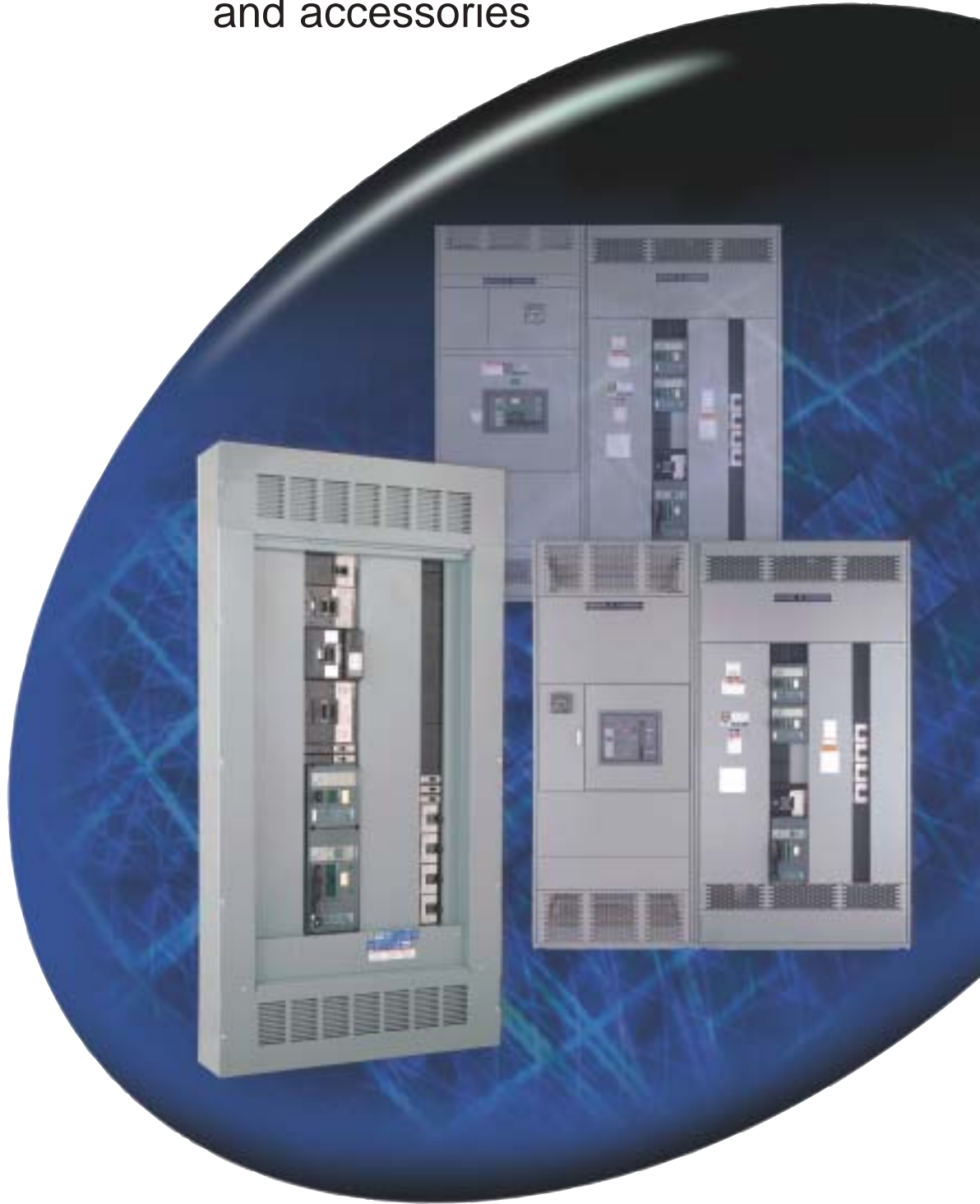


# *I-LINE® Panelboards and Switchboards*

Family line features  
and accessories



**SQUARE D**  
Schneider Electric

# I-LINE® Circuit Breakers

**The heart of any panelboard or switchboard is the circuit breaker**

We have a complete line of circuit breakers and molded case switches specifically designed for use in I-LINE panelboards and switchboards. Each circuit breaker is ready to install, right from the factory-sealed carton, with permanently attached mounting brackets and line connections. And, each is loaded with features including:

- Interrupting rating through 200,000 A
- Common trip – prevents single-phasing of motors
- Single magnetic adjustment – permits adjusting all poles simultaneously

Correct connections are easily made since phase markings for each breaker pole are clearly marked on the face of each breaker at the load end.

