ReliaGear™ RD lighting panelboard
Application guide

Installation
Consult instructions NEMA PB-1.1 located in the circuit directory on the front door before installing this panelboard. If necessary, order replacement manual from supplier.

Wiring guidelines (Cu or Al)
- Use 60°C or 75°C ampacity sized wire on line and neutral and equipment ground terminals.
- Standard wire sizes listed in this publication may be changed by using alternate terminal kits.
- Refer to circuit breakers for allowable wire temperature rating, wire size and tightening torque.
- Neutral rated for 200% panelboard phase current option.

Short circuit current rating
The panelboard's maximum short circuit interrupting rating in rms symmetrical amperes, is equal to the lowest interrupting rating of any device installed, except as noted in the series rating listed in 1TQC173100E0001, with integral or remote main circuit breaker or fusible switch installed upstream of the panelboard. Devices to be installed or replacement units shall be from the same manufacturer, of the same type, and have equal or greater interrupting capacity.
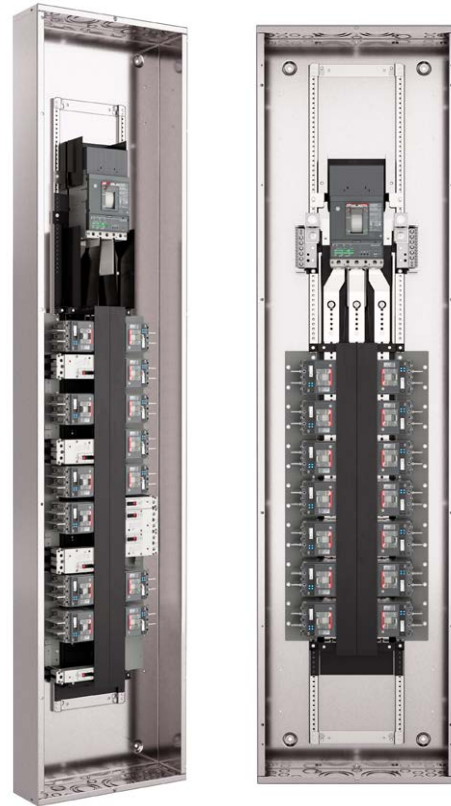
Maximum continuous loads on main or branch circuits shall not exceed 80% of the ratings of the listed circuit breakers. Branch breaker straps suitable for 180A maximum.

Tripped breaker
If the breaker trips, handle will be in intermediate position.

Instructions To Restore Power
1. Move handle to OFF position.
2. Then move handle to ON position.

Seismic rating
Meets or exceeds the requirements according to
- **IBC-2018**
  Sds = 2.0g, Ip = 1.5, for z/h = 1.0 in accordance with ICC-ES-AC156 2010
  Sds = 2.5g, Ip = 1.5, for z/h = 0.0 in accordance with ICC-ES-AC156 2010

Polybag contents
A polybag of goods supplied with every panelboard interior contains:
- Arc flash label
- Series rating sticker
- Front installation instructions
- ANSI PB1 documentation
- Circuit numbering stickers (1-84)
- Front and shield mounting screws

Torque

Tightening torque
Applies to line, neutral and equipment ground terminal

Slotted Screw

AWG Wire	Lbs-Ins	
	Min	Max
14-10	32	35
8	36	40
6-4	41	45
3-2/0	45	50

Internal Hex

Hex Size	Lbs-Ins	
	Min	Max
3/16	108	120
1/4	180	200
5/16	240	275
3/8	330	375
1/2	450	500

Torque values for hardware

Screw Size	Torque (In-Lbs)
#4 Steel	16
#10 Plastic	16
#8 Cu/Al/Steel	24
#10-32 Cu/Al/Steel	32
1/4-20 Al/<.150 Thick Cu	44
1/4-20 .150 Thick Cu	60
5/16-18 Cu/Al/Steel	110
3/8-16 Cu/Al/Steel	220
1/2-13 Cu/Al/Steel	220

