P. in a kit"	3	M3SRG3200
Up to 3200A	200A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0200
Up to 3200A	250A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0250
Up to 3200A	300A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0300
Up to 3200A	400A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0400
Up to 3200A	600A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0600
Up to 3200A	630A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0630
Up to 3200A	800A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG0800
Up to 3200A	1000A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG1000
Up to 3200A	1200A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG1200
Up to 3200A	1250A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG1250
Up to 3200A	1600A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG1600
Up to 3200A	2000A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG2000
Up to 3200A	2500A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG2500
Up to 3200A	3000A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG3000
Up to 3200A	3200A	"4 Sensors, 1 R.P. in a kit"	4	M4SRG3200
4000-5000A	2000A	"6 Sensors, 1 R.P. in a kit"	3	M3RRG2000
4000-5000A	2500A	"6 Sensors, 1 R.P. in a kit"	3	M3RRG2500
4000-5000A	3200A	"6 Sensors, 1 R.P. in a kit"	3	M3RRG3200
4000-5000A	4000A	"6 Sensors, 1 R.P. in a kit"	3	M3RRG4000
4000-5000A	5000A	"6 Sensors, 1 R.P. in a kit"	3	M3RRG5000
4000-5000A	2000A	"8 Sensors, 1 R.P. in a kit"	4	M4RRG2000
4000-5000A	2500A	"8 Sensors, 1 R.P. in a kit"	4	M4RRG2500
4000-5000A	3200A	"8 Sensors, 1 R.P. in a kit"	4	M4RRG3200
4000-5000A	4000A	"8 Sensors, 1 R.P. in a kit"	4	M4RRG4000
4000-5000A	5000A	"8 Sensors, 1 R.P. in a kit"	4	M4RRG5000

Rating Plugs Only

Customer field installable



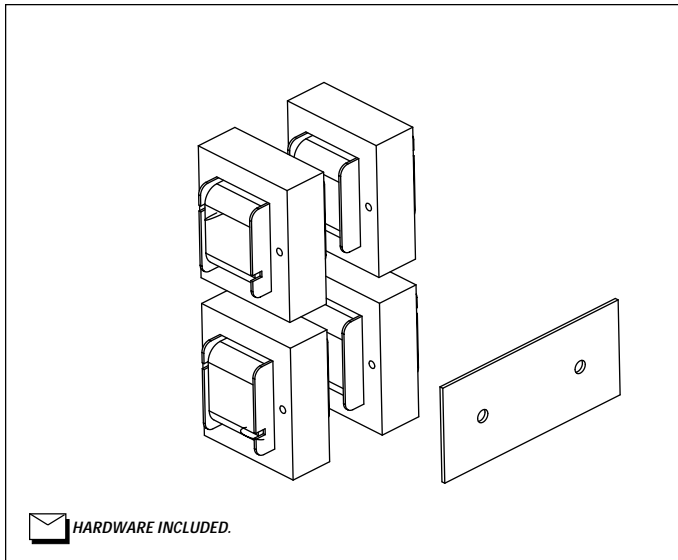
RP Rating (Amps)	Style#
200A	2A11891G01
250A	2A11891G02
300A	2A11891G03
400A	2A11891G04
600A	2A11891G05
630A	2A11891G06
800A	2A11891G07
1000A	2A11891G08
1200A	2A11891G09
1250A	2A11891G10
1600A	2A11891G11
2000A	2A11891G12
2500A	2A11891G13
3000A	2A11891G14
3200A	2A11891G15
2000 (For 4-5000A Frame)	2A11891G16
2500 (For 4-5000A Frame)	2A11891G17
3200 (For 4-5000A Frame)	2A11891G18
4000A	2A11891G19
5000A	2A11891G20



ELECTRICAL ATTACHMENTS

Auxiliary Current Transformers

Customer field installable

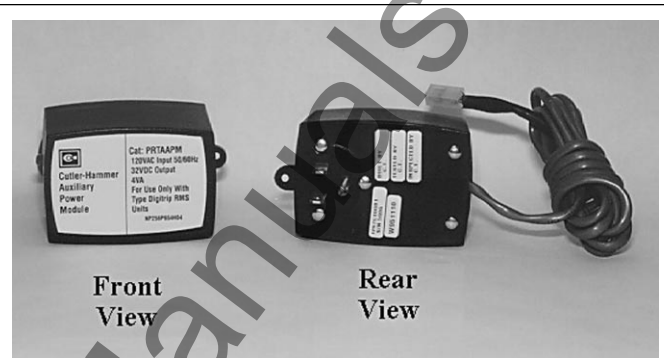


HARDWARE INCLUDED.

