Miniature Circuit Breakers
NOARK Ex9 Series - B1

NOARK Miniature Circuit Breakers offer these advantages: high-performance, small size, exemplary protection, easy DIN rail installation, fast wiring utilizing double terminal technology and ring tongue terminals. The integrated captive connecting screws simplify the connection process.

The NOARK B1N/B1H/B1A series is UL listed for 489 and 489A applications, as well as CSA C 22.2 No. 5. The NOARK B1E Series is UL 1077 for Supplemental Protector applications while also complying with both CSA C 22.2 No. 235 and IEC 60947-2 and UL 486 standard for connection terminals which allows the user to apply field wiring directly to the breaker. NOARK MCBs fulfill North American and global approval requirements. Our global circuit breakers are a perfect fit for OEMs building global equipment.

		Branch Circuit Protector UL 489 / UL 489A							Supplemental Protective Device UL 1077							
		B1H			B1N			B1A	B1E							
Conformed Standard		UL 489						UL 489A	UL 1077							
Number of Poles		1	2	3	1	2	3	1	1	2	3	4	1	2	3	4
Rated Operational Voltage (V)		480Y/277 Vac			240 Vac 60 Vdc	240 Vac 125 Vdc	240 Vac	60 Vdc	480Y/277 Vac; 125 Vdc							
Rated Frequency (Hz)		50/60							50/60							
Rated Current (A)		0.5~32			0.5~63				1-63				80-125			
Instantaneous Tripping Type		B (3~5 In), C (5~10 In), D (10~20 In)							B (3~5 In), C (5~10 In), D (10~20 In)				8-12 In			
Interrupting (kA)	120 Vac	10	-		10	-		-	10	-						
	120/240 Vac	-							-				5			
	240 Vac	10	10		10				10							
	277 Vac		-		-				5	-						
	480 Vac	-							-							
	480Y/277 Vac	-	10						-	5			-			
	60 Vdc	-			10	10	-	10	10		-					
	60/110 Vdc				-			-	-				10	-		
	110 Vdc												10			
	125 Vdc				-	10			-	10			-			
	220 Vdc	-							-				10			
Inverse Time-Delay Over-Current Release Type		Thermal-Magnetic							Thermal-Magnetic							
Service Life	Electrical	10,000						10,000	6,000				1,500 (80-100A) 1,000 (125 A)			
	Mechanical	20,000						20,000	20,000				8,000 (80~100 A) 7,000 (125 A)			
Protection Degree		IP 20							IP 20							
Wire AWG (mm^2)	Single Wire	14~4 (2.5~21)							14~4 (2.5~21)				4~1/0 (21~53.5)			
	Two Wires	14~6 (2.5~13) / 14~10 (2.5~5)														
Insulation Coordination	Rated Insulation Voltage (Vac)	500							500							
	Rated Impulse Withstand Voltage (kV)	6							6				8			
Pollution Degree		Class III							Class III							
Over Voltage Category		Class III							Class III							
Mounting		35 mm DIN rail / Flush and surface mount available on B1NQ with the use of additional mounting clips							/ 35 mm DIN rail							
Altitude ft (m)		Does not exceed 6,561 (2,000)							Does not exceed 6,561 (2,000)							
Atmospheric Conditions		At 68 °F (+20), the relative humidity does not exceed 90% At 104 °F (+40), the relative humidity does not exceed 50%							At 68 °F (+20), the relative humidity does not exceed 90% At 104 °F (+40), the relative humidity does not exceed 50%							

Miniature Circuit Breakers
Specifications

Temperature De-rating - UL 489/489A

When the ambient temperature slightly changes, please refer to the table below for the Temperature Compensation Coefficient

