

Heinemann® Products
Commercial Controls Business Unit

HEINEMANN® J/S SERIES CIRCUIT BREAKERS

EAT•N



The Power of Reliability

HEINEMANN® CIRCUIT BREAKERS

J/S Series Circuit Breakers

DESCRIPTION

Low-cost Heinemann "J" hydraulic magnetic circuit breakers have long been the OEM designer's first choice for a wide range of applications such as a simple single-pole circuit breaker for ON/OFF switching with overcurrent protection, or a multi-pole breaker with built-in auxiliary functions for alarm or control purposes.



Small, lightweight Series J/S circuit breakers are especially well suited for use where equipment must be kept as small as possible, such as in crowded control panels or in portable or military applications. Additionally, Series J/S circuit breakers impose minimum panel mounting restrictions on the designer. While they are visually attractive for use on front panels, they can be mounted out of the way in cramped quarters where necessary. Because they are magnetically actuated, Series J/S circuit breakers generate negligible heat under load and may be installed as close together as requirements dictate.

For marine installations in closed areas near a fuel-line joint, Heinemann offers the MAS and MES breakers with UL recognized ignition-protected construction.

SPECIFICATIONS

Electrical Ratings

Standard Maximum Voltages: 250V at 50/60 and 400 Hz, 65V DC.

Current Rating: Any integral or fractional value from 0.020 to 50A, AC or DC. See table on page 4.

Interrupting Capacities: See table on page 4.

Trip Curves: See page 4.

Environmental Data

Designed to meet the requirements of MIL-C-55629.

Fungus and Moisture

Resistance: Tested for moisture resistance per MIL-STD-202, Method 106, tested for salt spray resistance per MIL-STD-202, Method 101. **1** Ferrous parts incorporate special moisture resistant finish. Springs, cases and handles are made from fungus resistant materials.

Humidity:

Tested in accordance with MIL-STD-202, Method 103, test condition "A".

Shock and Vibration:

Tested for shock in accordance with MIL-STD-202, Method 213,

specifications apply to time delay breakers only.

Operating Temperature Range: -40°C to +85°C.

Dielectric Strength:

Tested in accordance with MIL-STD-202, Method 301: 1500V 50/60 or 400 Hz; 1100V DC (or twice rating plus 1000V). Meets VDE requirements of 3750V.

Insulation Resistance:

100MΩ minimum at 500V DC, per MIL-STD-202, Method 302.

Endurance:

50/60 Hz breakers are subjected to an endurance test consisting of 10,000 ON/OFF operations; 6000 at rated current and voltage, 4000 at no load.

Approximate Weights:

J/1S – 2.5 oz., J/2S – 5 oz., J/3S – 7.5 oz., J/4S – 10 oz.

Notes:

- Specify voltage-rated coils separately.** Example: Catalog Number JA1S-A5. Voltage coil, intermittent-duty, trips on voltage specified, Curve P.
- Relay trip poles.** Always specify load values for coil



test condition "I" (100 Gs at six milliseconds). Tested for vibration in accordance with MIL-STD-202, Method 204: 10 to 500 Hz, 10 Gs, 0.06" total excursion on three mutually perpendicular planes. Vibration tests are conducted with breakers carrying full-rated current. Shock and vibration

and contacts separately. Standard contact rating supplied is 30A. Example: Catalog Number JA1S-B6; coil 5A 65V DC, Curve 3; contacts 30A 250V 50/60 Hz. Does not apply to VDE construction.

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Q Note: Where environment contains concentrations of dirt, grit, dust, pumice or corrosive chemicals, type J/S breakers should be housed in suitable enclosures.

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3. **UL/CSA models** are labeled with the UL/CSA-rated voltage. The catalog number on the breaker label will contain a special suffix A, L or AD indicating a UL/CSA model. See page 17.
4. **VDE** – Approved breakers are marked with the VDE registration #223 for Series J/S breakers.
5. **If voltage is rectifier-produced DC**, furnish separately: (a) Full- or half-wave rectification, (b) number of phases, (c) filtered or unfiltered.
6. **Positive polarity** should always be connected to the terminal marked "Line."

7. **Voltage rated shunt/tap coils** provide tripping on line voltage.

APPROVALS

Suitable for domestic or world market applications, the Series J/S (to 30A AC, to 50A DC) are UL recognized as supplementary protectors under UL1077 and CSA certified as components. Approvals include VDE 0660 and 0806, IEC 380 and SEV.

For marine installations in closed areas near a fuel-line joint, Heinemann offers circuit breakers with UL recognized ignition-protected construction.

UL and CSA recognition

1, 2, 3 and 4 pole breakers in Series JA/S, JB/S, JC/S, JE/S are recognized as

supplementary protectors per UL Standard UL 1077 (UL File No. E-67155), and certified in CSA File No. LR-9646-46. Recognition and certification covers all current ratings from 0.1 to 30A AC and to 50A DC, up to 277V AC maximum, 50/60 Hz; up to 240V maximum, 400 Hz, and up to 65V DC maximum. UL recognition and CSA certification at 415V, 50/60 Hz, refers to 3 pole models used only in a three-phase wye-connected circuit and backed up with a Heinemann Series CD3 or CD4 480V 100A breaker as group controller, providing an interrupting capacity of 1500A.



J Series Product Line Overview

	JA/S Breaker • Basic JA/S Breaker • Applications: Power supplies, controls systems, EDP equipment • Easy installation – round boss eliminate square cuts • Adapter plate to fit existing panels • 1, 2, 3 or 4 pole(s) • Instant color-coding with selection of nine standards colors • Choice of terminals: Quick-on or screw		JC/S Breaker • Rocker handle design available in standard colors: white, gray or black • Custom rocker colors also available • ON and OFF legend are recessed-molded • May be installed on common panel cutout • ON only operation option: Helps prevent accidental or deliberate shut-off of equipment • 1, 2, 3 or 4 pole(s)
	JA/S AC/DC Breaker • For AC/DC circuits to 250V 50/60 Hz and to 65V DC, 0.02 to 30A • Multi-pole versions contain white toggle with handle tie • 6/32 standard UNC mounting clips • 1, 2 and 3 pole(s)		JE/S Breaker • Sealed-mount breaker • Suited for environments where water spray and splash exist, ie. marine equipment • Panel cutout sealed by O-ring at the base of the threaded gland bushing • Bright metal ON/OFF switchplate is supplied as standard • 1, 2 and 3 pole(s)
	JB/S Breaker • Snap-in installation through rectangular cutout reduces need for special installation hardware or tools • May be snapped side by side into single opening while maintaining constant pole spacing • Clean matte finish on front escutcheon • 1, 2, 3 or 4 pole(s)		MAS and MES Breaker • Ignition-protected for use aboard gasoline-powered marine craft • MAS: Standard toggle handles similar to JA/S • MES: Sealed-mount bat handles similar to JE/S • Current ratings from 0.10 to 30A • Sealed construction will withstand internal arc without igniting an explosive external atmosphere • 1 pole

HEINEMANN® CIRCUIT BREAKERS

J/S Series Circuit Breakers

AVAILABLE RATINGS

Approval	Operating Voltage	Current Rating	Interrupting (A)
Available Ratings	250V 50/60 Hz	0.020 to 50	1000
	125V 50/60 Hz	0.020 to 50	2000
	250V 400 Hz	0.100 to 50	1000
	125V 400 Hz	0.200 to 50	2000
	65V DC	0.020 to 50	1000
	80V DC	0.020 to 15	1000
UL Recognized	277V 50/60 Hz	0.1 to 30	5000 ¹
	415V 3fy 50/60 Hz	0.1 to 30	1500
	240V 400 Hz	0.1 to 30	1000 ¹
	65V DC	0.1 to 50	1000 ²
	80V DC	0.1 to 15	1000 ²
	380V AC ³	0.1 to 25	1500
VDE Approved	65V DC	0.1 to 25	1000

¹ AC breakers require four times rated series fusing using K5 fuses (15A minimum).

² DC units do not require backup fusing.

³ 380V AC is European equivalent to domestic 250V AC. J/S breakers approved to VDE will be dual labeled with the European voltage rating of 380V and the domestic rating of 250 V.