Frame Rating (Amps)	No. Poles	Style#
Up to 3200A	3	2A11892G01
Up to 3200A	4	2A11892G02
4000-5000A	3 (ABCABC Phase Conf.)	2A11892G03
4000-5000A	4 (ABCABC Phase Conf.)	2A11892G04
4000-5000A	3 (AABBCC Phase Conf.)	2A11892G05
4000-5000A	4 (AABBCC Phase Conf.)	2A11892G06

Auxiliary Power Module

Requires C-HESS (Cutler-Hammer Engineering Services & Systems) Installation



Description	Style#
120 Vac Input - 32 Vdc output	70C1067G01

Ground Fault Alarm/Power Supply Module (ATR)

Customer field installable



Description	Voltage	Style#
520M Trip Unit	24/48 Vdc	70C10812G03
520M Trip Unit	120 Vac	70C10812G01
520M Trip Unit	230 Vac	70C10812G02

Power Relay Module (ATR)

Requires C-HESS (Cutler-Hammer Engineering Services & Systems) Installation



Description	Voltage	Style#
1150 Trip Unit	24/48 Vdc	70C1005G01
1150 Trip Unit	120 Vac	70C1002G01
1150 Trip Unit	230 Vac	70C1002G02



ELECTRICAL ATTACHMENTS

Neutral Current Sensors (Req. for Ground Fault)

Customer field installable



Rating	Style#
200A	9253C03H01
250A	9253C03H02
300A	9253C03H03
400A	9253C03H04
600A	9253C03H05
630A	9253C03H14
800A	9253C03H06
1000A	9253C03H07
1200A	9253C03H08
1250A	9253C03H15
1600A	9253C03H09
2000A	9253C03H10
2500A	9253C03H11
3000A	9253C03H12
3200A	9253C03H13
4000A*	9253C03H10
5000A*	9253C03H11

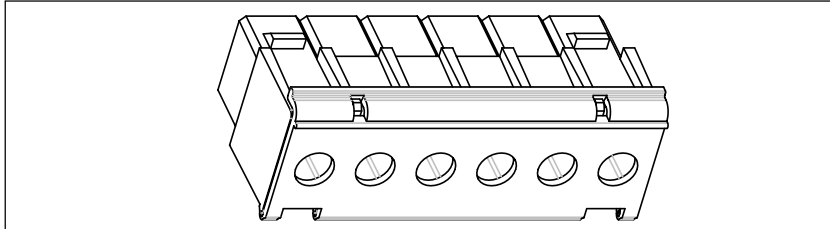
* Qty 2 required



CASSETTE (CELL) ATTACHMENTS

Secondary Terminal Block Kit

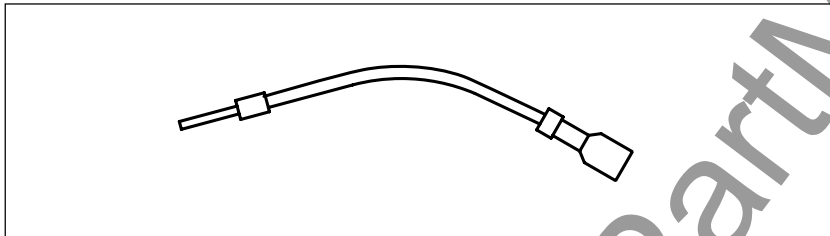
Customer field installable



Description	Style#
15 (6 point) Terminal Blocks and Labels	1B93092G01

Secondary Terminal Wire Kit

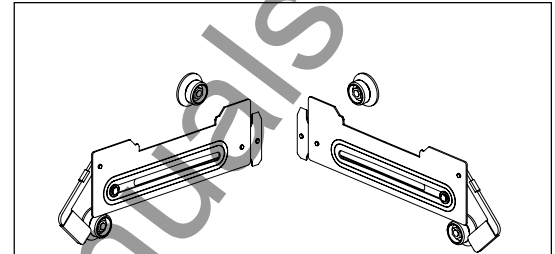
Customer field installable



Description	Style#
90 Wires with Terminal Connectors (Amp and FastOn on opposite ends)	1B93093G01

Cassette Extension Rails

Customer field installable

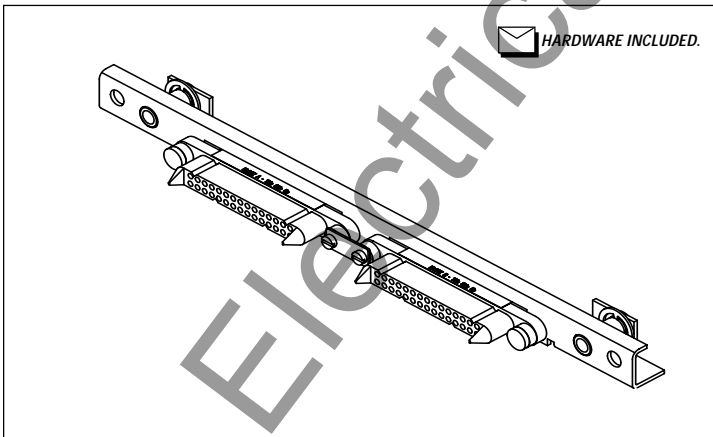


HARDWARE INCLUDED.