Ambient Temperature °F (°C)		-22 (-30)	-13 (-25)	-4 (-20)	5 (-15)	14 (-10)	23 (-5)	32 (0)	41 (5)	50 (10)	59 (15)	68 (20)	77 (25)	86 (30)	95 (35)	104 (40)	113 (45)	122 (50)	131 (55)	140 (60)	149 (65)	158 (70)	167 (75)
Rated Amperes (A)	0.5	1.26	1.24	1.22	1.20	1.18	1.16	1.14	1.10	1.08	1.06	1.04					0.89	0.86	0.83	0.80	0.76	0.72	0.66
	1	1.21	1.19	1.18	1.16	1.14	1.12	1.10	1.08	1.06	1.04	1.02					0.91	0.89	0.87	0.84	0.80	0.77	0.73
	1.6	1.32	1.29	1.28	1.24	1.21	1.19	1.16	1.13	1.10	1.08	1.03					0.85	0.81	0.77	0.73	0.68	0.63	0.58
	2	1.21	1.19	1.18	1.16	1.14	1.12	1.10	1.08	1.06	1.04	1.02					0.91	0.89	0.87	0.84	0.80	0.74	0.68
	3	1.27	1.25	1.22	1.20	1.18	1.15	1.13	1.11	1.08	1.05	1.03					0.88	0.85	0.82	0.78	0.75	0.71	0.67
	4	1.25	1.23	1.21	1.19	1.17		1.12	1.10	1.07							0.89	0.86	0.83	0.80	0.77	0.73	0.68
	5	1.26	1.24	1.22				1.13		1.08										0.79	0.75	0.70	0.65
	6	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07		1.02					0.90	0.87	0.85	0.82	0.77	0.72	0.68
	8	1.29	1.26	1.24	1.22	1.19	1.17	1.14	1.11	1.09	1.06	1.03					0.88	0.84	0.80	0.76	0.72	0.64	0.56
	10	1.28	1.25	1.23	1.21	1.18	1.16	1.13		1.08								0.85	0.82	0.78	0.73	0.68	0.62
	13	1.20	1.18	1.16	1.15	1.13	1.11	1.09	1.08	1.06	1.04	1.02					0.92	0.90	0.88	0.85	0.80	0.75	0.68
	15	1.28	1.25	1.23	1.21	1.18	1.16	1.13	1.11	1.08	1.06	1.03		1.00			0.88	0.85	0.82	0.78	0.72	0.65	0.58
	16	1.24	1.22	1.20	1.18	1.16	1.14														0.75	0.70	0.64
	20	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.05	1.02					0.90	0.87	0.84	0.81	0.76	0.71	0.66
	25	1.24	1.22	1.20	1.18	1.16	1.14												0.85	0.82	0.77	0.72	0.67
	30	1.30	1.27	1.25	1.22	1.20	1.17	1.15	1.12	1.09	1.06	1.03					0.87	0.83	0.79	0.75	0.69	0.64	0.58
	32	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.04	1.02					0.91	0.88	0.85	0.78	0.73	0.68	0.62
	35	1.31	1.29	1.26	1.23	1.21	1.18	1.15	1.12	1.09	1.06	1.03					0.86	0.82	0.78	0.74	0.69	0.64	0.58
	40																						0.56
	45	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.05	1.02					0.91	0.88	0.85	0.82	0.74	0.66	0.80
	50																				0.75	0.68	0.60
	60	1.29	1.27	1.24	1.22	1.19	1.17	1.14	1.11	1.09	1.06	1.03					0.87	0.84	0.80	0.76	0.70	0.63	0.55
	63	1.27	1.25	1.22	1.20	1.18	1.15	1.13		1.08	1.05	0.87					0.88	0.85	0.82	0.78	0.72	0.65	0.57

Temperature De-rating - UL 1077

When the ambient temperature slightly changes, please refer to the table below for the Temperature Compensation Coefficient

