

“TRUSTED POWER SOLUTIONS.”

SOLA HD





SDN-C™ COMPACT PERFORMANCE DIN RAIL SERIES

The smaller, more versatile power supply for single and three phase input power

Our next-generation SDN-C power supplies offer high efficiency in a compact size, providing up to 960 Watts of output power in both single- and three-phase models. Featuring diagnostic LEDs, sag immunity, power factor correction and universal voltage, these are the highest performing DIN rail-mounted power supplies available for industrial use.

FEATURES

- Compact packaging saves space on the DIN rail
- Visual diagnostic LEDs provide input and output status at a glance
- Higher efficiency saves energy and lowers amount of heat generated inside the panel
- PowerBoost™ overload capability starts high inrush loads without foldback or shutdown
- Accepts Universal voltage 85-264 Vac, 50/60 Hz input
- Single phase models meet SEMI F47 sag immunity
- Active power factor correction
- Class I Zone 2 hazardous locations rating
- ATEX approved on select models
- User adjustable output voltage accessible via front face
- Parallel capability standard
- Industrial grade design
- -25°C to 60°C operation without derating
- High MTBF means high reliability and long life
- RoHS compliant
- Highly efficient switching technology
- Five-year warranty

VERSATILE APPLICATIONS

- Industrial/machine control
- Process control
- Conveying equipment
- Material handling
- Vending machines
- Packaging equipment
- Amusement park equipment
- Semiconductor fabrication equipment

EASE OF INSTALLATION

- Large screw terminals (16-10 AWG)
- User-friendly front panel
- LED for visual status
- Multiple connections
- Easy access to terminations
- No tool mounting on DIN rail

A POWERBOOST™

- Powers high inrush loads without shutdown or foldback
- Allows designers to save money by sizing for peak loads

B INDUSTRIAL GRADE DESIGN

- Metal enclosure with small vents to keep small parts from falling in
- Patented durable mounting clip (designed to withstand 40G of shock without falling off rail)
- Wide temperature performance: guaranteed reliability at full load over a wide temperature range (-10°C to 70°C with no derating until after 60°C)

C DC OK SIGNAL

- Allows remote notification of DC power loss to the controller

D ADJUSTABLE VOLTAGE

- Flexibility to set DC voltage perfectly for application requirements

E SINGLE OR PARALLEL USE SELECTABLE

- One model to stock for single or multiple applications
- Easily scalable for higher power applications
- Current sharing for maximum reliability
- External modules available for full redundancy






F 3 LED DIAGNOSTICS

- Shows status of input power, output power and alarm condition
- Valuable troubleshooting aid to reduce system downtime

G WIDE RANGE INPUT WITH SAG IMMUNITY

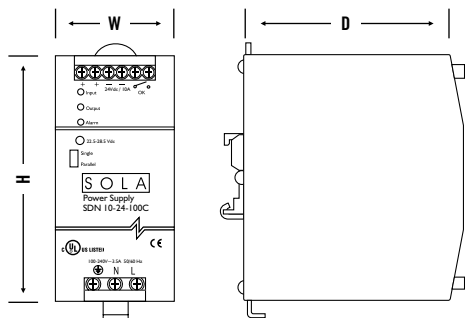
- No need to worry about different wiring or switch positions when applying different input voltages
- All single phase models can operate from 100, 110, 115, 120, 127, 200, 208, 220, 230 or 240 Vac inputs with no jumper or switch changes
- Easily handles sags down to half the line voltage with no disruption in output power, increasing equipment reliability and availability
- Models comply with SEMI F47 standards for the semiconductor machine builder industry at all input line and output load conditions

H COMPLIANCES

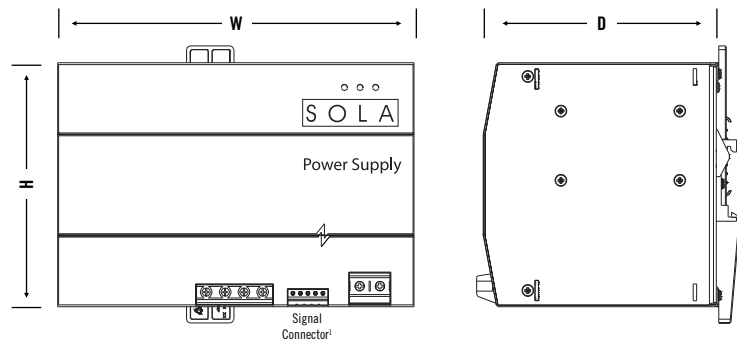
-  Listed, Industrial Control Equipment, E61379
-  ITE, E137632
-  Haz. Loc., E234790
 - Class 1, Div 2/Zone 2
 - Non-Incendiary
 - Temperature class T3 or T4, groups IIC
-  ATEX Approved on select models
-  for Low Voltage and EMC Directives
 - Power factor correction (low frequency emissions)