TRIP CURVE EXPLANATION

Tripping Specifications

Breakers (in standard wall-mounted position) shall hold 100% rated current. For table and ceiling mount – consult Application Engineering.

50/60 Hz or DC

Breakers may trip between 101% and 125% rated load; must trip at 125% rated load and above, as shown on time delay curve selected.

AC/DC

Breakers may trip between 101% and 135% rated load; must trip at 135% rated load and above.

400 Hz

Breakers may trip between 101% and 150%, must trip at 150% and above.

Non-Time Delay Trip Ranges

Breakers that have no deliberately imposed delay (less than 100ms) are specified as follows.

Breakers shall hold 100% rated current.

Breakers for 50/60 Hz or DC service may trip between 101% and 125% rated current, must trip at 125% rated current and above.

Breakers for AC/DC service may trip between 101% and 135% rated load; must trip at 135% rated load and above.

Breakers for 400 Hz service may trip between 101% and 150% rated current, must trip at 150% rated current and above.

Note: All the curves shown describe breaker response with no pre-loading. (Breakers do not carry current prior to application of overload for calibration testing.) Curves are plotted at an ambient temperature of 25°C (77°F), with breakers in the standard wall-mounted position.

Time Delay Curve Selection

1. Determine required frequency.

2. Determine required high-inrush tolerance (tolerance to starting surges caused by high-resistance loads such as ferro-resonant power supplies which may last up to 10 milliseconds - 8 at 60 Hz). Select lowest high-inrush tolerance compatible with application.

3. Determine required curve characteristics based on application:

Long Time Delay Curve

Motor starting, locked rotor tolerance, general purpose applications.

Medium Time Delay Curve

Transformer protection, capacitor loads, special incandescent lamp loads, general purpose applications (most widely used curve).

Short Time Delay Curve

Electronic equipment.

Instantaneous Curve

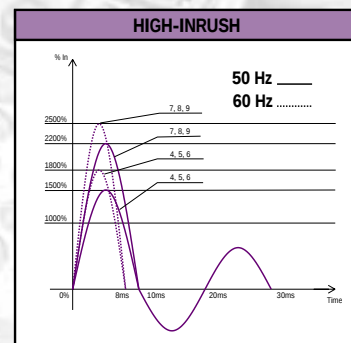
(no deliberate time delay provided) Unusual circumstances in electronic equipment and other special applications. The magnetic shunt used offers maximum possibilities on half wave which is 10 ms when frequency is 50 Hz.

High-Inrush

Influence of line frequency is shown in the high-inrush chart on page 5. For curve P, high-inrush is not possible.

TRIP CURVES (CONTINUED)

Nominal DCR and Impedance							
Current Rating Amperes	DC Delays (Resistance in Ohms) Curves			60 Hz Delays (Impedance in Ohms) Curves			400 Hz Delays (Impedance in Ohms) Curves
	P-1-2-3 10-20-30	251-252-253	DuCon 2-3-20-30	P-1-2-3 10-20-30	251-252-253	DuCon 2-3-20-30	P-1-2-3
0.05	447	730	730	418	836	809	744
0.10	127	182	174	139	176	186	200
0.5	4.12	7.0	6.4	3.99	7.3	6.4	9.36
1	0.86	1.65	1.67	0.917	1.580	1.780	1.74
5	0.050	0.069	0.069	0.051	0.073	0.068	0.074
10	0.014	0.0181	0.0177	0.016	0.0172	0.0158	0.021
15	0.0059	0.0164	0.0146	0.0060	0.0162	0.0155	0.0101
20	0.0045	0.0068	0.0067	0.0046	0.0067	0.0068	0.0060
30	0.0031	0.0028	0.0028	0.0031	0.0031	0.0029	0.0037
50	0.0017	0.0020	0.0019	0.0017	0.0020	0.0019	0.0024

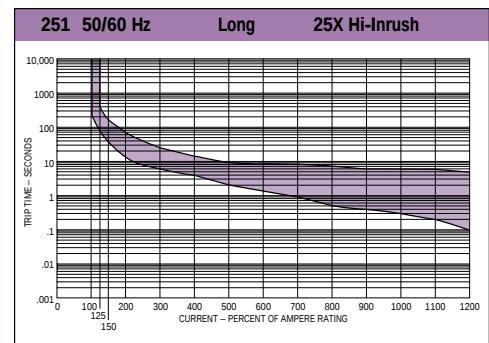
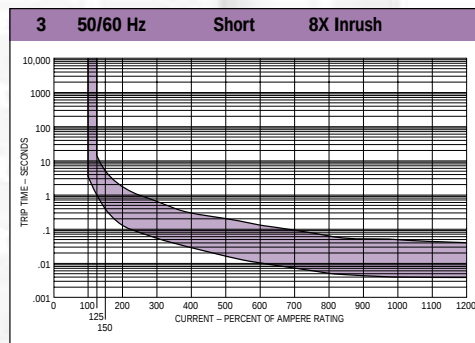
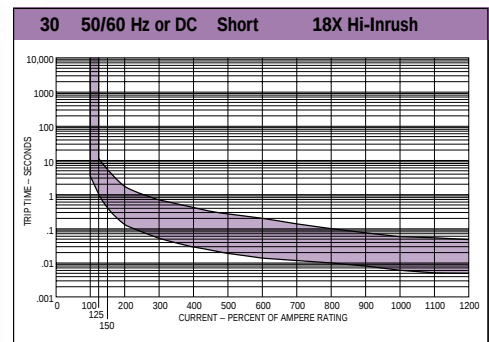
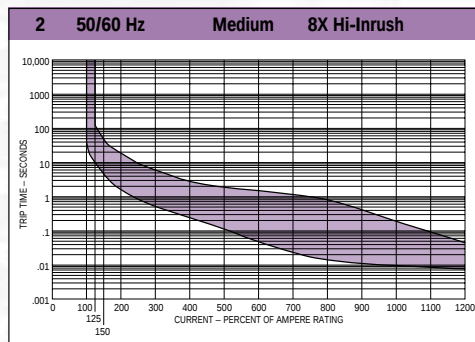
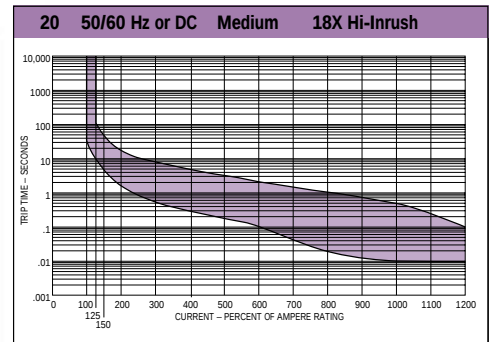
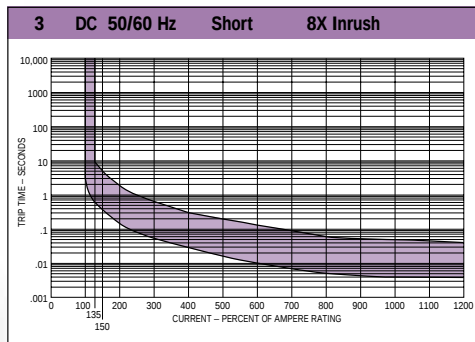
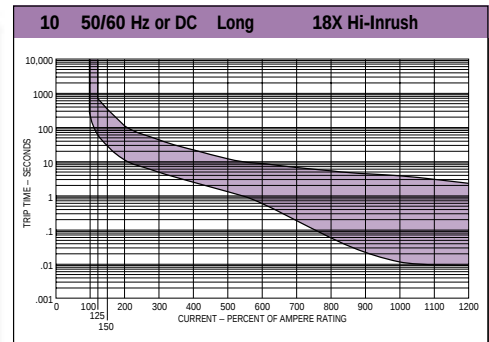
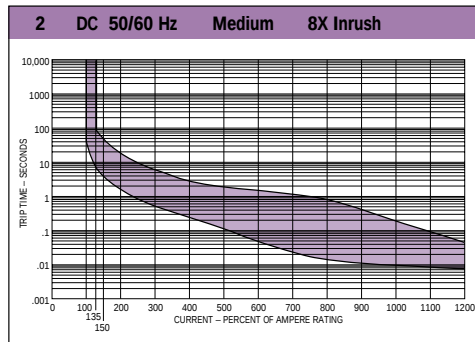


DCR and impedance based on 100% rated current applied and stabilized a minimum of one hour.
Tolerance: 0.02A to 2.5A, ±20%; 2.6A to 20A, ±25%; 21A to 50A, ±50%.