Ambient Temperature °F (°C)		-22 (-30)	-13 (-25)	-4 (-20)	5 (-15)	14 (-10)	23 (-5)	32 (0)	41 (5)	50 (10)	59 (15)	68 (20)	77 (25)	86 (30)	95 (35)	104 (40)	113 (45)	122 (50)	131 (55)	140 (60)	149 (65)	158 (70)	167 (75)
	1	1.21	1.19	1.18	1.16	1.14	1.12	1.10	1.08	1.06	1.04	1.02					0.91	0.89	0.87	0.84	0.80	0.77	0.73
	1.6	1.32	1.29	1.28	1.24	1.21	1.19	1.16	1.13	1.10	1.08	1.03					0.85	0.81	0.77	0.73	0.68	0.63	0.58
	2	1.21	1.19	1.18	1.16	1.14	1.12	1.10	1.08	1.06	1.04	1.02					0.91	0.89	0.87	0.84	0.80	0.74	0.68
	3	1.27	1.25	1.22	1.20	1.18	1.15	1.13	1.11	1.08	1.05	1.03					0.88	0.85	0.82	0.78	0.75	0.71	0.67
	4	1.25	1.23	1.21	1.19	1.17		1.12	1.10	1.07							0.89	0.86	0.83	0.80	0.77	0.73	0.68
	5	1.26	1.24	1.22				1.13		1.08										0.79	0.75	0.70	0.65
	6	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07		1.02					0.90	0.87	0.85	0.82	0.77	0.72	0.68
	8	1.29	1.26	1.24	1.22	1.19	1.17	1.14	1.11	1.09	1.06	1.03					0.88	0.84	0.80	0.76	0.72	0.64	0.56
	10	1.28	1.25	1.23	1.21	1.18	1.16	1.13		1.08								0.85	0.82	0.78	0.73	0.68	0.62
	13	1.20	1.18	1.16	1.15	1.13	1.11	1.09	1.08	1.06	1.04	1.02					0.92	0.90	0.88	0.85	0.80	0.75	0.68
	15	1.28	1.25	1.23	1.21	1.18	1.16	1.13	1.11	1.08	1.06	1.03					0.88	0.85	0.82	0.78	0.72	0.65	0.58
	16	1.24	1.22	1.20	1.18	1.16	1.14								1.00						0.75	0.70	0.64
	20	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.05	1.02					0.90	0.87	0.84	0.81	0.76	0.71	0.66
	25	1.24	1.22	1.20	1.18	1.16	1.14												0.85	0.82	0.77	0.72	0.67
	30	1.30	1.27	1.25	1.22	1.20	1.17	1.15	1.12	1.09	1.06	1.03					0.87	0.83	0.79	0.75	0.69	0.64	0.58
	32	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.04	1.02					0.91	0.88	0.85	0.78	0.73	0.68	0.62
	35	1.31	1.29	1.26	1.23	1.21	1.18	1.15	1.12	1.09	1.06	1.03					0.86	0.82	0.78	0.74	0.69	0.64	0.58
	40																						0.56
	45	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.05	1.02					0.91	0.88	0.85	0.82	0.74	0.66	0.80
	50																				0.75	0.68	0.60
	60	1.29	1.27	1.24	1.22	1.19	1.17	1.14	1.11	1.09	1.06	1.03					0.87	0.84	0.80	0.76	0.70	0.63	0.55
	63	1.27	1.25	1.22	1.20	1.18	1.15	1.13		1.08	1.05	0.87					0.88	0.85	0.82	0.78	0.72	0.65	0.57