SDN-C Series Dimensions



SDN 40-24-100C and SDN 40-24-480C Dimensions



LED Light Status Conditions

	ALL IS OK	AC POWER LOSS	BROWNOUT	NO DC	HIGH LOAD	OVERLOAD	HOT*	TOO HOT*
INPUT	Green	—	Yellow	Green	Green	Green	Green	Green
OUTPUT	Green	—	Green	—	Yellow	Yellow	Green	—
ALARM	—	—	—	Red	Yellow	Red	Yellow	Yellow

* Hot and Too Hot indicate the unit is about to shut down due to high temperature or has shut down. Not intended to be used as a thermostat or to monitor temperature.

Dimensions Chart

CATALOG NUMBER	DIMENSIONS - MM (INCHES)		
	H	W	D
SDN 5-24-100C	123 (4.85)	50 (1.97)	111 (4.36)
SDN 10-24-100C	123 (4.85)	60 (2.36)	111 (4.36)
SDN 20-24-100C	123 (4.85)	87 (3.42)	127 (4.98)
SDN 40-24-100C	123 (4.85)	180 (7.09)	118 (4.66)
SDN 5-24-480C	123 (4.85)	50 (1.97)	111 (4.36)
SDN 10-24-480C	123 (4.85)	60 (2.36)	111 (4.36)
SDN 20-24-480CC	123 (4.85)	85 (3.35)	119 (4.68)
SDN 40-24-480C	123 (4.85)	180 (7.09)	122 (4.81)

For a full listing of SolaHD's DIN Rail Power Supply and Power Quality products, visit our website at www.egseg.com or consult our full line catalog.

1. SDN 40-24-100C and SDN 40-24-480C output signaling terminal block features: Shut Down, Power Good, Current Monitor, Current Balance, GND, and active current sharing through L_SHARE connectors (See Signals Manual for connection information).

Specifications Chart (Three Phase)