Description	Style#
Cassette rails and rollers	2A11852G01

Cassette Secondary Disconnect Block

Customer field installable

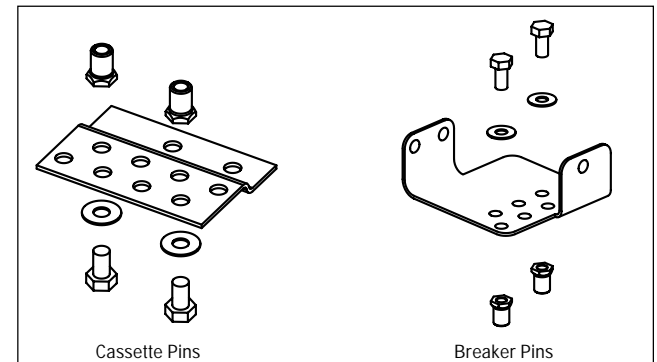


HARDWARE INCLUDED.

Description	Style#
2 - 30 Position Connectors to wire to customer Sec. Terminals	2A11890G01

Cell Rejection Pins

Customer field installable



Cassette Pins

Breaker Pins

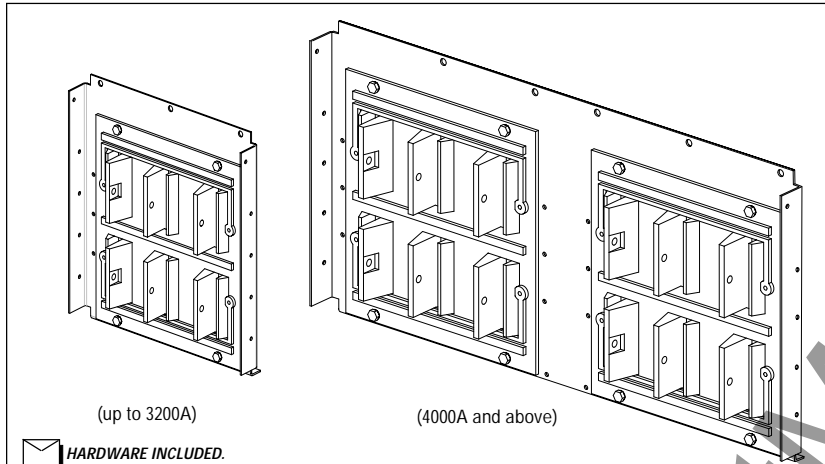
HARDWARE INCLUDED.

Description	Cat# / Style#
Cassette Pins Breaker Pins	MCELLREJBK 2A11893G01



CASSETTE (CELL) ATTACHMENTS

Back Plane for MDS Type Cassettes Customer field installable

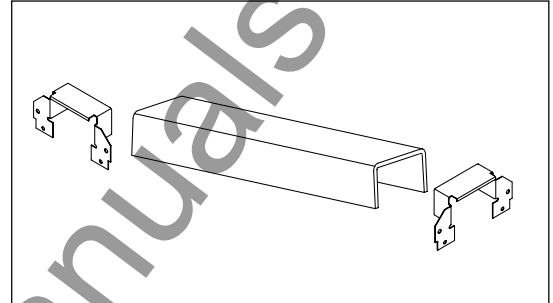


HARDWARE INCLUDED.

Stab Thickness In (mm)	No. Poles	Style#
3/8 (9.5)	3 (up to 3200A)	2A10858G01
3/8 (9.5)	4 (up to 3200A)	2A10858G02
3/8 (9.5)	3 (4000A)	2A10858G03
3/8 (9.5)	4 (4000A)	2A10858G04
1 (25.4)	3 (up to 3200A)	Later
1 (25.4)	4 (up to 3200A)	Later
1 (25.4)	3 (5000A)	Later
1 (25.4)	4 (5000A)	Later

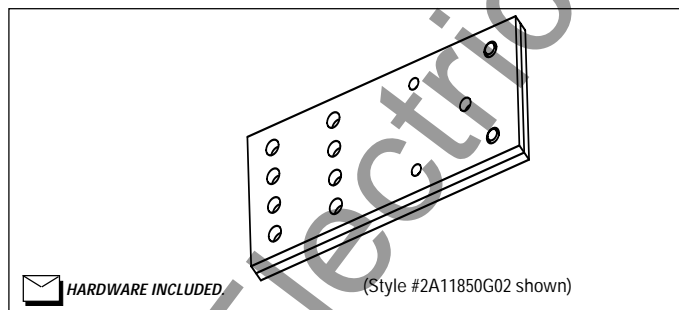
OEM Configuration includes Glass Polyester Stab Holder.