Lug kits

Lug kits for panelboards

Rating	Pressure Lug Kit		Crimp Lug Kit		Pressure Lug Kit	
	Cat. No.	Wire Range Al/Cu	Cat. No.	Wire Range Al/Cu	Cat. No.	Wire Range Cu Only
125A	MLA1	6-350	MLT1	4-300	MLR1	4-350
225A	MLA2	1/0-250	MLT2	2/0-500	MLR2	1/0-600
400A	Standard - MLA41	4-600	MLT41	500-750 (Cu Only)	MLR41	1/0-600
	Oversize – MLA62	3/0-800 (Main) and 4-600 (Neutral)	–	–	–	–
600A	Standard -MLA61	4-500	–	–	MLR61	1/0-600

Crimp tools

Wire	Crimp Tool
Up to #6-1000 MCM Cu and #5-750 kcmil Al	Burndy Tool Y644HS

Neutral lug Z

Holes	Wire Size – Cu/Al
Large	2/0-14
Small	No. 4-14

⚠ WARNING

ELECTRICAL ARC FLASH HAZARD
PERSONAL PROTECTION
EQUIPMENT REQUIRED
FAILURE TO COMPLY CAN RESULT
IN INJURY OR DEATH
REFER TO NFPA 70E   10091352P1

Article 110.16 Flash Protection, NEC
Switchboards, panelboards, industrial control panels and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential electrical arc flash hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing,or maintenance of the equipment.

Labels available in groups of 10, order 10091352G1

Arc fault label included with all interiors to be applied by electrical contractor.

Interrupting ratings - molded case circuit breakers

Molded Case Circuit Breakers					Federal Spec	UL Listed Interrupting Ratings in kA					
Construction	Frame	Trip Range (Amps)	Pole	AC	C/B Class W-C-375B	RMS Symmetrical AC Volts					
						240	277	347	480Y/277	480	600
Record Plus	FBV	15-100	1	347	–	35	35	22	–	–	–
			2	600Y/347	–	65	–	–	–	35	22
	FBN	15-100	1	347	–	65	42	25	–	–	–
			2,3	600Y/347	–	150	–	–	–	42	25
	FBH	15-100	1	347	–	100	42	35	–	–	–
			2,3	600Y/347	–	200	–	–	–	42	35
Tmax XT	XT2N	15-125	3	600	–	42	–	–	–	25	18
	XT2S	15-125	3	600	–	42	–	–	–	35	22
	XT2H	15-125	3	600	–	42	–	–	–	42	25
	XT2L	15-125	3	600	–	42	–	–	–	42	35
	XT2V	15-125	3	600	–	42	–	–	–	42	42
	XT2X	15-125	3	600	–	42	–	–	–	42	42
	XT4H	25-250	3	600		42	–	–	–	42	42
	XT4L	25-250	3	600		42	–	–	–	42	42
	XT4N	25-251	3	600		42	–	–	–	42	42
	XT4S	25-250	3	600		42	–	–	–	42	42
	XT5H	250-400 and 450-600	3	600		42	–	–	–	42	42
	XT5L	250-400 and 450-600	3	600		42	–	–	–	42	42
	XT5S	250-400 and 450-600	3	600		42	–	–	–	42	42
	XT5N	250-400 and 450-600	3	600		42	–	–	–	42	42

Circuit breaker terminals (Cu-Al)

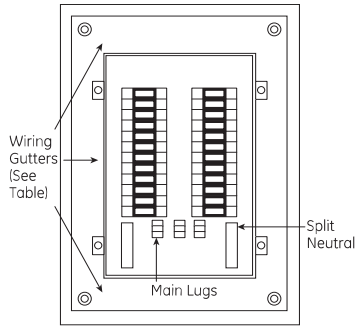| Frame | | | | Wire Cu-Al (Unless otherwise specified) | |
Standard	Poles	No. per Pole	Cat. No.	Per Lug	Range
	1,2,3	1	FCAL12	1	(15-20A) #14-#12 Cu or #10-312 Al
FBV, FBN, FBH, FBL	1,2,3	1	FCAL13	1	(35-60A) #10-#6 Cu or #8-#4 Al
	1,2,3	1	FCAL14	1	(70-100A) #4-#1 Cu or #2-1/0 Al
XT2	2,3	1	KXT2CUAL2	1	10-2/0
XT4-250A	3	1	1 SDA075865R1[1]	1	Cu Al 1x3/0 AWG-350kcmil[2]
XT4 (<250A)	3	1	1 SDA075861R1[1]	1	Cu Al 1x4 AWG-300kcmil
XT5	3	1	1 SDA113066R1[1]	2	Cu Al 2x2/0 AWG-500kcmil
XT5 (750MCM)	3	1	1SDA115948R1	2	500kcmil - 750 kcmil[3]