NOARK

Miniature Circuit Breakers
Product Selection Guide

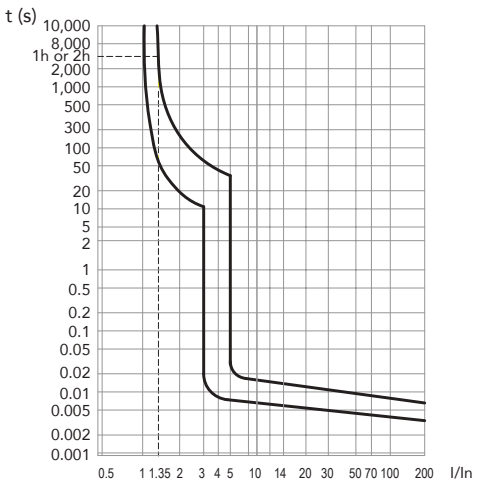
B1	N	1	C	20	R
NOARK Ex9 Series - B1	Standard	Poles	Trip Curves	Rated Current	Terminal Code
	N: 240 Vac/125 Vdc UL 489 Listed	1: 1 Pole	B: 3~5 In* (UL 1077 only)	B1H: 0.5~20A	Blank: Box Lugs are Standard
	H: 480Y/277 Vac; UL 489 Listed	2: 2 Pole	C: 5~10 In	B1N: 0.5~63A	R: Ring Tongue Terminal (UL 489 only)
	A: 60 Vdc (1 Pole Only); UL 489A Listed	3: 3 Pole	D: 10~20 In	B1A: 0.5~63A	Q: Quick Connection Terminal, Load Side (B1N 1 & 2 Pole Only)
	E: 480Y/277 Vac; 125 Vdc; UL 1077	4: 4 pole (UL 1077 only)	P: 8~12 In (80-125A only)	B1E: 1~63A	

*NOTE: B curve available for UL 489 also. Contact NOARK Electric for more details.

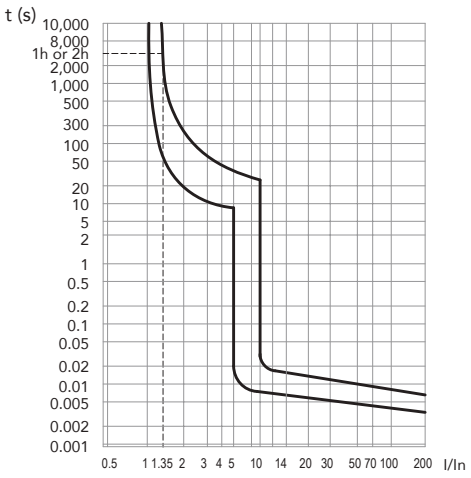
Trip Curves

*Note: Available on 80-125A only

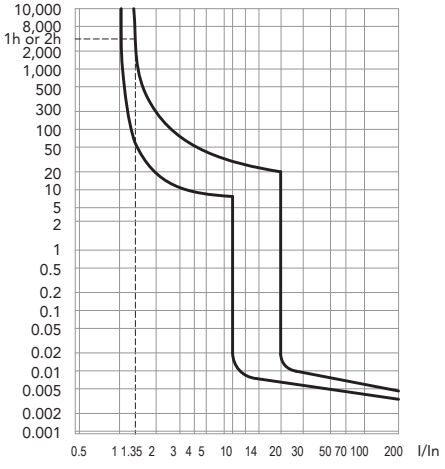
B Curve
(In=3/5)



C Curve
(In=5/10)

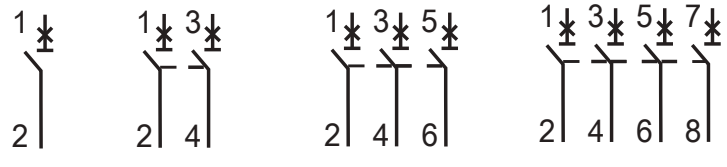


D Curve
(In=10/14)