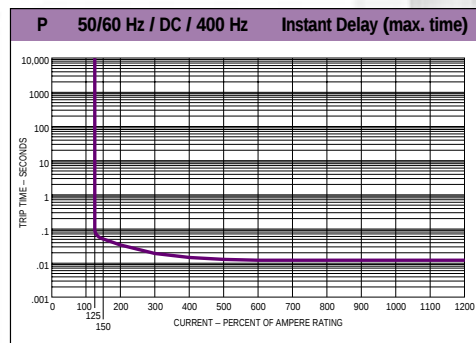
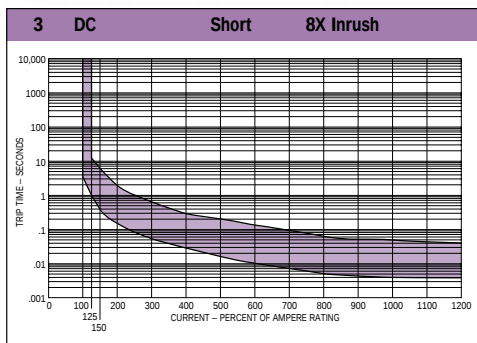
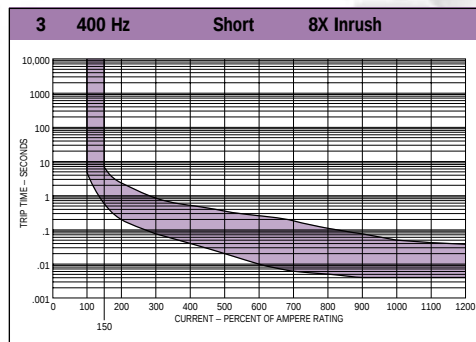
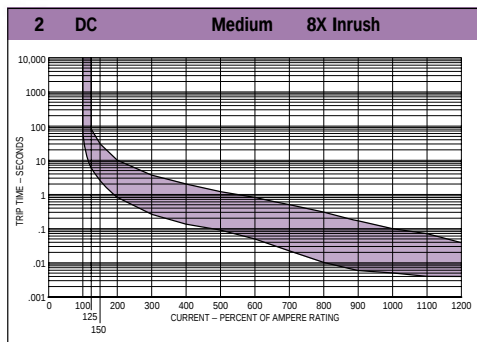
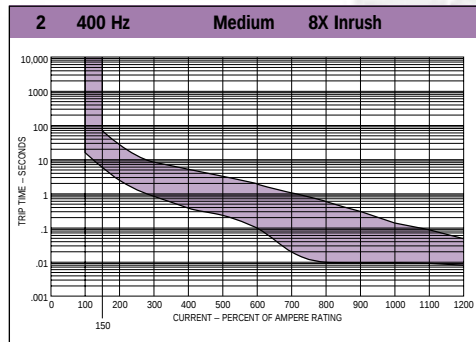
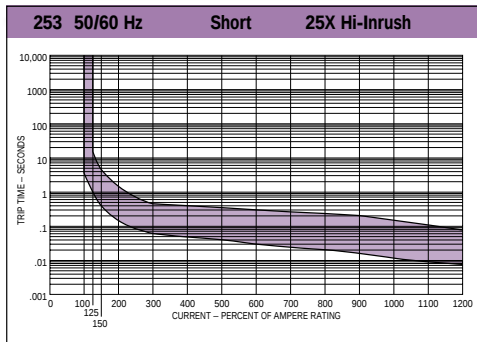
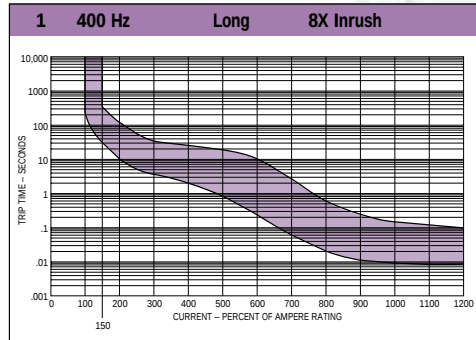
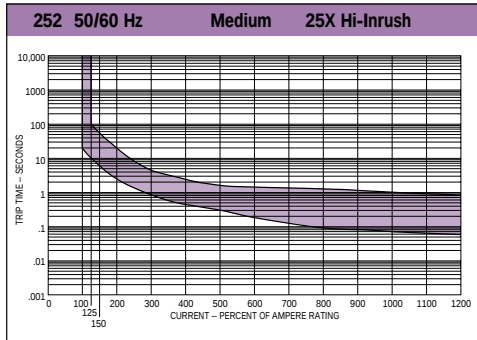
PERCENT OF RATED CURRENT VS. SECONDS DELAY																
Inrush	Delay	100%	125%	135%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	1100%	1200%
50/60 Hz 8x	2	No Trip	10 – 110	—	4.5 – 50	1.7 – 18	.55 – 6	.25 – 2.8	.11 – 1.9	.05 – 1.5	.025 – 1.2	.015 – .8	.011 – .41	.01 – .2	.009 – .1	.008 – .05
	3	No Trip	1 – 12	—	.4 – 5	.15 – 1.9	.054 – .64	.03 – 30	.017 – .2	.01 – 1.4	.007 – .09	.005 – .06	.004 – .05	.004 – .05	.004 – .046	.004 – .04
50/60 Hz 18x	10	No Trip	60 – 700	—	30 – 350	10 – 120	3.4 – 42	2 – 22	1.1 – 12.5	.5 – 8	.17 – 5.2	.05 – 4	.02 – 3.4	.01 – 3	.008 – 2.5	.008 – 2
	20	No Trip	10 – 110	—	4.5 – 50	1.7 – 18	.54 – 6.9	.3 – 4	.18 – 2.75	.1 – 2	.04 – 1.4	.02 – 1	.013 – .75	.01 – 5	.01 – .25	.01 – 1
	30	No Trip	1 – 12	—	.4 – 5	.15 – 1.9	.052 – .73	.03 – .4	.02 – .27	.015 – .2	.012 – .14	.01 – .1	.008 – .074	.006 – .06	.005 – .053	.005 – .05
50/60 Hz 25x	251	No Trip	75 – 400	—	35 – 170	15 – 70	5 – 25	3 – 15	2 – 9.5	1.5 – 8	.9 – 7	.5 – 6	.4 – 5	.3 – 5	.2 – 5	.1 – 4
	252	No Trip	10 – 100	—	6 – 55	2.5 – 20	.85 – 4.5	.45 – 2.5	.3 – 1.8	.22 – 1.6	.15 – 1.5	.1 – 1.4	.08 – 1.2	.07 – 1	.06 – .9	.05 – .7
	253	No Trip	45 – 345	—	.4 – 4.5	.16 – 1.6	.06 – .46	.05 – .4	.04 – .35	.03 – .3	.025 – .25	.02 – .22	.015 – .2	.012 – .15	.009 – .12	.008 – .08
DC	2	No Trip	6 – 80	—	2.5 – 30	.8 – 10	.25 – 3.7	.15 – 2	.09 – 1.2	.05 – .8	.021 – .5	.01 – .3	.006 – .17	.005 – .1	.004 – .06	.004 – .04
	3	No Trip	1 – 12	—	.4 – 5	.15 – 1.9	.054 – .64	.03 – .3	.017 – .2	.01 – .14	.007 – .09	.005 – .06	.004 – .052	.004 – .05	.004 – .046	.004 – .04
	10	No Trip	60 – 700	—	30 – 350	10 – 120	3.4 – 42	2 – 22	1.1 – 12.5	.5 – 8	.17 – 5.2	.05 – 4	.02 – 3.4	.01 – 3	.008 – 2.5	.008 – 2
	20	No Trip	10 – 110	—	4.5 – 50	1.7 – 18	.54 – 6.9	.3 – 4	.18 – 2.75	.1 – 2	.04 – 1.4	.02 – 1	.013 – .75	.01 – 5	.01 – .25	.01 – 1
	30	No Trip	1 – 12	—	.4 – 5	.15 – 1.9	.052 – .73	.03 – .4	.02 – .27	.015 – .2	.012 – .14	.01 – .1	.008 – .074	.006 – .06	.005 – .053	.005 – .05
400 Hz	1	No Trip	—	—	30 – 350	10 – 120	3.4 – 35	2 – 25	.86 – 19	.25 – 10	.06 – 2.6	.02 – .6	.012 – .25	.01 – .15	.008 – .12	.008 – .1
	2	No Trip	—	—	6 – 70	2.5 – 26	.85 – 8.5	.4 – 5	.23 – 3.1	.1 – 2	.02 – 1.1	.01 – .6	.01 – .3	.01 – .15	.009 – .085	.008 – .05
	3	No Trip	—	—	.6 – 7	.2 – 2.3	.075 – .84	.04 – .5	.02 – .37	.01 – .25	.006 – .18	.005 – .12	.004 – .075	.004 – .05	.004 – .042	.004 – .04
50/60 Hz DC 8x	2	No Trip	—	7 – 80	4.5 – 50	1.7 – 18	.55 – 6	.25 – 2.8	.11 – 1.9	.05 – 1.5	.025 – 1.2	.015 – .8	.011 – .41	.01 – .2	.009 – .1	.008 – .05
	3	No Trip	—	.6 – 9	.4 – 5	.15 – 1.9	.054 – .64	.03 – .3	.017 – .2	.01 – .14	.007 – .09	.005 – .06	.004 – .052	.004 – .05	.004 – .046	.004 – .04
Non-Delay	Instant Delay "P" Max. Time	No Trip	.1	.06	.05	.034	.02	.015	.012	.011	.011	.011	.011	.011	.011	.011

