AMR Series

Standard Style (AMR)

Illuminated Style (AML)

Rocker Style (ACR)

Product Description

The Heinemann AMR Series is the logical choice for applications requiring greater interrupting performance coupled with the sensitivity of hydraulic-magnetic protection. The precisely tailored time delays and ability to interrupt high currents make them ideal for critical applications.

Application Description

The AMR Series is designed for global applications, meeting a variety of international standards. It combines the proven high quality and reliability of the former AM Series with the spacing, dielectric and interrupt requirements of the IEC Standard 60947-2. The AMR Series carries the CE Mark, VDE and TUV approvals, and is available with metric hardware for OEMs exporting their equipment overseas.

Features, Benefits and Functions

- Current range up to 100 A 50/60 Hz ac/125 Vdc, 60 A 400 Hz ac.
- 100% rated.
- Plug-in, screw or stud terminals.
- Handles knurled for positive grip.
- Operating temperature -40°C to +85°C.
- Available with internal auxiliary or alarm switch, relay trip function and shunt tap.
- Shock-tested for shock in accordance with MIL-STD-202.
- Vibration-tested in accordance with MIL-STD-202.
- Dielectric strength tested in accordance with MIL-STD-202.
- Insulation resistance of 100 megaohms minimum at 500 Vdc, per MIL-STD-202.
- Flammability specifications of UL 94-VO case, UL 94-HB handle.
- Available with UL 1500 Ignition Protected for Marine Applications. Refer to the special applications section for more information.
- Direct replacement for discontinued AM and NAM/S models.

Handle Configurations

Standard Black Toggle

For industrial and commercial applications, where economical design and construction is a concern. Order Prefix "AMR."

Illuminated Toggle

Provides indication of breaker status via the integral multicolored LED. Can be custom configured for indication of ON, OFF, Tripped or Ready status. Order Prefix "AML."

Rocker Style

Used where style and performance is required. The rocker style handle delivers the performance of the AMR Series with European styling. Order Prefix "ACR."

Standards and Certifications

The AMR Series is UL 489 Listed and CSA certified for branch circuit applications. It is also UL 1077 recognized for use in panels where branch circuit protection is already provided. Available in a wide variety of configurations, the AMR Series is rated as high as 100 amperes at 240 Vac or 80 Vdc. It is the solution for demanding applications requiring up to 50,000 amperes interrupting capacity. The 50,000 amperes interrupting capacity is at 65 Vdc UL 489A, telecom applications.

All UL 489 listed configurations are suitable for normal and reverse feed connection, for easy installation.

Table 11-88. UL 489 Ratings

Poles	Current (Amperes)	Voltage	KA
1	0.02 – 100	65 Vdc	50
1, 2	0.02 – 50	120/240 Vac	10
3	0.02 – 30	240 Vac	10
1	0.02 – 20	277 Vac	10

Approvals

- UL 1077 recognized.
- UL 489 listed.
- UL 489A listed for telecom applications.
- IEC 60947-2.
- VDE.
- TUV.

Technical Data

Dimensions in Inches and (mm)