Circuit breaker accessories include:

- Shunt trip
- Ground fault shunt trip
- Undervoltage trip
- Alarm switch
- Auxiliary contacts
- Handle attachments

## Thermal-Magnetic Molded Case Circuit Breakers

Thermal-magnetic molded case circuit breakers are the most common overcurrent protection devices. Their primary functions are to provide a means to open a circuit manually and automatically under overload or short circuit conditions. Thermal-magnetic circuit breakers use bimetals and electromagnet assemblies to provide overcurrent protection. Plus, with their characteristic inverse time tripping under overload conditions, they are ideally suited for many applications – varying from light commercial to heavy industrial loads. For high lever (short circuit) overcurrents, instantaneous trip characteristics allow molded case circuit breakers to interrupt with no intentional delay.

## I-LIMITER™ Circuit Breakers

I-LIMITER circuit breakers combine a conventional high-speed circuit breaker mechanism in series with a fuseless current limiting section. They are UL Listed for use on systems capable of delivering fault currents up to 200,000 RMS symmetrical amperes at 240 or 480 VAC.

## Electronic Trip Circuit Breakers

Electronic trip circuit breakers combine proven SQUARE D molded case circuit breaker construction and features with advanced electronic technology, using a set of current transformers (called CTs or sensors) to sense current, a trip unit to evaluate the

current and a tripping solenoid to trip the circuit breaker. Electronic trip units provide long-time and instantaneous trip protection and enable the user to adjust the instantaneous trip function of the circuit breaker per specific system requirements.

## MICROLOGIC™ Trip Circuit Breakers

MICROLOGIC® trip circuit breakers combine the electronic technology of electronic trip circuit breakers with advanced features such as communications and power metering and

monitoring capabilities. In addition, they provide adjustable trip settings like long time pickup and delay, short time pickup and delay, instantaneous pickup and ground fault pickup and delay. The proper MICROLOGIC trip unit will allow the circuit breaker to communicate with other circuit breakers, to gather power information, monitor events and remotely control breakers based on predetermined conditions, leading to substantial savings in electrical system operating costs.



I-LINE circuit breaker permanently attached mounting brackets and line connections.



# I-LINE® Panelboards

**Delivery when you want it!**

I-LINE panelboards are available custom assembled at the factory or ready-to-install from local distributor stock. Either way, you get the same time proven design in a complete line of boxes, interiors, fronts, breakers and accessories on hand when you need them.

I-LINE panelboards are available with main lugs or main breakers

through 1200 A. Main breaker and main lug panelboards are rated 600 VAC and 250 VDC maximum. In addition, each I-LINE panelboard has UL Listed short circuit current ratings, indicating that they are suitable for use on systems with up to 200,000 RMS symmetrical amperes when assembled with appropriately rated main or branch breakers.



feature  
mounting  
ectors.



HCR-U panelboard with four-piece front. Available with an optional NEMA Type 3R enclosure.



The I-LINE bus stack provides circuit breaker mounting flexibility and simplifies installation and maintenance.



I-LINE circuit breakers are available in thermal-magnetic, electronic or MICROLOGIC trip construction