[1] Kit contains 3 pcs lug
[2] External solution: lugs to be mounted on EF terminals supplied in the kit.
[3] The lug kit will come with 2 sets of cable set screws. One is for 600 MCM and smaller cable and the other is for cable greater than 600 MCM. Follow the instructions that are included with the kit. If you are upgrading the existing lugs to the 750 MCM lugs, the customer, AHJ (authority having jurisdiction) and/or inspector will need to make sure the panel is compliant with NEC and UL cable bending space. ABB is not responsible for the addition of these lugs in existing panels.
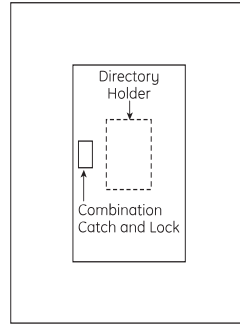
Wiring space

Typical panelboard

Front view with trim removed

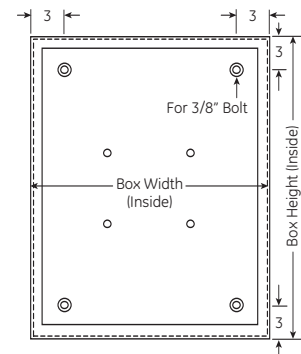Wiring Gutters (See Table)

Split Neutral

Main Lugs

Typical front w/concealed hinges and trim adjusting screws

Surface mounting – add 1/4" to inside box dimensions

Flush mounting – add 1 1/2" to inside box dimensions

Directory Holder

Combination Catch and Lock

Typical box

3   3

For 3/8" Bolt

Box Width (Inside)

Box Height (Inside)

3

3

Minimum wiring space, from end of lug to box wall, in inches

| Main rating in amps | Main Lugs Only, to End Wall | | Frame Type | Mounting | Main Circuit Breaker | | | |
| | Phase Lug | Neutral Lug | | | Phase Lug | | | Neutral Lug |
					To Side Wall (20" Wide box)	To End Wall		
125A MLO, 100A Main Breaker	6	6	XT4	Horizontal	5	–		6
225A	12	12	XT4	Vertical	–	6		12
400A	15	11[3]	XT5	Vertical	–	15		11[3]
600A	15	11[3]	XT5	Vertical	–	16		–
800A[4]	15	11[3]	–	Vertical	–	–		–

[3] To side wall
[4] Box width is 30" and 7.81" deep

Wiring space – branch circuit breakers

Branch Circuit Devices	Frame	No. of Poles	Minimum Wiring Spaces To Side Wall (20" Wide Box)
Double Branched Bolt-on Devices	FB, XT2	1,2,3	3.7"
	SE	2,3	3.7"

Enclosures

| Box | | Front Cat. No.[7] |
Cat. No.[5]	Size Inches[6]	
AB25B	25.5	AF25F,S
AB31B	31.5	AF31F,S
AB37B	37.5	AF37F,S
AB43B	43.5	AF43F,S
AB49B	49.5	AF49F,S
AB55B	55.5	AF55F,S
AB64B	64.5	AF64F,S
AB76B	76.5	AF76F,S
AB82B	82.5	AF82F,S
AB88B	88.5	AF88F,S

[5] "B" suffix provides blank end walls. Order "K" suffix for endwalls with knockouts.
[6] Standard boxes are 20" wide by 5.81" deep.
[7] Flush fronts are 1 1/2" larger than box. Surface fronts are 1/4" larger.