DESCRIPTION	CATALOG NUMBER			
	SDN 5-24-480C	SDN 10-24-480C	SDN 20-24-480CC	SDN 40-24-480C
INPUT				
Nominal Voltage	380 - 480 Vac			
Two-phase input	Yes ¹			
-AC Range ²	320-540 Vac			
-DC Range	450 - 760 Vdc	450 - 760 Vdc	450-760 Vdc	N/A
-Frequency	50/60Hz			
Nominal Current ³	3 x 0.5A or 2 x 0.7A	3 x 0.8A or 2 x 1.2A	3 x 0.9A or 2 x 1.3A	3 x 1.6 A
-Inrush Current Max.	Typ. < 25A		Negligible	Negligible
Efficiency (Losses ⁴)	> 85% (18W)	91.2% (23.6 W)	93% (42W)	94% (78W)
Power Factor Correction	Power factor correction to meet EN61000-3-2 Class A		Active power factor correction	
OUTPUT				
Turn-on Time	Typ. 1s			
Voltage Rise Time	ca. 5-20 ms		< 100ms full resistive load (T _{amb} =+25°C)	
Power Back Immunity	< 35V			
Overvoltage Protection	>30.5 but <33 Vdc auto recovery			
Nominal Voltage ⁵	24 V (23.5-28.5 Vdc adj.)			
Voltage Regulation	< ±2 % overall			
Initial Voltage Setting	24.5V ± 1%			
-Ripple ⁶	<100mVpp			
PAR	PAR = 100mV peak-peak max		PAR = 200mV peak-peak max	
Nominal Current	5A (120W)	10A (240W)	20A (480W) (constant power, not constant current)	40A (960W)
-Peak Current ⁷	6A, 2×nominal current <2sec	12A, 2×nominal current <2sec	1.5×nominal current for 4 seconds minimum while holding voltage > 20Vdc.	
-Current Limit	PowerBoost™			
Derating	typ. 6 W/°C	typ. 12 W/°C	typ. 24W/°C	typ. 48 W/°C
Holdup Time	>20ms			
Voltage Fall Time	< 150ms from 95% to 10% rated voltage @ full load (T _{amb} =+25°C)		< 50ms from 95% to 10% rated voltage @ full load (T _{ambient} =+25°C)	
Parallel Operation ⁸	Single or parallel operation selectable via front switch. For redundant operation, use of external diode module is preferred.			Active paralleling
GENERAL				
Case	Fully enclosed metal housing with fine ventilation grid to keep out small parts			
Min. Required Free Space	25mm above and below or 15mm in front	25mm above and below or 10mm in front	70mm above and below or 25mm in front and 25mm left & right	70mm above and below, 15mm in front, 25mm left & right
H×W×D mm (in)	123.0 × 50.0 × 111.0 (4.85 × 1.97 × 4.36)	123.0 × 60.0 × 111.0 (4.85 × 2.36 × 4.36)	123.0 × 85.0 × 119.0 (4.85 × 3.35 × 4.68)	123.0 × 180.0 × 119.0 (4.85 × 7.09 × 4.66)
Weight kg (lbs)	.52 (1.2)	0.70 (1.5)	1.30 (2.9)	2.40 (5.3)
EMC: -Emissions	EN61000-6-3:2001, Class B EN55011, EN55022 Radiated and Conducted including Annex. A, EN61000-3-2			
-Immunity	EN61000-6-1:2001, EN61000-6-2:2001, EN61000-4-2 Level 4, EN61000-4-3 Level 3, EN61000-4-6 Level 3, EN61000-4-4 Level 4 input and Level 3 output. EN61000-4-5 Isolation Class 4, EN61000-4-11.			
Temperature	Storage : -40 to 85°C, Operation -25 to 60°C full power, with linear derating to half power from 60 to 70°C (convection cooling, no forced air required). Operation up to 50% load permissible with sideways or front side up mounting orientation.			
Humidity	< 90% RH, noncondensing; IEC 60068-2-2, 68-2-3			
Altitude	0 to 3000 meters (0 to 10,000 feet)			
Vibration	2.5(g) RMS, 10-2000 Hz (random); three axes for 20 minutes each - IEC 60068-2-6			
Shock	3(g) peak, three axes, 11 ms for each axis - IEC 60068-2-27			
Warranty	5 Year Limited Warranty			
MTBF	> 500,000 hrs MTBF (nominal voltage, full load, T _{amb} = 25°C)			
General Protection/Safety	Protected against short -circuit, overload, open circuit. Protection class 1 (IEC536), degree of protection IP20 (IEC 529). Safe low voltage: SELV (acc. EN60950).			
Over-Temperature Protection	LED alarm, output shutdown with automatic restart			
Status Indicators	Visual: 3 status LEDs (Input, Output, Alarm) Relay: SSR or dry relay contact, signal active when V _{out} = 18.5 Vdc = +/-5%			
INSTALLATION				
Fusing -Input	Externally fused			
-Output	Not fused. Output is capable of providing high currents (PowerBoost) for motor load startup.			
Mounting	Simple snap-on to DIN TS35/7.5 or TS35/15 rail system. Unit should handle normal shock and vibration of industrial use and transportation without falling off the rail.			
Connections ⁹	Input: Screw terminals. Wiring for the connector will be Ground on the left (when looking at the front of the unit). Connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw torque: 4.4 lb-in (~ 50 N-cm). Output for SDN40: 7-6 AWG (10.6-13 mm ²) for solid conductors. Screw torque: 15.6 lb-inch (~ 176 N-cm). Output for all other models: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw torque: 7 lb-inch (~ 80 N-cm).			

1. SDN 20 will operate at 75% load; SDN 40 will operate at 50% load under loss of 1 phase; SDN 5 and SDN 10 will operate with single phase input power at 100% of load. Unit will shut down if thermal threshold is exceeded under this condition.

2. Unit passed input voltage overstress test at 600 Vac without failure.

3. Input current ratings are specified with low input, line conditions, worst case efficiency values and power factor spikes. Input current at nominal input settings will typically be half these values.