Cassette Arc Chute Cover Customer field installable



Description	No. Poles	Style#
Up to 3200A	3	2A11853G01
Up to 3200A	4	2A11853G02
4000A and above	3	2A11853G03
4000A and above	4	2A11853G04

MDS Type Copper Line & Load Stabs Kit (2 per kit) Customer field installable

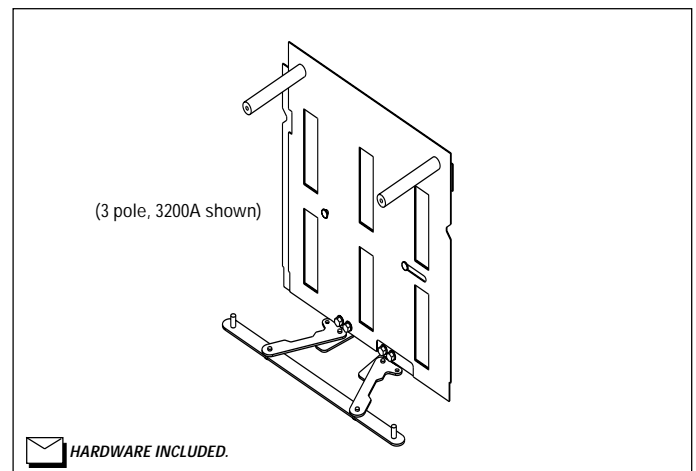


HARDWARE INCLUDED.

(Style #2A11850G02 shown)

Stab Thickness In (mm)	Style#
1/2 (12.7)	2A11850G01
3/4 (19.1)	2A11850G02

MDS Type Cassette Shutters Customer field installable



HARDWARE INCLUDED.

No. Poles	Cat#
3 (3200A)	MDSHTR332
4 (3200A)	MDSHTR432
3 (W/Warning Labels) (3200A)	MDSHTR332WL
4 (W/Warning Labels) (3200A)	MDSHTR432WL
3 (4000-5000A)	MDSHTR350
4 (4000-5000A)	MDSHTR450



BREAKER ACCESSORIES

Cell Switch Kit

Customer field installable

HARDWARE INCLUDED.

4 Pt
Switch Only

8 Pt switch with hardware

4 Pt switch with hardware

Breaker Type	Description	Cat#
MDS	4 Pt switch + Hdwr	MCSWK1
MDS	8 Pt switch + Hdwr	MCSWK2
MDS	4 Pt switch only	MCELLSW1

Cassette Lock Provision*

Customer field installable

HARDWARE INCLUDED.

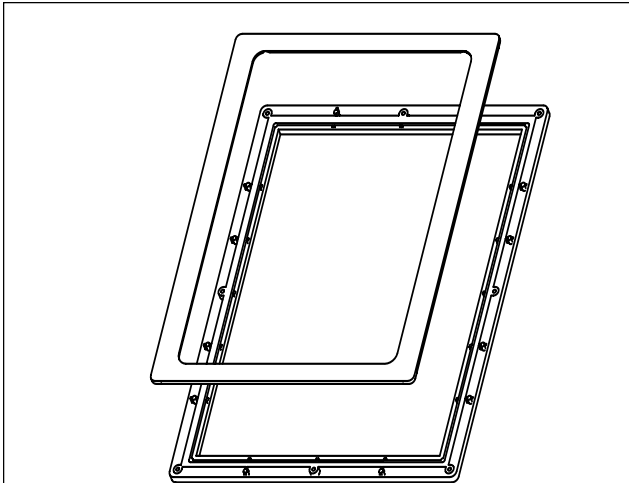
Lock Type	Mounting Position	Cat#
Kirk or Castell	Right Side	MCASSPRR MCASSPRL
Kirk or Castell	Left Side	

* C-H Does Not supply lock or Key, only the provision
 For Kirk use lock Cat#: KFL000021 for 2 cylinder and KFL000010H for 1 Cylinder
 For Castell use lock Cat#: F08000



EXTERNAL ACCESSORIES

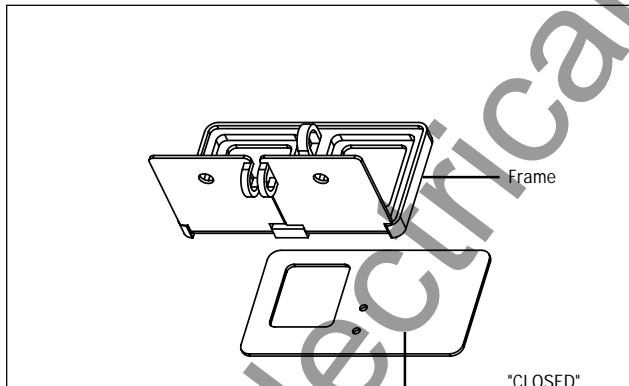
Door Frame and Gasket Customer field installable



HARDWARE INCLUDED.

Description	Cat#
Provides protection against dust and dripping water (IP42)	MDES

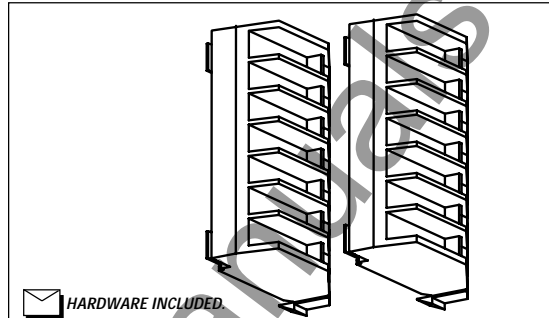
Pushbutton External Lock Cover Customer field installable



HARDWARE INCLUDED.