Front options

Description	Cat. No. Suffix[8]
Front hinged to box	D
Yale 5116 w/Rosette Lock	Y
Corbin 15767 Lock	L
75 Key Lock	E
Corbin 60 Key Lock	J
Quarter-turn lock	T
Door within a door[9]	P
Stainless steel[10]	S
30" wide	W
Nameplate	N
Screw on nameplate	U
Metal directory	M

[8] Add to base front catalog number.
[9] Consists of two lockable doors—one over panel interior and one over box wiring gutters. Yale locks not available.
[10] Flush only. Available with C and N options.

Box options

Description	Cat. No. Suffix[11]
Painted Box	P
30" wide[12]	W
NEMA 3R/12/4S/4X	3 or 4
NEMA 3RX Door-in-door	3M
NEMA 4X (316 Stainless Steel)	4S

[11] Add to base box product number.
[12] Includes field installable gutter barrier.

Permanent circuit number kits

Description	Cat. No.
1-48	APN48
43-84	APN84
85-126	APN126

Stainless steel enclosures

Dimensions (inches)			Cat. No.
H	W	D	cULus Standard
25.5	20	6	AB254S
25.5	30	8	AB254DWS
31.5	20	6	AB314S
31.5	30	8	AB314DWS
37.5	20	6	AB374S
37.5	30	8	AB374DWS
43.5	20	6	AB434S
43.5	30	8	AB434DWS
49.5	20	6	AB494S
49.5	30	8	AB494DWS
55.5	20	6	AB554S
55.5	30	8	AB554DWS
64.5	20	6	AB644S
64.5	30	8	AB644DWS
76.5	20	6	AB764S
76.5	30	8	AB764DWS
82.5	20	6	AB824S
82.5	30	8	AB824DWS
88.5	20	6	AB884S
88.5	30	8	AB884DWS

Accessories
Field installed kits/replacement parts

Filler plates

Description	Cat. No.
Filler plate kit	XT2FBFP10

Breaker mounting hardware kits
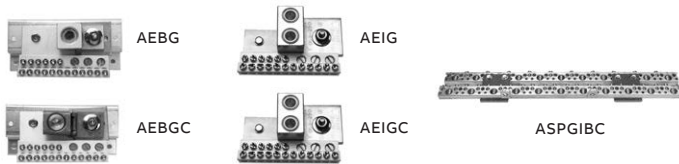For mounting breaker in existing space

Description	Cat. No.
XT2 Mounting kit	ASPXT23P
FB Mounting kit	ASPFBRD3P

Endwall kits
Field installed. 1 each, for standard 20"w x 5.81"d boxes.

Type	Cat. No.
Blank	ABEW2
Knockout	ABEW2

Equipment grounds

Item	Description	Wire Range	Cat. No.
Metal Equipment Ground	Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGL2
	Extruded Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	EGS12
Aluminum Equipment Ground	Extruded Bonded	(1) #6-350MCM	AEBG
	Extruded Isolated	(2) #6-250MCM	AEIG
	Main Lug	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGL2
Copper Equipment Ground	Bonded	#14-#8 Cu, #12-#8 Al (small holes); #14-#4 Cu, #6-#4 Al (large holes)	TGC2
	Extruded Bonded	(1) #4-350MCM	AEBGC
	Extruded Isolated	(1) #6-250MCM	AEIGC
	Insulated Isolated	2/0 max.	ASPGIBC

Bonding kits

Description	Cat. No.
For Split & Load End Neutral	343L886G16
For 225A Horizontal Neutrals	343L886G13
225A Horizontal Neutral To Convert 3W to 4W	ASP225HNCP
125/225A Horizontal Neutral Conversion from Service Entrance to Non-Service Entrance	ASPHNCPSENOT
125/225A Horizontal Neutral to Convert from Non-Service Entrance to Service Entrance	ASPHNCPSE