HEINEMANN® CIRCUIT BREAKERS

J/S Series Circuit Breakers – Time Delay Curves



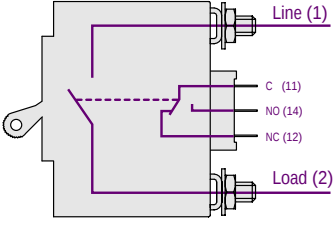
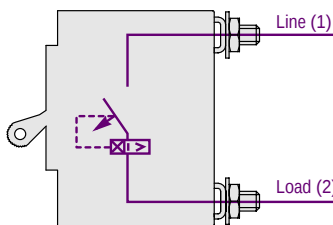
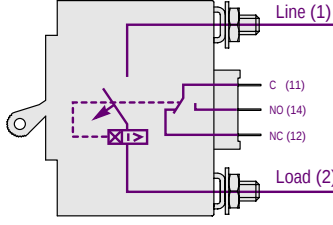
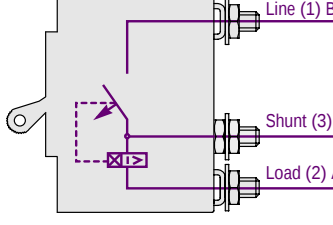
Time Delay Curves



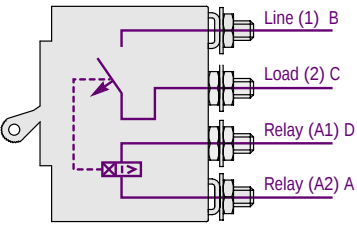
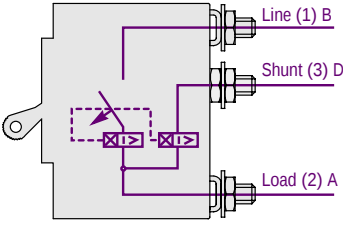
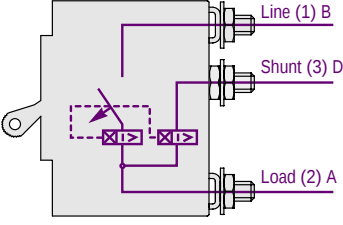
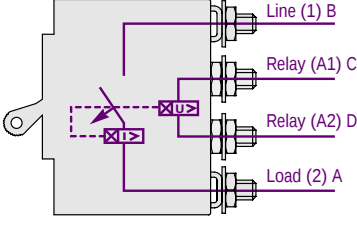
HEINEMANN® CIRCUIT BREAKERS

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INTERNAL CIRCUITS

Circuit	Diagrams	Description	Auxiliary Contact	Inrush	Codes
Switch		Switch only (without coil) with or without auxiliary contact.	No		0
			Yes		12
Series Trip		The contacts and the coil are in series. It is often used as the main switch.	No	8x	3
			No	25x	8
			No	25x	38
Series Trip With Auxiliary Contact		The contacts and the coil are in series. Auxiliary contacts are placed behind the circuit breaker and mechanically connected to the releasing system.	Yes	8x	2
			Yes	25x	9
			Yes	25x	39 Q
Shunt Tap		Enables two loads to be checked by means of a single circuit breaker. Only releases if there is an overload in the main circuit. Sum of two nominal currents must not exceed the peak current of the contacts. Also possible to adjust tripping through a potentiometer between load terminals.	No	8x	5
			No	25x	32

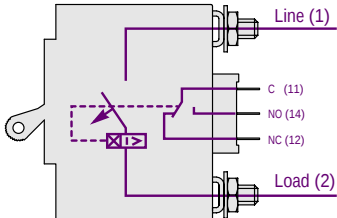
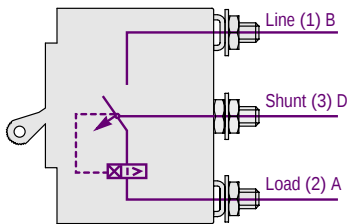
INTERNAL CIRCUITS (CONTINUED)

Circuit	Diagrams	Description	Auxiliary Contact	Inrush	Codes
Relay Trip		For releasing the circuit breaker by the intermediary of a monitor or a safety device installed at a distance. Contacts are electrically separated from the coil. All the currents and voltages within the permissible limits can be used. Coils are either current or voltage sensitive. Can be supplied on request with a dielectric strength ranging up to 2500 V on alternating current 50/60 Hz between the coil and the contacts.	No	8x	6
			No	25x	23
Dual Rating		Dual rating circuit breakers are suitable for apparatus operating under two different currents or voltages. As far as possible, the currents must be in the ratio of one to two with a maximum of 25 to 50 A.	No	8x	7
			No	25x	27
Dual Control (Ducon)		This version is used both for the protection of the load finding itself in series with the circuit breaker and for the release via a voltage. The main coil is in series with the contact and the Ducon coil is shunt trip.	No	8x	15
			No	25x	25
Dual Control Ducon (Series + Relay)		Same function as codes 15 and 25, but both coils are electrically separated.	No	8x	16
			No	25x	26
			Yes	8x	63 ²

² Code 63: With flying leads Ducon terminals, further information on request.

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Circuit	Diagrams	Description	Auxiliary Contact	Inrush	Codes
Relay Trip (safety execution)	Internal Circuit represented: 76, 86, 96 	These internal circuits have no main contact. When combined with another pole, they permit compliance with the safety regulations dictated by IEC 950. The required minimum creep distance between two galvanically separated electric circuits can thus be attained.	No	8x	86
Mid Trip	Internal Circuit represented: 98, 99 	Series overload. Mid-trip handle position.	No	8x	98
			Yes	8x	99

ACCESSORIES

Color	Catalog Number	Color Caps
Black	121-76002	
Gray	121-76004	
Red	121-76005	
Green	121-76006	
Blue	121-76007	
White	121-76008	
Yellow	121-76009	
Brown	121-76012	
Orange	121-76013	

Adapter Plate
Catalog No. 009-18091 This kit adapts panels cut for Heinemann Series AM/R breakers to accept Series JA/S models. Order one kit per pole. Plate fastens to panel with two customer-supplied #6-32 screws. 

Pole	Catalog Number	Protective Shield
1	006-10211	
2	006-10244	
3	006-10245	

Screw-Type Connectors

Convert quick-on line and load terminals to screw type. Kit contains two quick-on female connectors with screw termination.