4. Losses are heat dissipation in watts at full load, nominal line.

5. 24-28 Vdc adjustable guaranteed at full load.

6. Ripple/noise is stated as typical values when measured with a 20 MHz bandwidth scope and 50 ohm resistor.

7. SDN 20 and 40 unit will go to HICCUP mode. SDN 5 and 10 will maintain min 4 secs to deliver 150% load then drops to almost zero V_{out}. The output voltage will immediately drop to almost zero when load rises above 150%.

8. All models except the 40 amp unit are capable of parallel operation by use of a jumper pin, accessible by the end user. 40 amp unit will have active current sharing signal.

9. SDN 40-24-100C only = Output signaling terminal block features (Shut Down, Power Good, Current Monitor, Current Balance, signal GND).

10. 70% maximum rated load.

Specifications Chart (Single Phase)

DESCRIPTION	CATALOG NUMBER	
	SDN 5-24-100C	SDN 10-24-100C
INPUT		
Nominal Voltage	115 - 230 Vac	
-AC Range	85 - 264 Vac	
-DC Range ¹	90 - 375 Vdc	
-Frequency	43 - 67 Hz	
Nominal Current ²	1.65 - 0.55 A	3.2 - 1.0 A
-Inrush Current Max.	Typ. < 15 A	Typ. < 30 A
Efficiency (Losses ³)	> 88% typ. (14 W)	> 90% typ. (24 W)
Power Factor Correction	Active power factor correction to be better than 0.92	
OUTPUT		
Nominal Voltage ⁴	24V (23.5-28.5 Vdc Adj.)	
-Tolerance	< ±2 % overall (combination line, load, time and temperature related changes)	
Initial Voltage Setting	24.5V ± 1%	
-Ripple ⁵	< 50 mVpp	
PARD	PARD (periodic and random deviation) = 100 mV peak-peak max	
Overvoltage Protection	> 30.5 but < 33 Vdc, auto recovery	
Power Back Immunity	< 35V	
Nominal Current	5 A (120 W)	10 A (240 W)
-Peak Current ⁶	1.5 × nominal current for 4 seconds minimum while holding voltage > 20 Vdc	
-Short Circuit Current	1.5 x nominal current at near zero volts at short circuit condition	
-Current Limit	PowerBoost™	
Parallel Operation	Switch selectable single unit or parallel unit operation. Units will not be damaged by parallel operation (regardless of switch position setting).	
Holdup Time	> 20 ms (full load, 100 Vac input @ T _{amb} = +25°C) to 95% output voltage	
Voltage Fall Time	< 150 ms from 95% to 10% rated voltage @ full load (T _{amb} = +25°C)	
Line and Load Regulation	< 0.5%	
GENERAL		
EMC: -Emissions	EN61000-6-2:2001, EN61000-6-3:2001, Class B EN55011, EN55022 Radiated and Conducted including Annex. A, EN61000-3-2	
-Immunity	EN61000-6-1:2001, EN61000-6-2:2001, EN61000-4-2 Level 4, EN61000-4-3 Level 3, EN61000-4-6 Level 3, EN61000-4-4 Level 4 input and Level 3 output. EN61000-4-5 Isolation Class 4, EN61000-4-11, IEC 61000-4-34 voltage dip immunity standard.	
Temperature ⁷	Storage: -40°C to 85°C. Operation: -25°C to 60°C full power, with linear derating to half power from 60 to 70°C (convection cooling, no forced air required). Operation up to 50% load permissible with sideways or front side up mounting orientation.	
MTBF Standard ⁸	> 550,000 hrs	
Warranty	5 Year Limited Warranty	
General Protection/Safety	Protected against continuous short circuit, continuous overload, continuous open circuit. Protection Class 1 (IEC536), degree of protection IP20 (IEC60529). Safe low voltage: SELV (acc. IEC60950-1).	
Status Indicators	Visual: 3 status LEDs (Input, Output, Alarm) Relay: N.O. contact rated 200ma/50 Vdc	
INSTALLATION		
Fusing -Input	Internally fused	
-Output	Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required for wire/loads if 2x nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping.	
Mounting	Simple snap-on to DIN TS35/7.5 or TS35/15 rail system.	
Connections	Input: Screw terminals, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw torque: 4.4 lb-inch (~ 50 N-cm). Output: Two terminals per output, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw torque: 7 lb-inch (~ 80 N-cm).	
Case	Fully enclosed metal housing with fine ventilation grid to keep out small parts.	
-Free Space	25 mm above and below, 10 mm left and right, 15 mm in front	
H x W x D mm (in)	123.0 × 50.0 × 110.0 (4.85 × 1.97 × 4.36)	123.0 × 60.0 × 110.0 (4.85 × 2.36 × 4.36)
Weight kg (lbs)	0.50 (1.1)	0.80 (1.7)