Description	Cat#
Metal Frame	MCOVM
Plastic Frame	MCOVP
Metal Frame with blocked close button cover	MCOVC
Plastic Frame with blocked close button cover	MCOVH

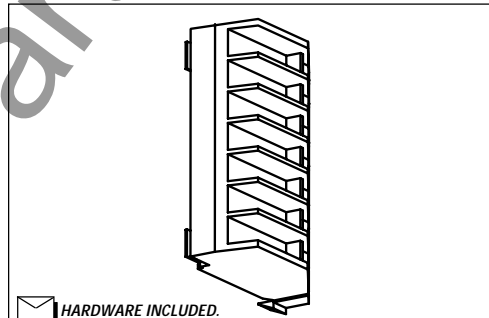
CT Shorting & Jumper Block Kit Customer field installable



HARDWARE INCLUDED.

Description	Cat#
Interstructure Wiring Terminations	MSJB

CT Jumper Block Kit* Customer field installable

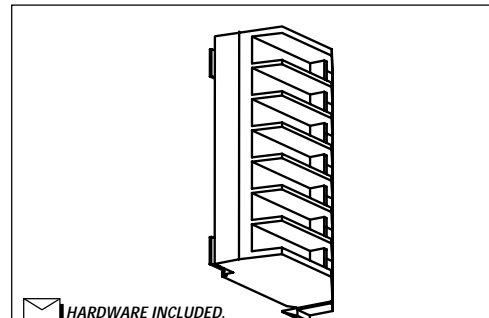


HARDWARE INCLUDED.

Description	Cat#
Cell to Cell Wiring Terminations	MJB

* Included in CT Shorting & Jumper Block Kit

CT Shorting Block* Customer field installable



HARDWARE INCLUDED.

Description	Cat#
Metering CT Wire Termination	MSB

* Included in CT Shorting & Jumper Block Kit



EXTERNAL ACCESSORIES

Mechanical Cable Interlock

Customer field installable

to come	
Description	Style#
2-way Fixed Breaker	Later
2-way Drawout Breaker	Later
3-way Fixed Breaker	Later
3-way Drawout Breaker	Later

Mechanical Rod Interlock

Customer field installable

to come	
Description	Style#
2-way Fixed Breaker	Later
2-way Drawout Breaker	Later
3-way Fixed Breaker	Later
3-way Drawout Breaker	Later

Undervoltage Release Time Delay

Customer field installable

to come	
Description	Style#
Later	Later
Later	Later
Later	Later
Later	Later
Later	Later



BREAKER BASIC PARTS

Breaker Front Cover Customer field installable

Breaker Type	No. Poles	Style#
MDS up to 3200A	4	2A11894G05
MDS up to 3200A	3	2A11894G06
MDS 4000-5000A	4	2A11894G07
MDS 4000-5000A	3	2A11894G08

* G.O.#, item and sequence # must be supplied in order for the proper name plate to be applied.
** Includes mounting screws.

Breaker Pull-Out Handle Customer field installable

HARDWARE INCLUDED.

Description	Style#
Pull-Out Breaker Handle for 4000A and above	2A11851G02

Pole Shaft Assembly (w/Bearing Plates, Drive Links and back catch plate) Requires C-HESS (Cutler-Hammer Engineering Services & Systems) Installation

HARDWARE INCLUDED.

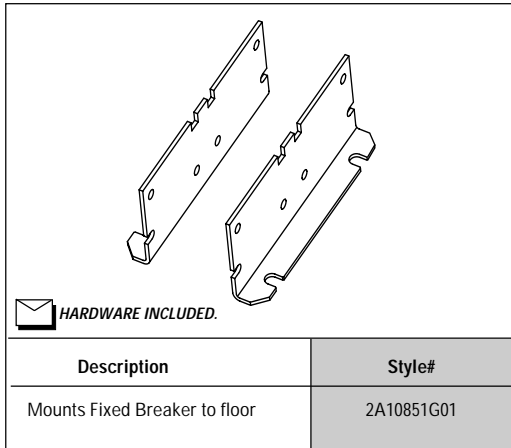
Frame Rating	No.Poles	Style#
Up to 3200A	4	2A11896G01
Up to 3200A	3	2A11896G02
4000-5000A	4	2A11896G03
4000-5000A	3	2A11896G04