Rating	Customer-supplied Crimp-on Connectors
up to 20A	ARK-LS Quick-connect female #3000H9AB AMP Inc. Faston Female #41202 or equivalent.
20 to 30A	Hoffman Industrial Products female #DF-1210T-250 or equivalent.

HEINEMANN® CIRCUIT BREAKERS

J/S Series Circuit Breakers

DIMENSIONS

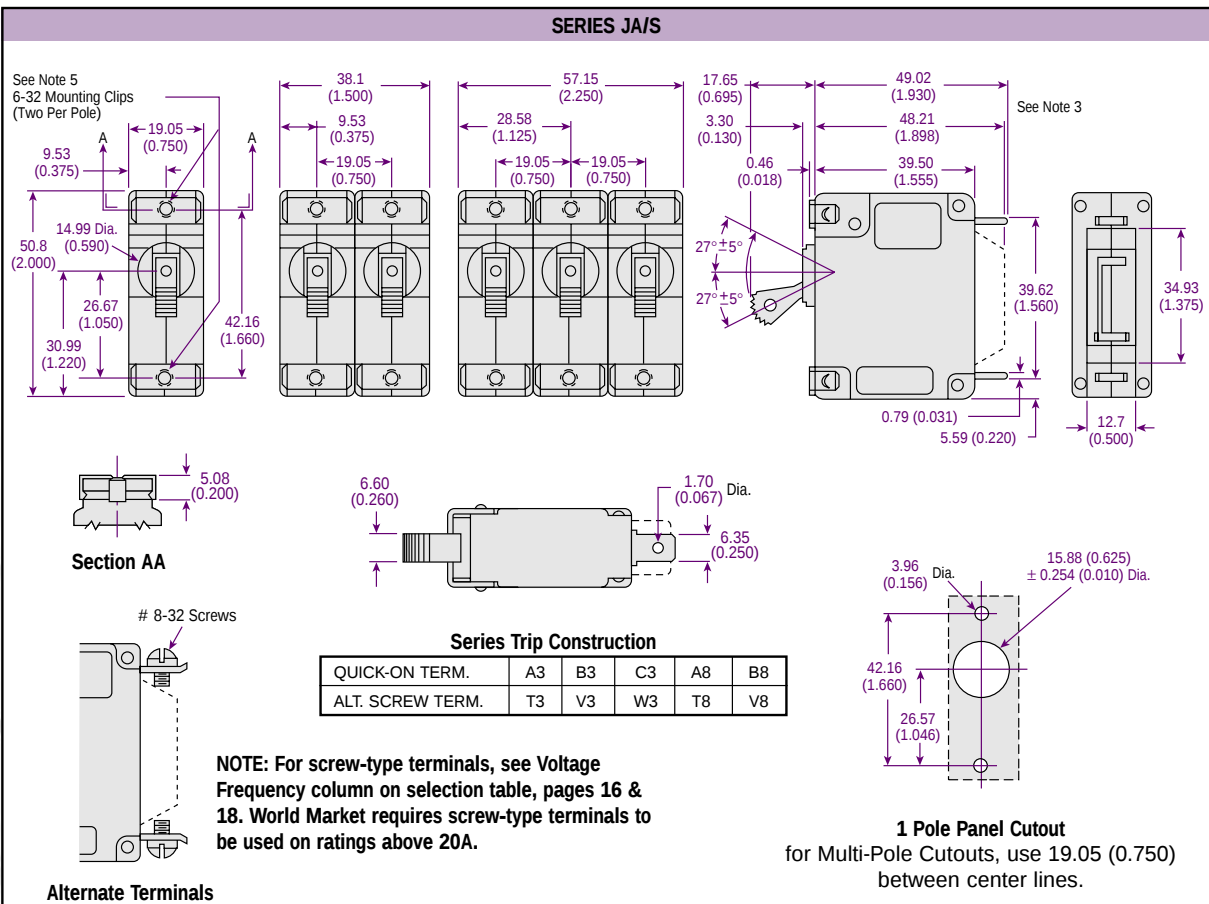
Dimensions are given here only as a preliminary guide to specifying. Final

engineering drawings should be made from the latest Heinemann factory drawings, available on

request. For metric threads, consult factory.

Tolerance: ± 0.81 (0.032) except where noted.

DIMENSIONS APPROXIMATE IN MM (INCHES)



Alternate Terminals

Notes:

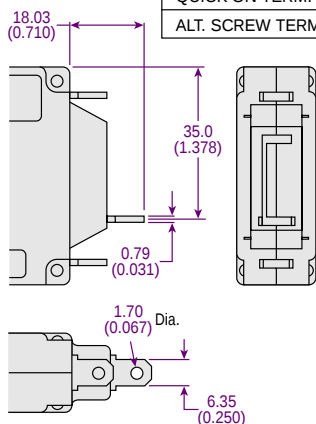
- 0.200 (5.08) is the maximum depth of recess in the breaker for accommodating mounting screws. When determining the mounting screw length, do not exceed "mounting panel thickness" plus "0.200 (5.08) dimension."
- Breakers shown have handle ties installed. Refer to Handle Location on selection table, page 18, for various handle configurations.
- Extended back supplied on breakers with special function circuits. Supplied on other constructions at manufacturer's option.
- Internal Circuit codes:
"A" and "T" = 50/60 Hz.
"B" and
"V" = DC.
"W" = 400 Hz.
- M3-0.5 pitch, metric mounting threads available.
- Handles marked ON/OFF are available.
- Overload protection and/or switch construction cannot be supplied in the same pole as relay trip.

DIMENSIONS APPROXIMATE IN MM (INCHES)

SERIES JA/S (CONTINUED)

Shunt Tap Construction

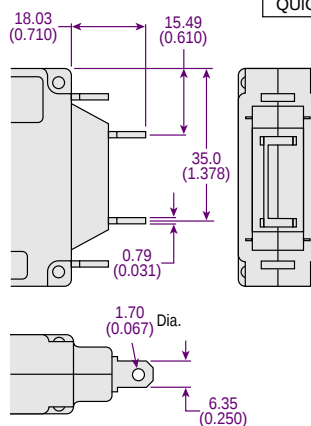
QUICK-ON TERM.	A5	B5	C5
ALT. SCREW TERM.	T5	V5	W5



Relay Trip Construction

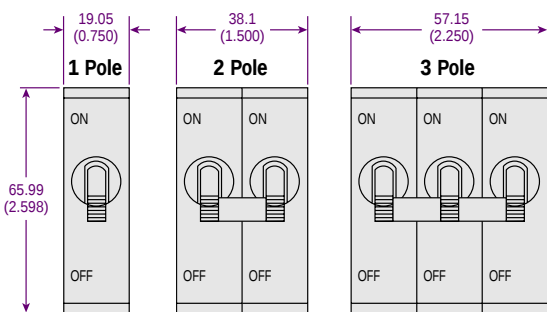
QUICK-ON TERM.*	A86	B86	C86
	A6	B6	C6

See Note 4 on page 12

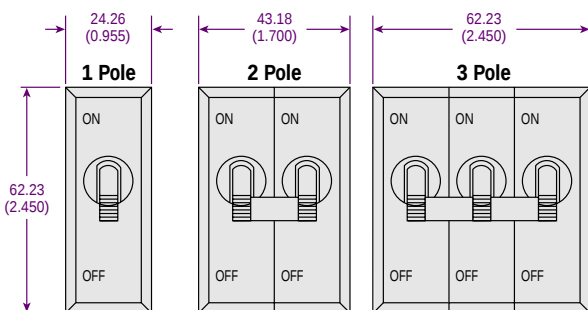


*Quick-On Terminals for Domestic Markets.