# The difference is in the details...

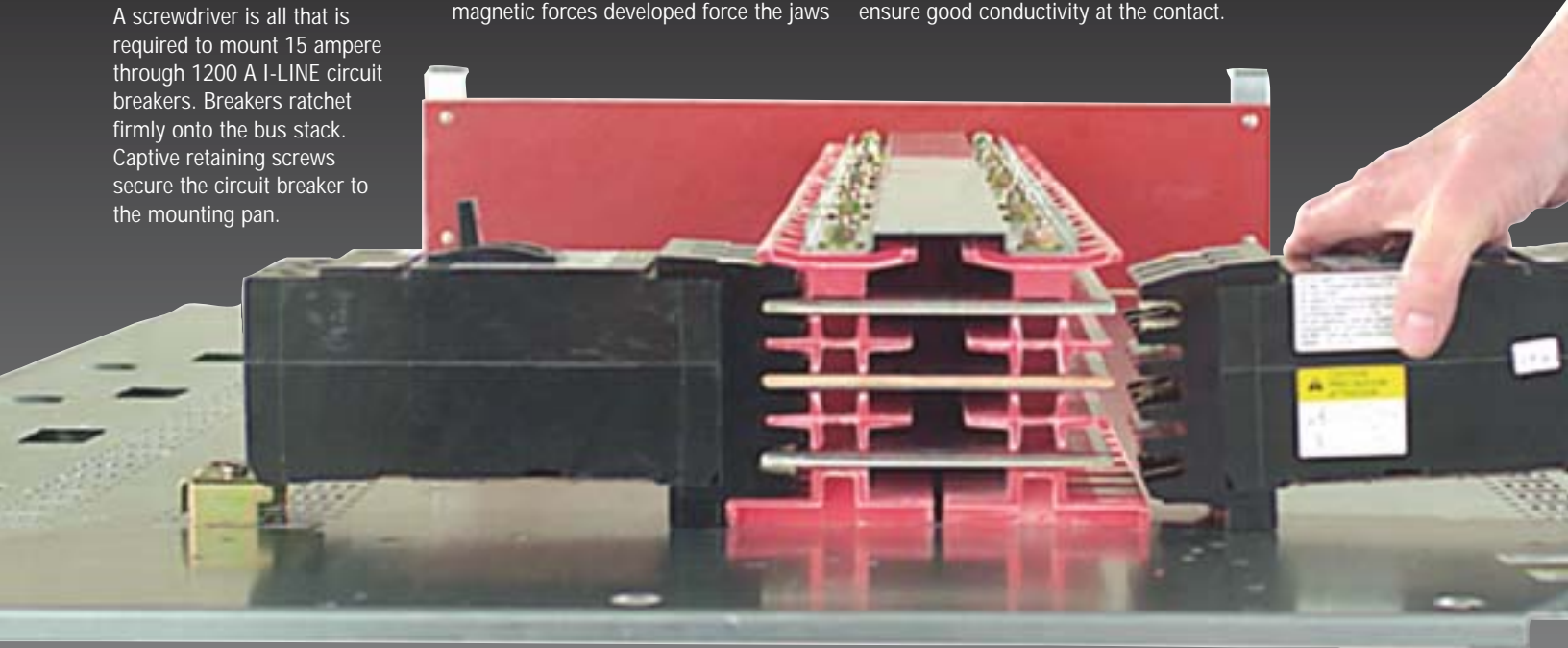
## Breaker Connections

### Breaker Mounting

A screwdriver is all that is required to mount 15 ampere through 1200 A I-LINE circuit breakers. Breakers ratchet firmly onto the bus stack. Captive retaining screws secure the circuit breaker to the mounting pan.

Breaker connections are "blow-on" type. Under high-level fault conditions, the magnetic forces developed force the jaws

together, gripping the bus bar more firmly. Heavy-duty jaw connectors are plated to ensure good conductivity at the contact.



### Main Lugs

Fix-mounted main lugs are located in a separate compartment that is completely isolated from the branch breaker section. A hinged cover permits access to this compartment. Lugs are front-removable for ease of wiring. The panelboard solid neutral is mounted adjacent to the main lugs in the same compartment. Plug-on main lugs mount in the branch circuit breaker area, and the solid neutral mounts in the end gutter next to the main lugs