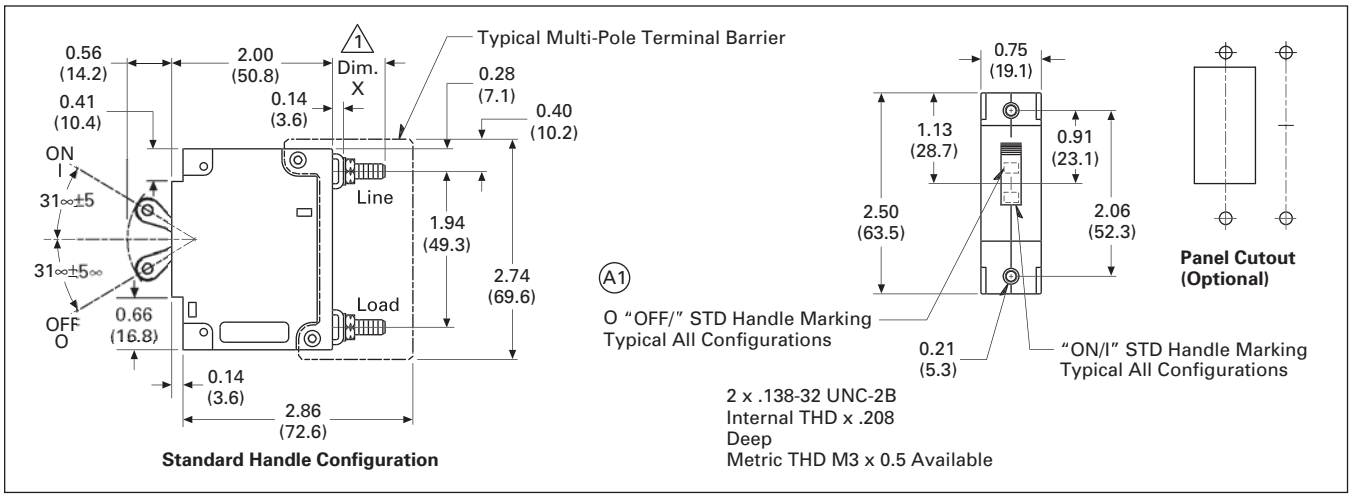

Figure 11-59. AMR Handle Configuration and Typical Dimensions

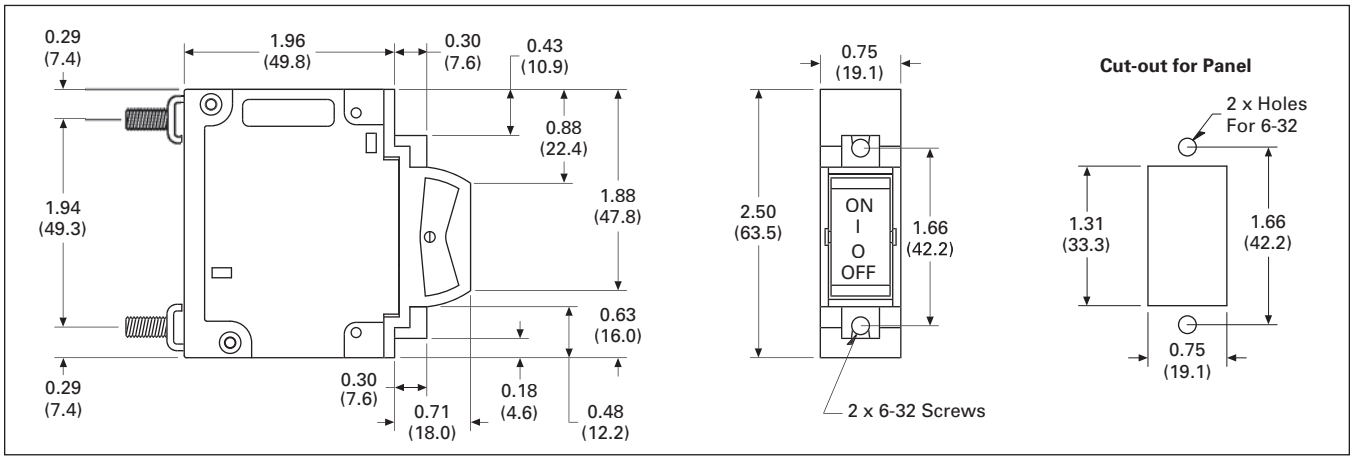

Figure 11-60. ACR Typical Dimensions

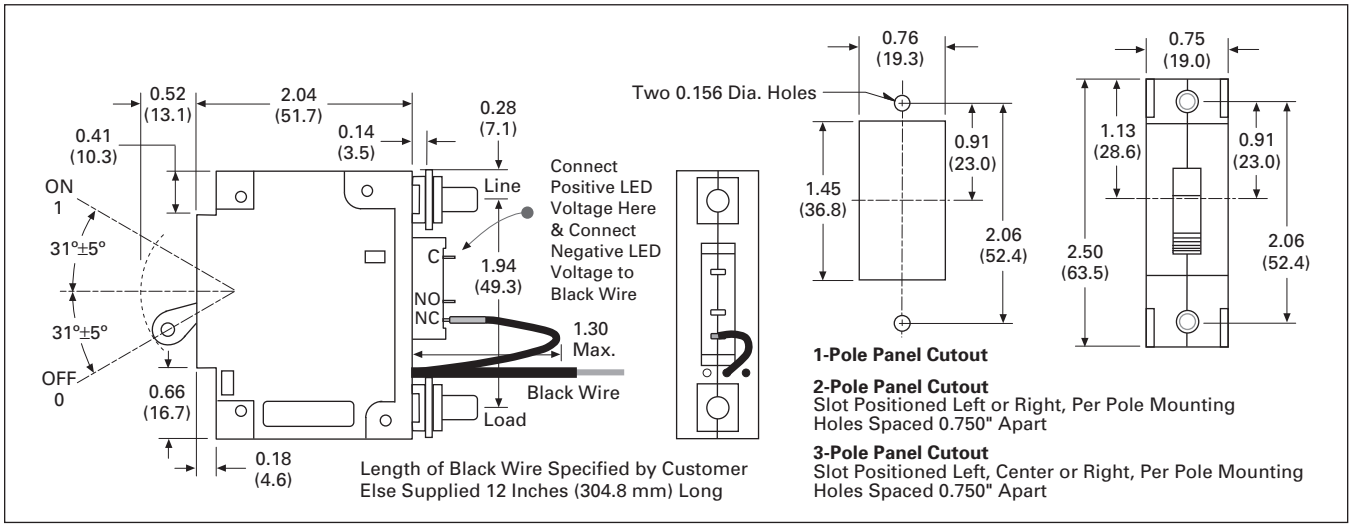

Figure 11-61. AML Typical Dimensions

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Product Selection

The following catalog numbers can be ordered from stock.

Table 11-89. AMR Standard Black Toggle Current

Current (Amperes)	Curve	1-Pole Catalog Number	Price U.S. $	2-pole Catalog Number	Price U.S. $	3-pole Catalog Number	Price U.S. $
1.00	2	AM1RA3AC07DA12		AM2RA3AC07DA12		AM3RA3AC07DA12	
2.50	2	AM1RA3AC07DA2R52		AM2RA3AC07DA2R52		AM3RA3AC07DA2R52	
5.00	2	AM1RA3AC07DA52		AM2RA3AC07DA52		AM3RA3AC07DA52	
7.50	2	AM1RA3AC07DA7R52		AM2RA3AC07DA7R52		AM3RA3AC07DA7R52	
10.0	2	AM1RA3AC07DA102		AM2RA3AC07DA102		AM3RA3AC07DA102	
15.0	2	AM1RA3AC07DA152		AM2RA3AC07DA152		AM3RA3AC07DA152	
20.0	2	AM1RA3AC07DA202		AM2RA3AC07DA202		AM3RA3AC07DA202	
30.0	2	AM1RA3AC07DA302		AM2RA3AC07DA302		AM3RA3AC07DA302	
50.0	2	AM1RA3AC07DA502		AM2RA3AC07DA502		AM3RA3AC07DA502	
80.0	2	AM1RA3AC97DA802		AM2RA3AC97DA802		AM3RA3AC97DA802	

Table 11-90. AMR Catalog Numbering System