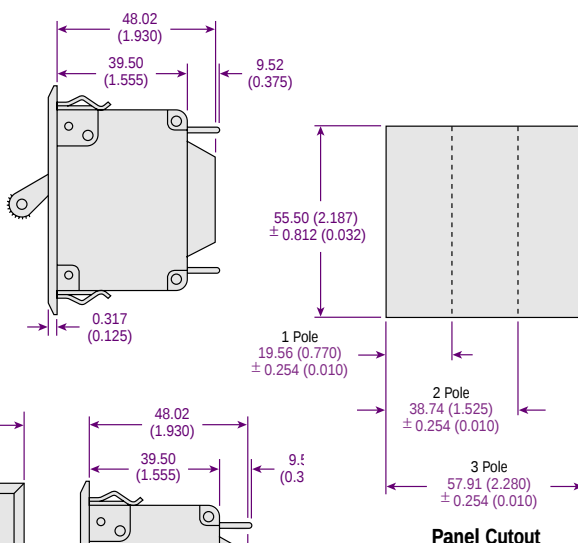
SERIES JB/S



Flush Panel Mount (Matte Finish) – Mounting Code: 00



Beveled Panel Mount Bezel – Mounting Code: 24

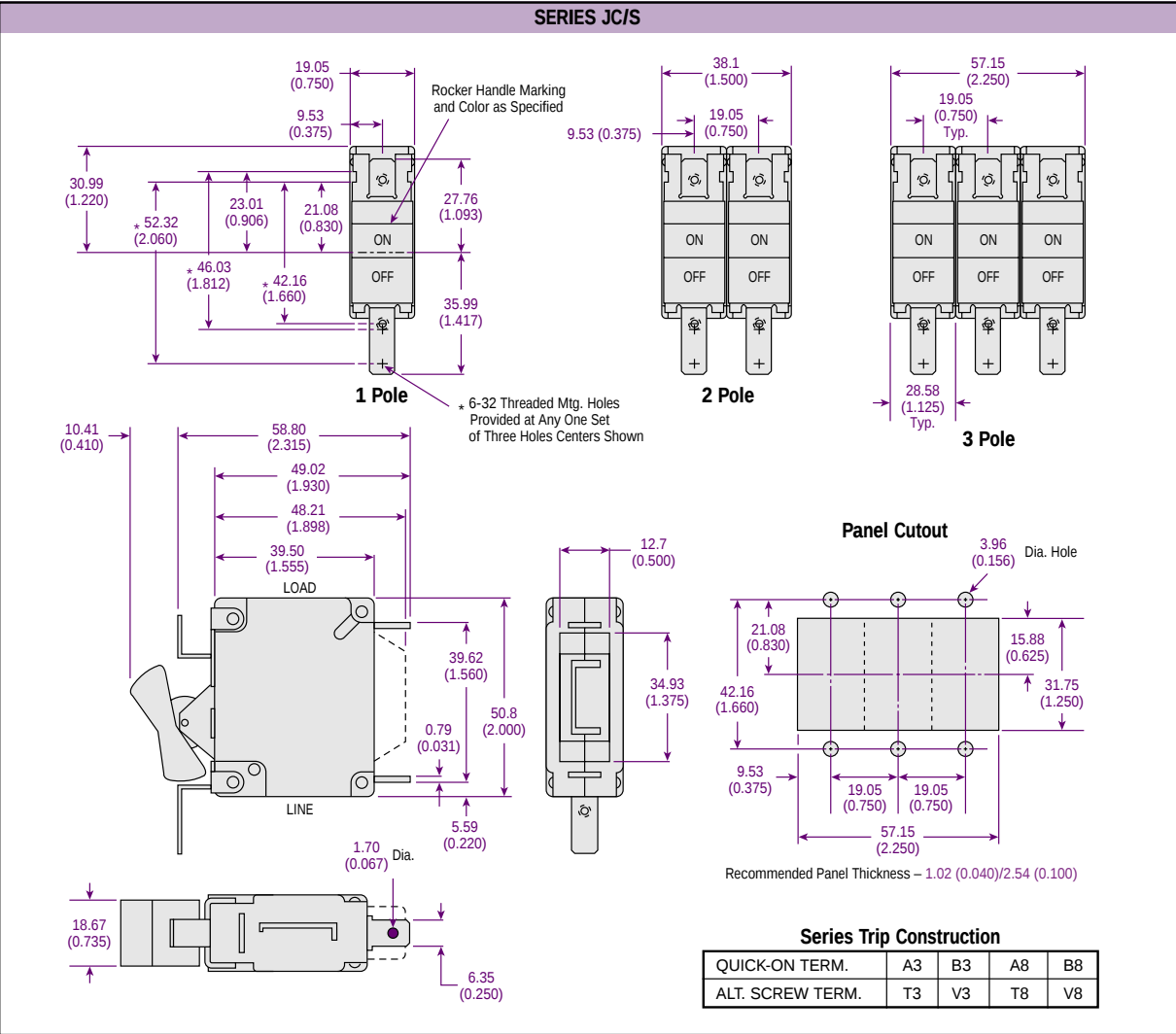


Panel Cutout

CIRCUIT BREAKER

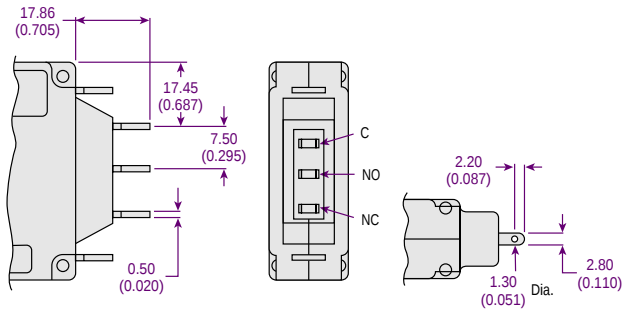
J/S Series Circuit Breakers

DIMENSIONS APPROXIMATE IN MM (INCHES)

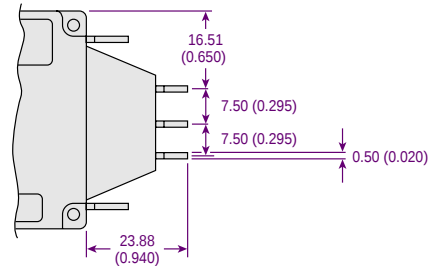


DIMENSIONS APPROXIMATE IN MM (INCHES)

SERIES JC/S (CONTINUED)

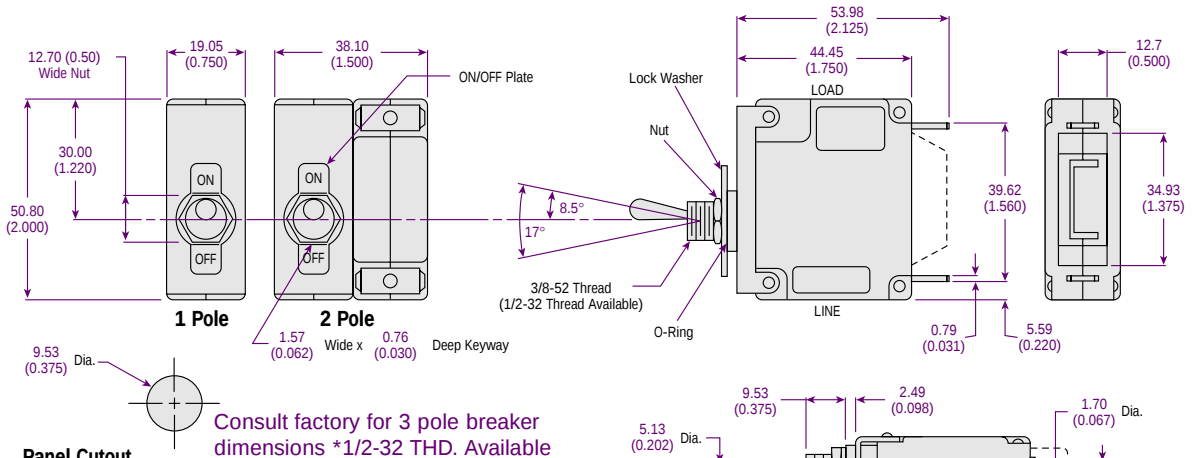


**Series-Trip with Auxiliary Switch World/VDE Switch
Rated Over 42V Domestic Market Auxiliary Switch
Rated 125/250V AC**



**Series-Trip with Auxiliary Switch World/VDE
Switch Rated Under 42V (Contact Customer
Service Center for Catalog Number)**

SERIES JE/S



Panel Cutout

Series Trip Construction

QUICK-ON TERM.	A3	B3	C3	A8	B8
ALT. SCREW TERM.	T3	V3	W3	T8	V8

HEINEMANN® CIRCUIT BREAKERS

J/S Series Circuit Breakers

HOW TO ORDER Standard Circuit Breakers — Series J/S

To determine your **Complete Catalog Number**, start with the appropriate **Series Prefix** and add the appropriate **Code Letters** and/or **Numbers** as in the example below. Any part number with greater than 25 digits including dashes will be shipped with a factory-assigned part number.