Installation and maintenance kit
Order catalog number PROCARE. Kit includes:
(5) filler plate hardware kits
(9) bus stud nuts
(5) MLA1 filler plates
(2) 225A phase barriers
(2) feed-thru barriers
(1) 400/600A phase barrier
(50) directory cards/rating books
(50) circuit number strips (1-48)
(50) circuit number strips (43-84)
(5) standard locks & keys
(50) deadfront screws
(10) RQ/RE front hardware kits
(10) RD front hardware kits
(50) service disconnect labels
(50) main labels

Parts

Description	Cat. No.
Directory Card	139C5612P3
Replacement Lock with Std. Key	569B737P1
Replacement Lock with GE75 Key	569B737P2
Additional Keys for Above Lock	569B737P5
Circuit Numbering Strips 1-48	569B806G1
Circuit Numbering Strips 49-84	569B806G2
Circuit Numbering Strips 85-126	569B806G3
Adhesive Backed Lamicoid Nameplate 3/4" x 3"	315A7190P1
Metal Directory Card Holder	139C5491G1
Directory Card Holder	139C5491P4
NEMA 3R/12 Tamper Proof Tork Screw Kit	NEMATRX
Service Entrance Kit	ASPSERENT
2 wire Relay Kit	ASP2WRelay
Yale Lock Kit	ASPYALE47
Corbin Lock Kit	ASPCORBNTEU1
RQ/RL/RE/RD Rail Bracket	ASPAQLEBKT
Front Flush Adjust Kit	ASPFLUSHADJ
RD Front Mounting Kit	139C5728G9
Front Hinge to Box Mounting Kit	139C5700G6
Front Extension Mounting Kit	139C5700G11
Bracket, rail	ASPAQLEBKT

Box extensions

Bolts to box with or without endwall in place. Extensions can be combined to obtain lengths greater than 18 and 24 inches.

Box Width and Depth	Box Mounting	Box Extension Length (Inches)	Cat. No.
20 x 5.81	Flush	9	ABX2509F
		18	ABX2518F
		24	ABX2524F
	Surface	9	ABX2509S
		18	ABX2518S
		24	ABX2524S
		31	ABX2531S
		37	ABX2537S
		43	ABX2543S
		49	ABX2549S
		55	ABX2555S
		64	ABX2564S
		76	ABX2576S
30 x 5.81	Flush	18	ABX3518F
		24	ABX3524F
	Surface	18	ABX3518S
		24	ABX3524S
30 x 7.81	Flush	18	ABX3718F
		24	ABX3724F
	Surface	18	ABX3718S
		24	ABX3724S

Box extension covers only

10 covers per kit

Description	Cat. No.
9" Covers Surface	ASPABX09S
9" Covers Flush	ASPABX09F
18" Covers Surface	ASPABX18S
18" Covers Flush	ASPABX18F
64" to 76" Covers Surface	ASPABX20S
64" to 76" Covers Flush	ASPABX20F

Specifications

Panelboards and branch breakers meet or exceed the following standards and specifications:

- UL 50 Cabinets and Boxes
- UL 67 Panelboards
- UL 489 Circuit Breakers
- NEMA AB-1 Circuit Breakers
- NEMA PB-1 and PB-1.1 Panelboards
- US Federal Spec W-P.115B Panelboards
- US Federal Spec W-C375b Gen Circuit Breakers

Boxes
- Galvanized steel
- Blank end walls are standard; knockouts are available when specified
- Boxes furnished with provisions for ground bus as standard

Fronts
- Finished in ANSI-61 grey polyester powder coat paint.
- Equipped with corrosion-resistant Valox combination catch and lock door latch (doors over 48" high provided with 2 latches)
- Equipped with concealed hinges and trim adjusting screws
- Directory holder permanently mounted to door

Panels
- Dead front construction
- Interiors are factory assembled on rigid steel frames
- Metal gages in accordance with UL and NEMA standards
- Solderless, anti-turn main lugs suitable for copper or aluminum wires are front removable and branch straps are silver-plated copper fully rated at 180 amperes
- Main bus is aluminum with copper branch connections unless otherwise specified
- Main disconnect device is identified when supplied, and numbers are provided for branch circuits
- Interior base assemblies are Noryl and provide breaker mounting and busbar insulation

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