AM2R A 9 LC 15 DDU 52 15 1

Number of Poles ①

1 = 1-Pole	**5** = 5-Pole
2 = 2-Pole	**6** = 6-Pole
3 = 3-Pole	**7** = 7-Pole
4 = 4-Pole	**8** = 8-Pole

Frequency ②

A = 50/60 Hz
B = dc
C = 400 Hz
D = 50/60 Hz/dc

Internal Circuit Type and Inrush Catalog Code ②

N/A	STD	18X	25X	Internal Circuit
0	—	—	—	Switch Only
—	**2**	**9**	**39**	Series Trip w/Auxiliary
—	**3**	**8**	**38**	Series Trip
—	**5**	**22**	**32**	Shunt/Tap
—	**6**	**23**	**33**	Relay Trip
—	**7**	**27**	**37**	Dual Rating
—	**15**	**25**	—	DuCon
—	**16**	**26**	—	DuCon Series+Relay
—	**98**	—	—	Mid-Trip
—	**99**	—	—	Mid-Trip w/Alarm Switch

Handle Location ③

AC = Single-Pole Breakers
LC = Multi-Pole Breakers

Auxiliary Switch Options

07 = NO-NC 4.8 Fast-on
52 = NO-NC 2.8 Fast-on
53 = NO-NC 2.8 Fast-on

Approval Code

WNU = CE
TA = TUV/UL 1077
DA = UL 1077
DDU = UL 489 (Up to 277 Vac)
DNU = None

Terminal/Mounting Catalog Code

Imperial	Metric	Terminals
07	**13**	10-32 Threads (70 A)
97	**14**	1/4-20 Threads (100 A)
08	**15**	M5 Threads (70 A)
98	**16**	M6 Threads (70 A)
21	**20**	Plug-in 7.77 x 16.6
23	**22**	Plug-in 6.25 x 21.6
25	**24**	Plug-in 6.25 x 15.4
31	**30**	Fuse Clip