BASIC BREAKER PARTS

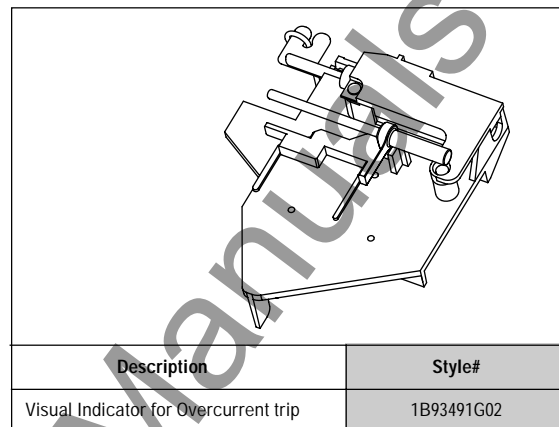
Fixed Breaker Mounting Feet

Customer field installable



Trip Indicator Mech Pop-Out Mounting Deck Linkage

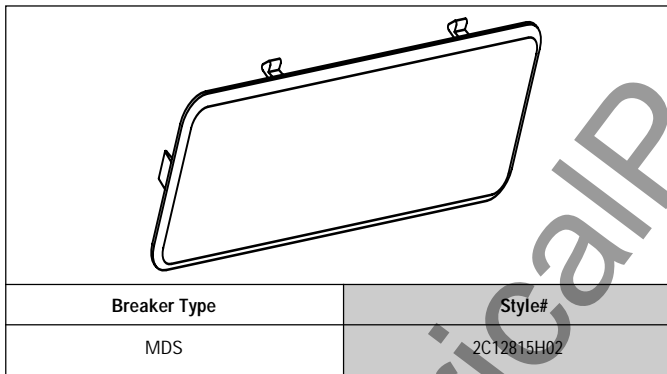
Customer field installable



* Overcurrent Trip Switch (OTS) NOT included (see page 10).

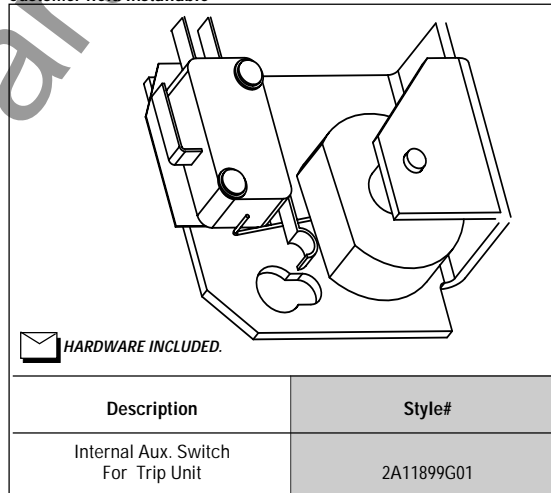
Levering-In Blank Cover for Fixed Breakers

Customer field installable



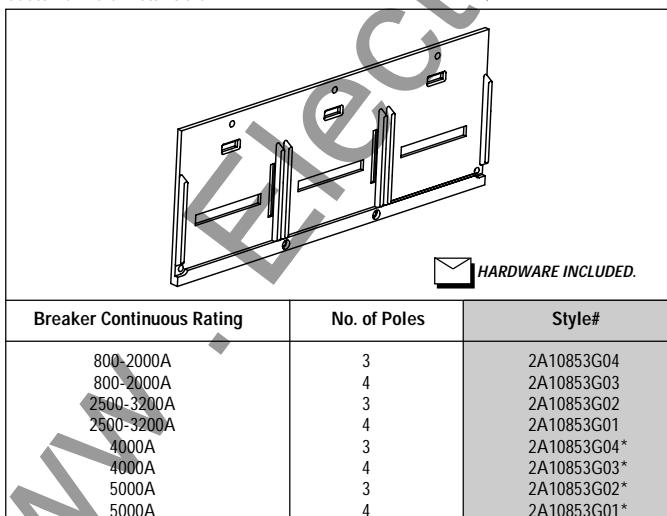
Making Current Release Switch (MCR)

Customer field installable



Breaker Current Sensor Door

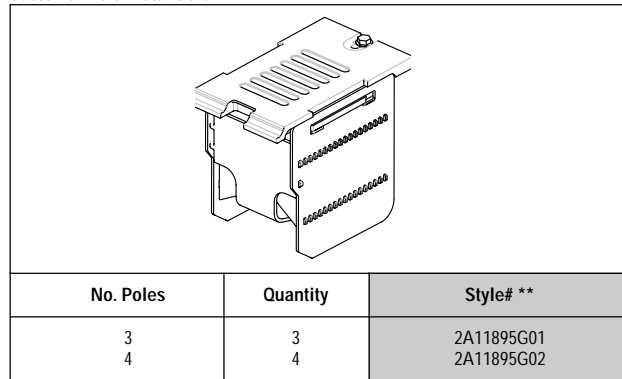
Customer field installable



* Order 2 kits.