### Main Breakers

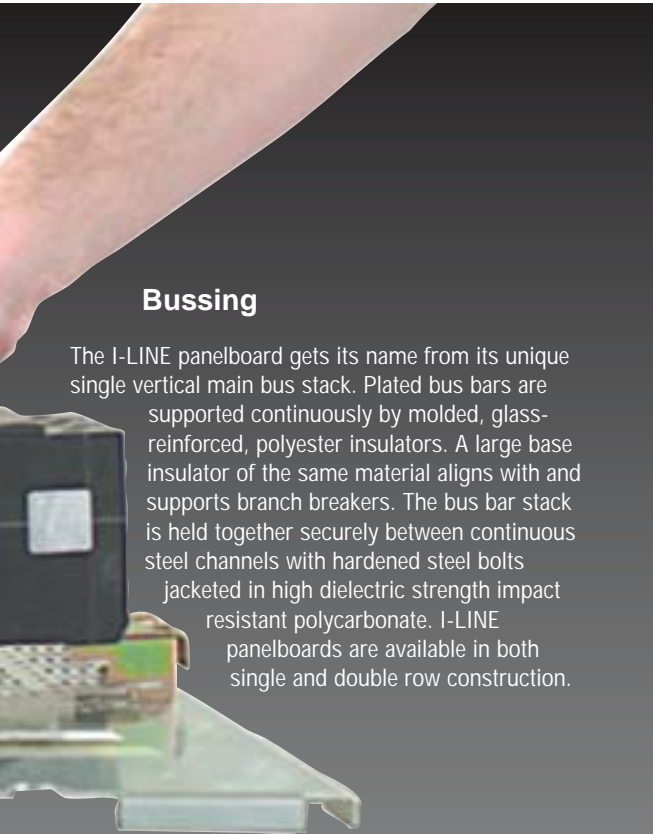
Factory-installed main breakers in I-LINE® panelboards are either vertically or horizontally mounted. Main breakers are clearly identified and vertically mounted main breakers are installed so that their operating handle is down when OFF and up when ON. Main lugs interiors may be converted to main breaker interiors by simply back feeding a branch mounted breaker. All I-LINE circuit breakers are UL Listed for use in any mounting position with either end as "line" or "load."



### Branch Breakers

I-LINE branch breakers mount on both sides of the vertical bus stack in double row interiors or on one side only of single row interiors. Each breaker mounts independently of other breakers on the interior. Conventional panelboard design requires branch breakers to be mounted in pairs of the same frame size opposite each other. Modular I-LINE panelboard and switchboard construction permits branches to be mounted anywhere on the bus stack without restriction. You never waste space.





## Bussing

The I-LINE panelboard gets its name from its unique single vertical main bus stack. Plated bus bars are supported continuously by molded, glass-reinforced, polyester insulators. A large base insulator of the same material aligns with and supports branch breakers. The bus bar stack is held together securely between continuous steel channels with hardened steel bolts jacketed in high dielectric strength impact resistant polycarbonate. I-LINE panelboards are available in both single and double row construction.

## Cabinets

Panelboard boxes are constructed of code gauge steel with wiring gutters in accordance with UL and NEMA standards. Boxes are available in 26", 32", 42" and 44" widths and are made of galvanized steel. A variety of knockouts are provided in 26" wide box endwalls while 32", 42" and 44" wide endwalls are blank. All box sizes have removable endwalls. I-LINE® panelboard fronts are finished with gray baked enamel electrodeposited over cleaned phosphatized steel. Fronts are attached to the box with trim screws.



## Blanks

Blank fillers and extensions are required to fill unused circuit breaker mounting space in I-LINE panelboards and switchboards.



## Push-To-Trip

A trip button is provided on the cover for mechanically tripping the circuit breaker. This allows maintenance checks of the breaker, control circuits, alarm devices and other associated equipment and exercises the trip mechanism.



## Solid Neutral

The solid neutral assembly mounts at the same end of the interior as the main lugs or main breaker. Branch neutral connections are provided for a wide variety of breaker combinations and suitable for copper or aluminum wires. The solid neutral is insulated but can be bonded to the enclosure with a full-capacity bonding strap for service entrance requirements.



## Sub-Feed Lugs

Sub-feed lugs through 1200 A plug on in the same manner as a branch breaker.

## Accessories

A wide variety of accessories are available for field or factory installation into I-LINE panelboards.

- 1 Equipment ground bars are for termination of equipment grounding conductors.
- 2 Specifically designed QO distribution panels mount in I-LINE panelboards the same as branch circuit breakers. This permits less expensive QO 15 through 30 ampere breakers to be installed to feed lighting or receptacle circuits from I-LINE panelboards applied on 240 V systems.
- 3 UL Listed box extensions provide additional end gutter when increased wire bending space is desired.