Curve ④

P = Instant
1 = Long Delay 8X Inrush
2 = Medium Delay 8X Inrush
3 = Short Delay 8X Inrush
4 = Long Delay 18X Inrush
5 = Medium Delay 18X Inrush
6 = Short Delay 18X Inrush
7 = Long Delay 25X Inrush
8 = Medium Delay 25X Inrush
9 = Short Delay 25X Inrush
S = Switch Only

Current Rating ⑤

Code	Current (Amperes)
R02	0.02
R25	0.25
R50	0.50
1	1
2R5	2.5
5	5
7R5	7.5
10	10
15	15
20	20
25	25
30	30
50	50
60	60
80	80
100	100

① Select from 1 to 8 poles, and enter the number in position 3 of the catalog number. For example, an AM3L would identify a 3-pole AML breaker.
② On multi-pole breakers, Steps 2 and 3 can be repeated if subsequent poles are different than the first. Identification starts from left-hand side when viewing the front of the breaker.
③ These will provide standard handle locations. For additional options, contact the Technical Resource Center.
④ Specific data on trip curves can be found on the Web at www.eaton.com/heinemann.
⑤ Enter the whole number current rating. For example, use code "15" for a 15 A current rating. For fractional amperages, use an "R" to designate the decimal point. For 0.10 A, enter the code "R10." Current range up to 100 amperes 50/60 Hz, 60 amperes 400 Hz, 100 Adc.

Discount Symbol **SP-1**

Table 11-91. ACR Catalog Numbering System

AC2R A 9 LC 15 DDU 52 15 4

Number of Poles ①

1 = 1-Pole	**5** = 5-Pole
2 = 2-Pole	**6** = 6-Pole
3 = 3-Pole	**7** = 7-Pole
4 = 4-Pole	**8** = 8-Pole

Frequency ②

A = 50/60 Hz
B = dc
C = 400 Hz
D = 50/60 Hz/dc

Internal Circuit Type and Inrush Catalog Code ②

N/A	STD	18X	25X	Internal Circuit
0	—	—	—	Switch Only
—	**2**	**9**	**39**	Series Trip w/Auxiliary
—	**3**	**8**	**38**	Series Trip
—	**5**	**22**	**32**	Shunt/Tap
—	**6**	**23**	**33**	Relay Trip
—	**7**	**27**	**37**	Dual Rating
—	**15**	**25**	—	DuCon
—	**16**	**26**	—	DuCon Series+Relay
—	**98**	—	—	Mid-Trip
—	**99**	—	—	Mid-Trip w/Alarm Switch

Handle Location ③

AC = Single-Pole Breakers
LC = Multi-Pole Breakers

Auxiliary Switch Options

07 = NO-NC 4.8 Fast-on
52 = NO-NC 2.8 Fast-on
53 = NO-NC 2.8 Fast-on

Approval Code

WNU = CE
TA = TUV/UL 1077
DA = UL 1077
DDU = UL 489 (Up to 277 Vac)
DNU = None

Terminal/Mounting Catalog Code

Imperial	Metric	Terminal
07	**13**	10-32 Threads (70 A)
97	**14**	1/4-20 Threads (100 A)
08	**15**	M5 Threads (70 A)
98	**16**	M6 Threads (70 A)
21	**20**	Plug-in 7.77 x 16.6
23	**22**	Plug-in 6.25 x 21.6
25	**24**	Plug-in 6.25 x 15.4
31	**30**	Fuse Clip

Time Delay Curve ④

P = Instant
1 = Long Delay Std. Inrush
2 = Medium Delay Std. Inrush
3 = Short Delay Std. Inrush
4 = Long Delay 18X Inrush
5 = Medium Delay 18X Inrush
6 = Short Delay 18X Inrush
7 = Long Delay 25X Inrush
8 = Medium Delay 25X Inrush
9 = Short Delay 25X Inrush
S = Switch Only

Current Rating ⑤

Code	Current (Amperes)
R02	0.02
R25	0.25
R50	0.50
1	1
2R5	2.5
5	5
7R5	7.5
10	10
15	15
20	20
25	25
30	30
50	50
60	60
80	80
100	100

① Select from 1 to 8 poles, and enter the number in position 3 of the catalog number. For example, an AM3L would identify a 3-pole AML breaker.
② On multi-pole breakers, Steps 2 and 3 can be repeated if subsequent poles are different than the first. Identification starts from left-hand side when viewing the front of the breaker.
③ These will provide standard handle locations. For additional options, contact the Technical Resource Center.
④ Specific data on trip curves can be found on the Web at www.eaton.com/heinemann.
⑤ Enter the whole number current rating. For example, use code "15" for a 15 A current rating. For fractional amperages, use an "R" to designate the decimal point. For 0.10 A, enter the code "R10." Current range up to 100 amperes 50/60 Hz, 60 amperes 400 Hz, 100 Adc.