Arc Chutes*

Customer field installable



* Includes mounting screws

** For 4000A and above order 2 kits



TRIP UNITS

Digitrip 220
Customer field installable



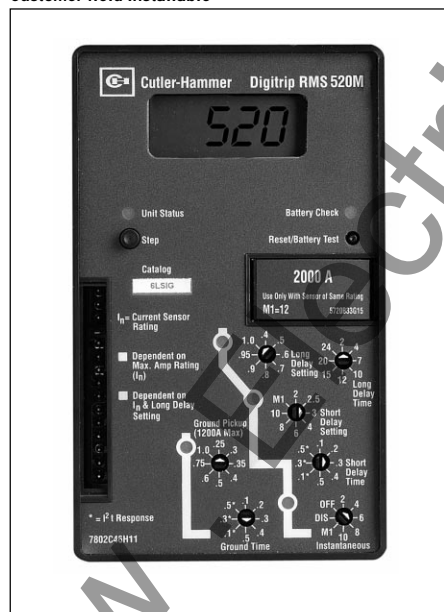
Description	Style#
220 LI	7802C62G01

Digitrip 520
Customer field installable



Description	Style#
520 LSI 520 LSIG	7802C65G01 7802C65G03

Digitrip 520M
Customer field installable



Description	Style#
520M LSI 520M LSIA 520M LSIG	7802C66G01 7802C66G02 7802C66G04

Digitrip 1150
Customer field installable



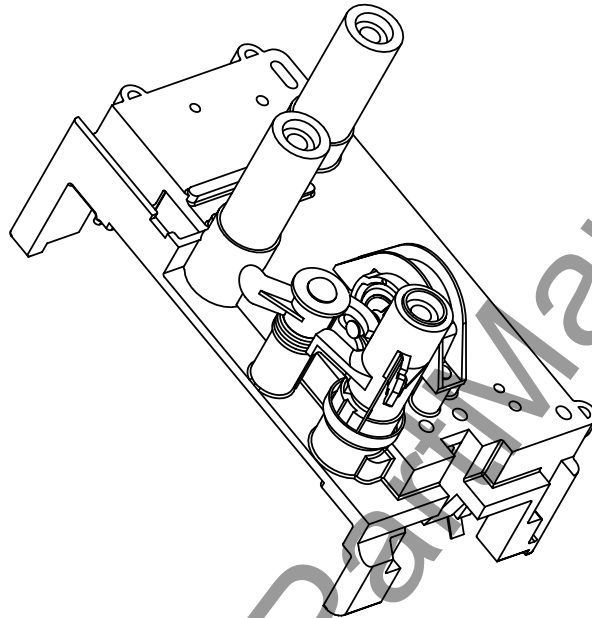
Description	Style#
1150 LSI 1150 LSIG 1150 LSIA	70C1011G01 70C1011G02 70C1011G03



TRIP UNITS

Trip Unit Mounting Assembly (Includes Trip Actuator)

Requires C-HESS (Cutler-Hammer Engineer Services & Systems) Installation

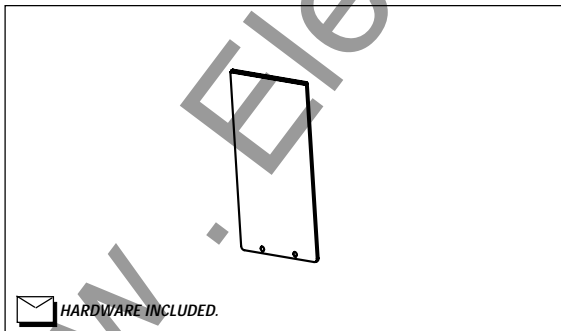


HARDWARE INCLUDED.

Breaker Type	Continuos Rating (Amps)	Interrupting Capacity (KA)	Trip Unit Type	Style#
MDS	800-3200A	40-85	220/520/520M	2A11898G01
MDS	4000-5000A	85-100	220/520/520M	2A11898G01
MDS	800-3200A	100	220/520/520M	2A11898G04
MDS	800-3200A	40-85	1150	2A11898G11
MDS	4000-5000A	85-100	1150	2A11898G11
MDS	800-3200A	100	1150	2A11898G14
Non-Automatic	-	-	-	2A11898G03

Non-Automatic Trip Unit Covers

Customer field installable

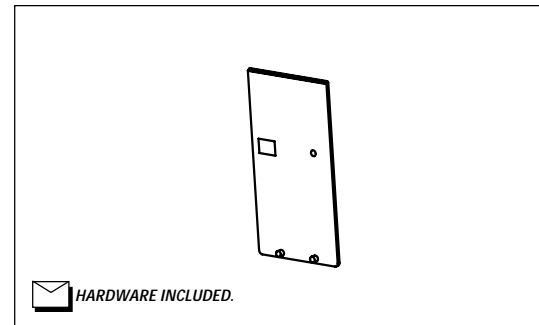


HARDWARE INCLUDED.

Breaker Type	Cat#
MDS	MTUNACA

Trip Unit Covers

Customer field installable



HARDWARE INCLUDED.