Add each appropriate Number or Letter...				
Product Type ❶	Poles	Series Suffix	There is a choice of up to 6 Frequency and Internal Circuit Poles. Example shows 1 pole. ❸ ❹	
			Voltage Frequency ❸	Internal Circuit ❸ ❹
JA	1	S –	A	2 –

SELECTION TABLE

Product Type ❶				Poles	Series Suffix	Voltage Frequency ❸				Internal Circuit ❸ ❹ ❺						
Description	Handle Color and Marking ❷	Mounting Threads	Code			Frequency	Terminal Type	Max Volts	Code	Inrush Code	VDE Approval	Internal Circuit	Code			
Toggle Handle	White On/Off	6-32	JA	1	S – ❶	50/60 Hz	Push-on	25A	A	N/A	Yes	Switch (No Overload Coil)	0 –			
Snap-in Mount	White On/Off	N/A	JB	2		50/60 Hz	#8-32 Screw	30A	T ❷			Series Trip w/Aux. Switch	2 –			
Rocker Handle	White On/Off	6-32	JC	3		50/60 Hz	#10-32 Screw	50A	K ❷			Series Trip	3 –			
Sealed Bat Toggle	N/A	❶	JE ❶	4		DC	Push-on	25A	B			8X	Yes		Shunt/Tap	5 –
						DC	#8-32 Screw	30A	V ❷			8X	❶		Relay Trip	6 –
						DC	#10-32 Screw	50A	L ❷			8X	No		Series Trip	8 –
						60 Hz/DC	Push-on	25A	D			18X	Yes		Series Trip	9 –
						60 Hz/DC	#8-32 Screw	30A	E ❷			18X	Yes		Series Trip w/Aux. Switch	38 –
						60 Hz/DC	#10-32 Screw	50A	R ❷			25X	Yes		Series Trip	39 –
						400 Hz	Push-on	25A	C			25X	Yes		Series Trip w/Aux. Switch	❷
400 Hz	#8-32 Screw	30A	W ❷													
400 Hz	#10-32 Screw	50A	N ❷													

1 If catalog number being specified does not meet the above parameters, see pages 18-19 for non-standard catalog numbers.

2 Handles supplied on each pole (contact Customer Service Center for multipole JE breakers). Handle ties supplied unassembled in kits for multipole JA breakers. JB and JC multipole units have ties installed.

3 3/8-32 thread on JE1S. Contact Customer Service Center for JE2S and JE3S.

4 JE/S Series is only available in 1, 2 and 3 poles.

5 Voltage, frequency and internal circuit for first pole on left as viewed from front panel, or for all pole if identical.

6 Single Letter Code – Add a dash after the internal circuit code. Double Letter Code – Remove dash after J__S section and add dash after the internal circuit code. Ex: JA1SA38-__.

7 Screw terminals available on line and load terminals only. VDE approved units require screw terminals above 20A.

8 Please contact Customer Service Center for additional non-standard internal circuits. Repeat frequency and internal construction steps for second and third poles, and subsequent poles if different from first.

9 Please contact Customer Service Center for VDE availability.

Complete Catalog Number: JA1S-A2-A-0030-02E

Approval Voltage ^①	Current Ratings ^②	Time Delay Curve ^③	Voltage Rating ^④
A –	0030	– 02	E

Approval Voltage ^①		Current Ratings	Time Delay Curves ^③				Voltage Rating ^④	
UL Application	Code	Ampere	Inrush Level	Time Delay	Frequency	Code	Rating	Code
250V AC, 50/60 Hz; 65V DC, 240V AC, 400 Hz Non-UL Recognized	A – – –	From 0R20 to 0030 (.2 to 30A)	8X	Long	50/60 Hz DC 400 Hz 50/60 Hz DC	– 01	0-250V AC 251-277V AC 415V AC 0-65V DC VDE 380V AC and 65V DC	E F G N H
			8X	Medium	50/60 Hz DC 400 Hz 50/60 Hz DC	– 02		
			8X	Short	50/60 Hz DC 400 Hz 50/60 Hz DC	– 03		
			18X	Long	50/60 Hz DC 50/60 Hz DC	– 10		
			18X	Medium	50/60 Hz DC 50/60 Hz DC	– 20		
			18X	Short	50/60 Hz DC 50/60 Hz DC	– 30		
			25X	Long	50/60 Hz DC	– 251		
			25X	Medium	50/60 Hz DC	– 252		
			25X	Short	50/60 Hz DC	– 253		
			–	Instant	50/60 Hz DC 400Hz	– 0P		
			–	Switch Only	50/60 Hz DC 400 Hz	– 0S		

0 On multipole units one auxiliary switch is supplied. It is located in the left pole when viewed from the front of the breaker. See pages 18-19 for non-standard catalog numbers when additional switches or pole locations are required.

{ See page 4 for UL-Recognized ratings. Contact Customer Service Center for additional UL codes.

} Current Rating Code for Standard catalog numbers required a 4 digit code. Examples: 5A would be 0005; 35A would be 0035. A value less than 1A requires a character "R" in place of the decimal point when ordering. Examples: 0.10A would be 0R10; 2.5A would be 02R5.

q See time delay curves on pages 6-7 for required delay.

w VDE 0660 approval applies to DC and 50/60 Hz internal circuits listed under the VDE approval column on the facing page.

HEINEMANN® CIRCUIT BREAKERS

J/S Series Circuit Breakers

HOW TO ORDER Non-standard Circuit Breakers — Series J/S

To determine your **Complete Catalog Number**, start with the appropriate **Series Prefix** and add the appropriate **Code Letters** and/or **Numbers** as in the example below. Any part number with greater than 25 digits including dashes will be shipped with a factory-assigned part number.

Add each appropriate Number or Letter...									
Series Prefix	Poles	Series Suffix	There is a choice of up to 6 Frequency and Internal Circuit Poles. Example shows 2. ③ ④				Handle Location ③	Handle Color & Marking ⑫	Mounting Code
			Voltage Frequency ③	Internal Circuit ④	Voltage Frequency ③	Internal Circuit ④			
JA	2	S –	A	3	A	2	– L	B –	24