Table 11-92. AML Catalog Numbering System

AM3L A 2 AE 050 07 DDU 07 15 1

Number of Poles ①	
1 = 1-Pole	**5** = 5-Pole
2 = 2-Pole	**6** = 6-Pole
3 = 3-Pole	**7** = 7-Pole
4 = 4-Pole	**8** = 8-Pole

Frequency ②
A = 50/60 Hz
B = dc
C = 400 Hz
D = 50/60 Hz/dc

Auxiliary Switch Options
07 = NO-NC 4.8 Fast-on
52 = NO-NC 2.8 Fast-on
53 = NO-NC 2.8 Fast-on

Curve ⑤
P = Instant
1 = Long Delay 8X Inrush
2 = Medium Delay 8X Inrush
3 = Short Delay 8X Inrush
4 = Long Delay 18X Inrush
5 = Medium Delay 18X Inrush
6 = Short Delay 18X Inrush
7 = Long Delay 25X Inrush
8 = Medium Delay 25X Inrush
9 = Short Delay 25X Inrush
S = Switch Only

Approval Code
WNU = CE
TA = TUV/UL 1077
DA = UL 1077
DDU = UL 489 ④
DNU = None

Internal Circuit Type and Inrush Catalog Code ②

N/A	8X	18X	25X	Internal Circuit
0	—	—	—	Switch Only
—	**2**	**9**	**39**	Series Trip w/Auxiliary
—	**3**	**8**	**38**	Series Trip
—	**5**	**22**	**32**	Shunt/Tap
—	**6**	**23**	**33**	Relay Trip
—	**7**	**27**	**37**	Dual Rating
—	**15**	**25**	—	DuCon
—	**16**	**26**	—	DuCon Series+Relay
—	**98**	—	—	Mid-Trip
—	**99**	—	—	Mid-Trip w/Alarm Switch

Terminal/Mounting Catalog Code

Imperial	Metric	Terminal
07	**13**	10-32 Threads (70 A)
97	**14**	1/4-20 Threads (100 A)
08	**15**	M5 Threads (70 A)
98	**16**	M6 Threads (70 A)
21	**20**	Plug-in 7.77 x 16.6
23	**22**	Plug-in 6.25 x 21.6
25	**24**	Plug-in 6.25 x 15.4
31	**30**	Fuse Clip

Current Rating ⑥	
Code	**Current (Amperes)**
R02	0.02
R25	0.25
R50	0.50
1	1
2R5	2.5
5	5
7R5	7.5
10	10
15	15
20	20
25	25
30	30
50	50
60	60
80	80
100	100

Handle Location ③
AE = Single-Pole Breakers
DE = Multi-Pole Breakers

Illumination Catalog Code

One-Position				
Red	**Green**	**Yellow**	**Blue**	**Position**
050	051	052	053	OFF
054	055	056	057	ON
058	059	060	061	Mid -Trip
Two-Position				
Green/ Red	**Red/ Green**	**Yellow/ Blue**	**Blue/ Yellow**	**Position**
062	063	064	065	ON/OFF
Two-Position				
Yellow/ Green	**Green/ Yellow**	**Red/ Yellow**	**Yellow/ Red**	**Position**
066	067	068	069	ON/OFF

① Select from 1 to 8 poles, and enter the number in position 3 of the catalog number. For example, an AM3L would identify a 3-pole AML breaker.
② On multi-pole breakers, Steps 2 and 3 can be repeated if subsequent poles are different than the first. Identification starts from left-hand side when viewing the front of the breaker.
③ These will provide standard handle locations. For additional options, contact the Technical Resource Center.
④ Up to 277 Vac.
⑤ Specific data on trip curves can be found on the Web at www.eaton.com/heinemann.
⑥ Enter the whole number current rating. For example, use code "15" for a 15 A current rating. For fractional amperages, use an "R" to designate the decimal point. For 0.10 A, enter the code "R10."