Trip Unit Type	Style#
220/520/520M	2A10850G01
1150	2A10850G02

*Clear cover includes mounting screws



TRIP UNITS

TRIP UNIT TYPE		DIGITRIP 220	DIGITRIP 520	DIGITRIP 520M [®]	DIGITRIP 1150 [®]
Ampere Range (16) 200A-5000A		200A-5000A	200A-5000A	200A-5000A	200A-5000A
Interrupting Rating at 480V rms Sensing		42 through 100kA Yes	42 through 100kA Yes	42 through 100kA Yes	42 through 100kA Yes
PROTECTION AND COORDINATION					
Protection	Ordering Options	LI	LSI, LSIG	LSI, LSIG, LSIA	LSI, LSIG, LSIA
	Fixed Rate Plug (I_n)	Yes	Yes	Yes	Yes
	Overtemperature Trip	Yes	Yes	Yes	Yes
Long Delay	Long Delay Setting	Fixed	0.4-1.0 x (I_n)	0.4-1.0 x (I_n)	0.4-1.0 x (I_n)
	Long Delay Time I^2t at 6 x I_r	Fixed	2-24 Seconds	2-24 Seconds	2-24 Seconds
Protection	Long Delay Time I^4t	No	No	No	No
	Long Delay Thermal Memory	Yes	Yes	Yes	Yes
	High Load Alarm	No	No	No	0.7 - 1.0 x I_r
Short Delay	Short Delay Pick-Up	No	200-1000% M1 x (I_n) ^①	200-1000% M1 x (I_n) ^①	200-1000% M1 x (I_n) ^①
	Short Delay Time I^2t at 8 x I_r	No	100-500 ms	100-500 ms	100-500 ms
Protection	Short Delay Time Flat	No	100-500 ms	100-500 ms	100-500 ms
	Short Delay Time ZSI	No	Yes	Yes	Yes
Instantaneous Protection	Instantaneous Pick-up	200-100% x (I_n) ^①	200-100% x (I_n) ^①	200-100% x (I_n) ^①	200-100% x (I_n) ^①
	Making Current Release	Yes	Yes	Yes	Yes
	Off Position	No	Yes	Yes	Yes
Ground Fault	Ground Fault Alarm	No	No	Yes	25% - 1200A UL
	Ground Fault Pick-Up	No	25-100% x (I_n) ^⑤	25-100% x (I_n) ^⑤	25% - 1200A UL
Protection	Ground Fault Delay I^2t at .625 x I_n	No	100-500 ms	100-500 ms	100-500 ms
	Ground Fault Delay Flat	No	100-500 ms	100-500 ms	100-500 ms
	Ground Fault ZSI	No	Yes	Yes	Yes
SYSTEM DIAGNOSTICS					
Cause of Trip LEDs		No	Yes ^②	Yes ^②	Yes ^②
Magnitude of Trip Information		No	No	No	Yes
Remote Signal Contacts		No	No	Yes	Yes
Programmable Contacts		No	No	No	2
SYSTEM MONITORING					
Digital Display		No	No	4 Char. LCD	24 Char. LED
Current (%) Full Scale Sensor		No	No	Yes (2%)	Yes (1%)
Voltage (%) L to L		No	No	Yes (1%)	
Power and Energy (%)		No	No	No	Yes (2%)
Apparent Power kVA and Demand		No	No	No	Yes
Reactive Power kVAR		No	No	No	Yes
Power Factor		No	No	No	Yes
Crest Factor		No	No	No	No
Power Quality - Harmonics		No	No	No	Yes
% THD		No	No	No	Yes
SYSTEM COMMUNICATIONS					
IMPACC		No	No	No	Yes ^③
Testing Method		Test Set	Test Set	Test Set	Integral and Test Set ^④
ADDITIONAL FEATURES					
Trip Log (3 Events)		No	No	No	Yes
Electronic Operations Counter		No	No	No	Yes
Triplink		No	No	No	Yes
Waveform Capture		No	No	No	Yes

① Addition range up to M1 value: <1250-M1=1400%. 1500-2500-M1=1200%. >3000-M1=1000%

② Cause of trip - L, S, I, G, and making current release.

③ Must use NT-based PowerNet or IMPACC software to enable communications.

④ Tester for secondary injection.

I_n = Rating plug rating.

I_r = Long Delay setting

⑤ Less than 1200 Amperes.

⑥ Available control voltages are 24/48 Vdc, 120 Vac and 240 Vac.



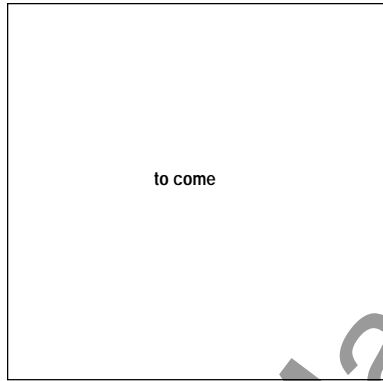
MAGNUM TEST ACCESSORIES

Hand Held Tester



Description	Cat#
Magnum Functional Test Kit	MTST1

Portable Tester Kit



Description	Style#
to come	Later

DSII Portable Tester Kit



Description	Style#
Can be used on Magnum Includes Tester Adapter Cable	8779C02G05

Tester Adapter Cable Customer field installable



Description	Style#
Includes Secondary Receptacle	8779C02G04