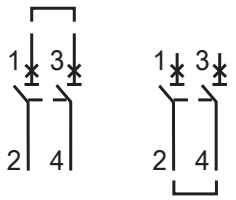


Connection Diagram

AC Connection



DC Connection

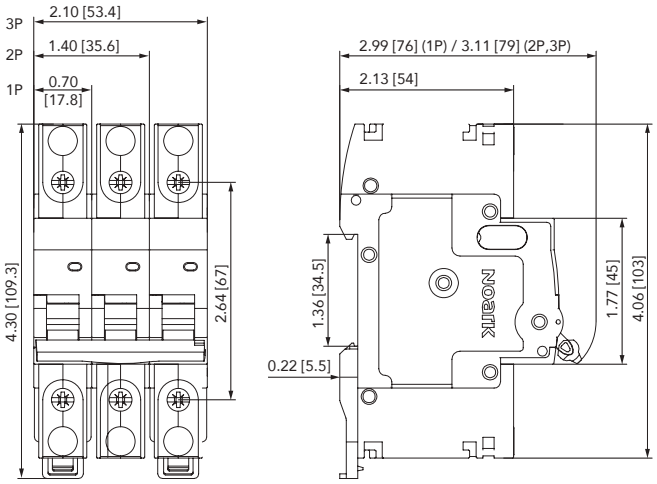


Miniature Circuit Breakers
Packaging Information

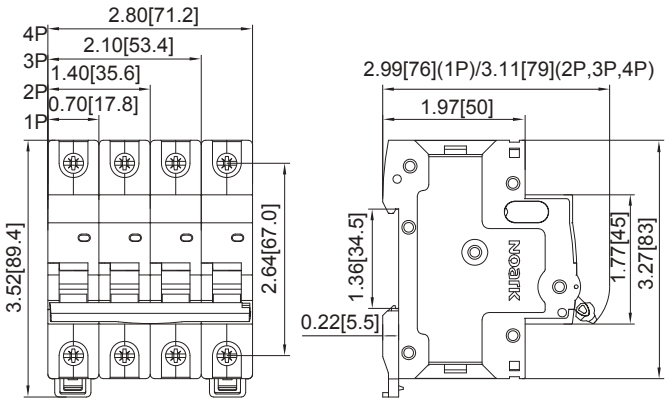
	UL 489 / UL 489A			UL 1077		
Number of Poles	Unit Weight lb (g):	Pack Unit Pieces	Full Pack Pieces	Unit Weight lb (g):	Pack Unit Pieces	Full Pack Pieces
1 pole	0.31(140)	12	108	0.29 (130)	12	144
2 pole	0.62 (281)	6	54	0.54 (245)	6	72
3 pole	0.93 (422)	4	36	0.82 (370)	4	48
4 pole	-	-	-	1.06 (480)	3	36

Dimensions

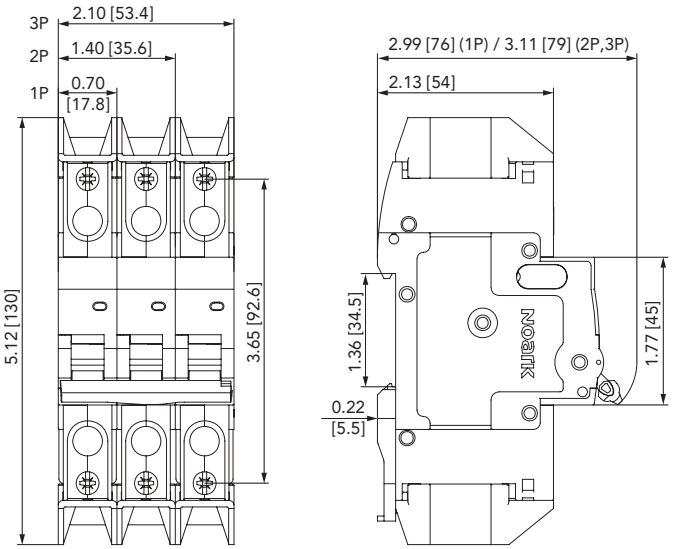
B1H/N/A 1P/2P/3P
Unit: in. [mm]



B1E 1P/2P/3P/4P
Unit: in. [mm]



B1H/N/A with Ring Tongue Terminal 1P/2P/3P
Unit: in. [mm]



B1N with Quick Connection Terminal 1P/2P
Unit: in. [mm]