SELECTION TABLE

Series Prefix ①	Poles	Series Suffix	Voltage Frequency ③				Internal Circuit ④				Handle Location ③		Handle Color & Marking ⑫		Mounting Code	
			Frequency	Terminal Type	Max Volts	Code	Inrush Code	Aux. Switch	Internal Circuit	Code	Handle	Code	Color & Marking	Code	Mounting	Code
JA	1	S –	50/60 Hz	Push-on	25A	A	N/A	No	Switch (No Overload Coil)	0		– A	Black ON/OFF	A – ⑩	JB/S Snap-in Flush Edge #6-32 UNC Thread M3-0.5 Metric Thread 3/8-32 Thread on JE1S ⑩ 1/2-32 Thread on JE1, 2, 3 with additional insert JB/S Snap-in extended side edge	00 01 04 11 17 24
			50/60 Hz	#8-32 Screw	30A	T ③	8X	Yes	Series Trip w/Aux. Switch	2		– A	Black I-O	I – ⑩		
			50/60 Hz	#10-32 Screw	50A	K ③	8X	No	Series Trip	3		– B	White ON/OFF	B –		
			DC	Push-on	25A	B	8X	No	Series Trip	6		– B	White I-O	J –		
			DC	#8-32 Screw	30A	V ③	18X	Yes	Series Trip	8		– D	Red ON/OFF	D –		
			DC	#8-32 Screw	30A	V ③	18X	Yes	Series Trip	9		– D	Red I-O	L –		
			60 Hz/DC	Push-on	25A	D	8X	No	DuCon ⑥	15		– E	Green ON/OFF	E –		
			60 Hz/DC	#8-32 Screw	30A	E ⑥	8X	No	DuCon Series & Relay	16		– E	Green I-O	M –		
			60 Hz/DC	#10-32 Screw	50A	R ③	18X	No	DuCon with ⑥ Shunt/Tap Voltage Coil	25		– E	Black ON/OFF I-O	AA –		
			400 Hz	Push-on	25A	C	18X	No	DuCon Series & Relay	26		– J	Black ON/OFF I-O	AA –		
			400 Hz	#8-32 Screw	30A	W ⑥	25X	No	Series Trip	38		– J	White ON/OFF I-O	BB –		
			400 Hz	#10-32 Screw	50A	N ③	25X	Yes	Series Trip	39		– J	White ON/OFF I-O	BB –		
JB	2	S –	DC	#10-32 Screw	50A	L ③	18X	No	Relay Coil ⑦	86		– L	Red ON/OFF I-O	DD –		
			DC	#10-32 Screw	50A	L ③	8X	No	Mid-trip alarm with Alarm Switch	99		– L	Red ON/OFF I-O	DD –		
JC	3	S –	60 Hz/DC	Push-on	25A	D	8X	No	DuCon Series & Relay	16		– E	Green ON/OFF	E –		
			60 Hz/DC	#8-32 Screw	30A	E ⑥	18X	No	DuCon with ⑥ Shunt/Tap Voltage Coil	25		– E	Black ON/OFF I-O	AA –		
JE ②	4	S –	60 Hz/DC	#8-32 Screw	30A	E ⑥	18X	No	Relay Coil ⑦	86		– L	White ON/OFF I-O	BB –		
			60 Hz/DC	#10-32 Screw	50A	R ③	18X	No	Mid-trip alarm with Alarm Switch	99		– L	Red ON/OFF I-O	DD –		

1 See page 3 for Series descriptions.

2 JE/S Series is only available in 1, 2 and 3 poles.

3 Voltage, frequency and internal circuit for first pole on left as viewed from front panel, or for all poles if identical.

4 Internal Circuit Diagrams are shown on pages 8 – 10. Please contact Customer Service Center for additional internal circuits. Repeat frequency and internal construction steps for second and third poles, and subsequent poles if different from first.

5 Screw terminals available on line and load terminals only. VDE approved units require screw terminals above 20A.

6 Please contact Customer Service Center for VDE availability.

7 For World Market use. This pole does not contain breaker contacts.

8 Other configurations available. Please contact Customer Service Center.

9 Available with JA/S Series only.

⑩ Not available with JE/S Series.

⑪ Handle tie kit is not available with JC/S Series.

Complete Catalog Number: JA2S-A3A2-LB-24C-D-L-07-0030-02

Terminals	US/European Approvals	Approval Voltage	Auxiliary Switch ^t	Current Ratings ^t	Time Delay Curve
C –	D –	L –	07	– 0030	– 02

Terminals		Market		Approval Voltage		Auxiliary Switch ^t				Current Ratings ^t	Time Delay Curves			
Description	Code	Market	Code	UL Application	Code	Type	Rating	Terminals	Code	Ampere	Inrush Level	Time Delay	Frequency	Code
.250 Push-on Terminals	A –	Domestic VDE ^e Approved	D –	250V AC, 50/60 Hz: 80V DC, 240V, 400 Hz	A –	SPDT	10A	.110 QC	52 ^t	From – 0R02 to – 0030 (.2 to 30A) ^t	8X	Long	50/60 Hz DC 400 Hz 50/60 Hz DC	– 01
#8-32 Screw	B –					SPDT	0.1A	.110 QC	54 ^t		8X	Medium	50/60 Hz DC 400 Hz 50/60 Hz DC	– 02
#10-32 Screw	C –					SPDT	10A	.187 QC	07		8X	Short	50/60 Hz DC 400 Hz 50/60 Hz DC	– 03
M4 Thread for Circuit Board Connection	P –					SPST	10A	.187 QC	70		18X	Long	50/60 Hz DC 50/60 Hz DC	– 10
M5 Screw	F –					SPST	10A	.110 QC	71		18X	Medium	50/60 Hz DC 50/60 Hz DC	– 20
M4 Screw	V –	TUV Approved and CE Marked ^t	T –	415V AC 50/60 Hz	AD –	SPST	10A	.110 QC	71		18X	Short	50/60 Hz DC 50/60 Hz DC	– 30
						SPDT	15A	Screw 6-32	72		25X	Long	50/60 Hz DC	– 251
						SPDT	1A	Screw 6-32	73		25X	Medium	50/60 Hz DC	– 252
											25X	Short	50/60 Hz DC	– 253
											–	Instant	50/60 Hz DC 400Hz	– 0P
				Non-UL Recognized	NU –						–	Switch Only	50/60 Hz DC 400 Hz	– 0S

^j Standard color for marking is white except black if used on white.

^q JE/S Series is available with A and I marking only.

^w Please contact Customer Service Center for JE2S and JE3S.

^e VDE approval pending. Only applicable as indicated in Internal Circuit column on page 18.

^r TUV approval pending. Only applicable as indicated in Internal Circuit column on page 18.

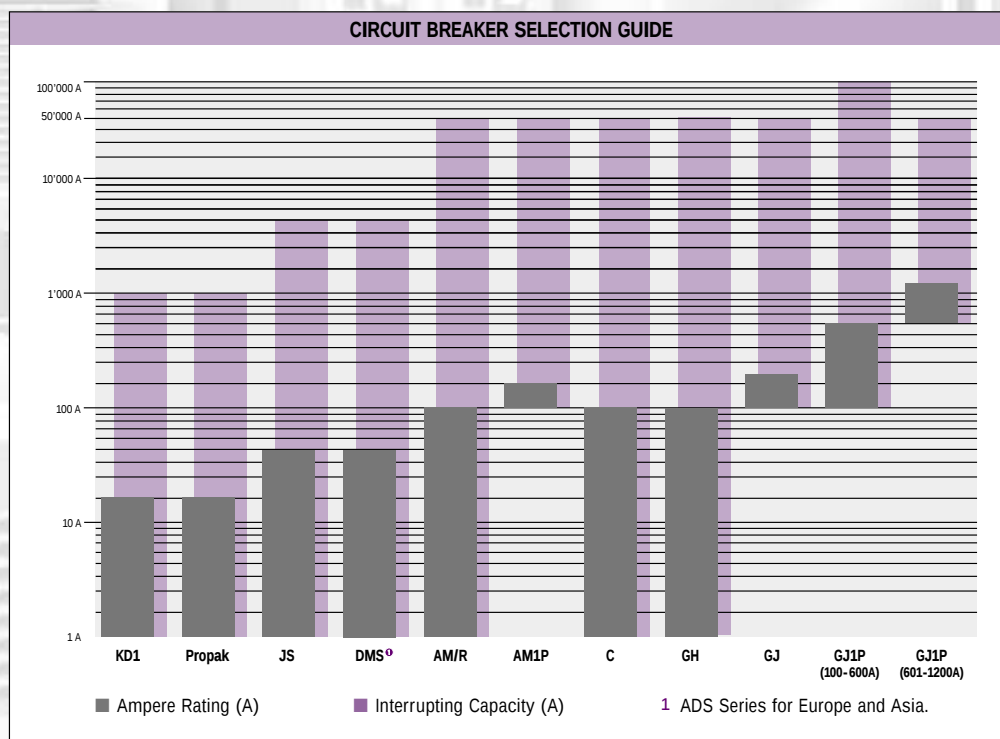
^t Other auxiliary switches available. Please contact Customer Service Center.

^y Only 52 and 54 are VDE rated, must be used with World Market/VDE.

^u All ratings between 0.02A and 30A are available. Contact Customer Service Center for availability and delivery times. A value less than 1A requires the character "R" in place of the decimal point when ordering. For example, 2.5A would be specified as 02R5 in the part number. Ratings above 30A are available with DC only (10-32 screw terminals required).

HEINEMANN® CIRCUIT BREAKERS

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