1. Not UL listed for DC input.

2. Input current ratings are conservatively specified with low input, worst case efficiency and power factor.

3. Losses are heat dissipation in watts at full load, nominal input line.

4. 24-28 Vdc adjustable guaranteed at full load.

5. Ripple/noise is stated as typical values when measured with a 20 MHz bandwidth scope and 50 ohm resistor.

6. Peak current is calculated at 24 volt levels.

7. Contact tech support for operation at -25°C.

8. Demonstrated through extended life test.

Specifications Chart (Single Phase)

DESCRIPTION	CATALOG NUMBER	
	SDN 20-24-100C	SDN 40-24-100C
INPUT		
Nominal Voltage	115 - 230 Vac	
-AC Range	85 - 264 Vac	
-DC Range ¹	90 - 375 Vdc	
-Frequency	43 - 67 Hz	
Nominal Current ²	6 - 3 A	12 - 4 A
-Inrush Current Max.	< 40 A	Typ. < 60 A
Efficiency (Losses ³)	> 92% (38 W)	> 93 % (67 W)
Power Factor Correction	Active power factor correction to be better than 0.92	
OUTPUT		
Nominal Voltage ⁴	24V (23.5-28.5 Vdc Adj.)	
-Tolerance	< ±2 % overall (combination line, load, time and temperature related changes)	
Initial Voltage Setting	24.5V ± 1%	
-Ripple ⁵	< 100 mVpp	
PARD	PARD (Periodic and Random Deviation) = 100 mV peak-peak max	
Overvoltage Protection	> 30.5 but < 33 Vdc, auto recovery	
Power Back Immunity	< 35V	
Nominal Current	20 A (480 W)	40 A (960 W)
-Peak Current ⁶	1.5 x nominal current for 4 seconds minimum while holding voltage > 20 Vdc	
-Short Circuit Current	1.5 x nominal current at near zero volts at short circuit condition	1.8 x nominal current at or near zero volts at short circuit condition
-Current Limit	PowerBoost™	
Parallel Operation ⁷	Switch selectable single unit or parallel unit operation. Units will not be damaged by parallel operation (regardless of switch position setting).	Active paralleling
Holdup Time	> 20 ms (full load, 100 Vac input @ T _{amb} = +25°C) to 95% output voltage	
Voltage Fall Time	< 150 ms from 95% to 10% rated voltage @ full load (T _{amb} = +25°C)	
Line and Load Regulation	< 0.5%	
GENERAL		
EMC: -Emissions	EN61000-6-2:2001, EN61000-6-3:2001, Class B EN55011, EN55022 Radiated and Conducted including Annex. A, EN61000-3-2	EN61000-6-3, EN61000-6-4, Class B EN55011, EN55022 Radiated and Conducted including Annex A, EN61000-3-2, EN61000-3-3
-Immunity	EN61000-6-1:2001, EN61000-6-2:2001, EN61000-4-2 Level 4, EN61000-4-3 Level 3, EN61000-4-6 Level 3, EN61000-4-4 Level 4 input and Level 3 output. EN61000-4-5 Isolation Class 4, EN61000-4-11, IEC 61000-4-34 voltage dip immunity standard	EN61000-6-1, EN61000-6-2, EN61000-4-2 Level 4, EN61000-4-3 Level 3, EN61000-4-4 Level 4 input and Level 3 output, EN61000-4-5 installation Class 4, EN61000-4-6 Level 3, EN61000-4-8, EN61000-4-11, SEMI F47 Sag Immunity, transient protection according to VDE 0160/W2 over entire load range.
Temperature ⁸	Storage: -40°C to 85°C. Operation: -25°C to 60°C full power, with linear derating to half power from 60 to 70°C (convection cooling, no forced air required). Operation up to 50% load permissible with sideways or front side up mounting orientation.	
MTBF Standard ⁹	> 450,000 hrs	> 500,000 hours demonstrated
Warranty	5 Year Limited Warranty	
General Protection/Safety	Protected against continuous short-circuit, continuous overload, continuous open circuit. Protection Class 1 (IEC536), degree of protection IP20 (IEC60529) Safe low voltage: SELV (acc. IEC60950-1).	
Status Indicators	Visual: 3 status LEDs (Input, Output, Alarm) Relay: N.O. contact rated 200ma/50 Vdc	
INSTALLATION		
Fusing -Input	Internally fused	
-Output	Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required for wire/loads if 2x nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping.	
Mounting	Simple snap-on to DIN TS35/7.5 or TS35/15 rail system	
Connections ¹⁰	Input: Screw terminals, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw Torque: 4.4 lb-in (~ 50 N-cm). Output: Two terminals per output, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw Torque: 7 lb-inch (~ 80 N-cm).	Input: Screw terminals, connector size range: 16-10 AWG (1.5-6 mm ²) for solid conductors. Screw Torque: 4.4 lb-inch (~ 50 N-cm). Output: Two terminals per output, connector size range: 10-6 AWG (6-14 mm ²) for solid conductors. Screw Torque: 15.6 lb-inch (~ 176 N-cm).
Case	Fully enclosed metal housing with fine ventilation grid to keep out small parts.	
-Free Space	25 - 40 mm above and below, 10 mm left and right, 15 mm in front	
H x W x D mm (in)	123.0 x 87.0 x 127.0 (4.85 x 3.42 x 4.98)	123.0 x 180.0 x 122.0 (4.85 x 7.09 x 4.81)
Weight kg (lbs)	1.20 (2.6)	2.75 (6.0)