# POWER-STYLE® QED Switchboards

## **Innovative I-LINE® concept featured in POWER-STYLE QED switchboards**

The I-LINE design offers complete flexibility for branch circuit breaker mounting in QED switchboards. Circuit breakers with different frame sizes and number of poles mount across from one another or beside each other on the I-LINE bus stack.

I-LINE double row construction is designed for circuit breakers to be mounted on both sides of the bus assembly, thereby offering the maximum circuit breaker mounting space. Single row construction offers provisions for circuit breakers to be mounted on one side of the I-LINE bus assembly and requires less section width.

To meet UL requirements, each I-LINE section has been tested and has an approved short circuit current rating. This comprehensive rating is the maximum short circuit current rating of the entire switchboard, including bussing, structure and circuit breakers, and is equal to the lowest interrupting capacity of any of the circuit breakers installed in the switchboard.

Ample conduit areas located in the top or bottom of the switchboard permit easy installation. Generous wireways for branch cables are located behind gutter covers on each side of the I-LINE interior. This feature makes the QED switchboard available completely front accessible for easier installation and maintenance.

Whether used individually, as service or distribution sections, or in multi-section line-ups, I-LINE QED switchboards have the versatility to meet your needs.

### **Features include:**

- Circuit breakers: 1, 2 or 3 poles rated from 15 to 1200 A
- Interior ratings: 1200 to 3000 A
- Interior heights: 27", 45", 54", 63" and 72" (double or single row construction)
- Voltage rating: 120/240 VAC to 600 VAC or 125 VDC to 500 VDC
- Systems: 1Ø3W, 3Ø3W or 3Ø4W



POWER-STYLE® QED switchboards are available completely front accessible with front and rear alignment. Wireways for branch conductors are located on each side of the I-LINE® interior.



QED-S  
POWER-STYLE  
switchboards are  
ideal for meeting  
quick delivery  
requirements,  
offering the  
flexibility of either  
fix-mounted or  
I-LINE group-  
mounted mains and  
feeders. Select  
from main device  
and I-LINE group  
mounted feeders in  
single section or  
multi-section line-  
ups. QED-S also  
offers six-circuit  
main configurations  
using either  
individual or I-LINE  
group mount  
devices. Select  
utility and  
POWERLOGIC®  
customer metering  
is also available.



QED-2  
POWER-STYLE  
switchboards offer  
all the features of  
QED-S plus much  
more. Methods of  
incoming feed  
include cable,  
busway, trans-  
former connections  
and a complete  
offering of utility  
CT compartments.  
Custom-engineered  
solutions include  
main-tie-main  
applications,  
multiple sets of  
through bus,  
reduced height  
and POWERLOGIC  
metering with  
communications  
capabilities.

# *SPEED-D®*

## *Service Section Switchboards*



SPEED-D® SB/SF switchboards offer EUSERC metering, a single fusible or circuit breaker main, and group-mounted NQOD or I-LINE distribution in a single section. Options include underground pull sections with or without lug landing and load side wireway.

### ***Flexibility of the I-LINE design featured in SPEED-D service section switchboards***

These merchandised switchboards are all UL Listed and available from distributor or warehouse stock. These switchboards contain a EUSERC utility metering compartment and a main circuit breaker or main fusible switch with either a 42-circuit NQOD interior or a 27" I-LINE interior. It is also available with a QMB interior for six circuit main applications. Each section is suitable for use as service entrance equipment and is available in either Type 1 or Type 3R construction.

Accessories include an indoor underground pull section, outdoor (3R) underground pull section, lug landing kit and loadside wireway.

- Mains rating: 400, 600, or 800 A
- Voltage rating: 120/240, 208Y/120, 240/120 or 480Y/277 VAC
- Systems: 1Ø3W or 3Ø4W
- Dimensions: Type 1 enclosure – 90" high, 14" deep, and 36" wide
- Type 3R enclosure – 90" high, 24.5" deep, and 36" wide