1. Not UL listed for DC input.

2. Input current ratings are conservatively specified with low input, worst case efficiency and power factor.

3. Losses are heat dissipation in watts at full load, nominal input line.

4. 24-28 Vdc adjustable guaranteed at full load.

5. Ripple/noise is stated as typical values when measured with a 20 MHz bandwidth scope and 50 ohm resistor.

6. Peak current is calculated at 24 volt levels.

7. All models except the 40 amp unit are capable of parallel operation by use of a jumper pin, accessible by the end user. 40 amp unit will have active current sharing signal.

8. Contact tech support for operation at -25°C.

9. Demonstrated through extended life test.

10. SDN 40-24-100C only = Output signaling terminal block features (Shut Down, Power Good, Current Monitor, Current Balance, signal GND).

SolaHD has been providing power conversion and power quality solutions for over 90 years. Our full line of premium products feature proven technologies that protect operations throughout your facility for improved efficiency, productivity and longevity.

Emerson Industrial Automation brings integrated manufacturing solutions to diverse industries worldwide. Our comprehensive product line, extensive experience, world-class engineering and global presence enable us to implement solutions that give our customers the competitive edge.

For over 150 years, our electrical product brands have been providing a rich tradition of long-term, practical, high quality solutions with applications ranging from the construction and safe operation of petrochemical and process plants to providing quality power that precisely controls automotive robotic production.

Engineers, distributors, contractors, electricians and site maintenance professionals around the world trust

Emerson Industrial Automation brands to make electrical installations safer, more productive and more reliable.

EGS is organized into three focused businesses that provide distributors and end-users expert knowledge and excellent service.

Electrical Construction Materials
This group manufactures a broad range of electrical products including conduit and cable fittings, plugs and receptacles, enclosures and controls, conduit bodies, and industrial lighting. Whether the application is hazardous location, industrial, or commercial, the ECM group has the products to meet your needs.

Power Quality Solutions
This group offers the broadest power quality line including UPS, power conditioners, voltage regulators, shielded transformers, surge suppression devices and power supplies.

Heating Cable Systems
This group offers a broad range of electrical heating cable products for residential, commercial, and industrial applications.

Electrical Construction Materials

 **Appleton**

 **O-Z-GEDNEY**

 **Nutsteel**

Power Quality Solutions

 **SOLAHD**

Heating Cable Systems

 **EASYHEAT**

 **NELSON**

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