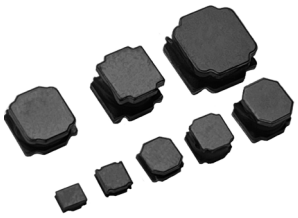
Use case
Eaton SDCx semi-shielded inductors



Eaton's semi-shielded inductors are the ideal solution for Industry 4.0 and beyond

Advancing trends in industry 4.0 combine cyber-physical systems with the Internet of Things (IoT), robotics, and smart machines, resulting in faster and more efficient industrial processes and increased production volumes. By utilizing a bevy of sensors in industrial equipment, operators can track process levels in real-time to optimize the usage of resources. Robotic and automated systems also speed up production while reducing space requirements on factory floors. Every component of smart factories is digitally interconnected in real-time, allowing for seamless information exchange, streamlined operations, predictive maintenance, and more.

Manufacturing and automation systems in industrial facilities are prone to electromagnetic interference (EMI) from switching inductive and resistive loads, activation of relays, magnetic coupling of circuit elements, ESD, and more. Switched-mode power supplies for industrial systems also produce some level of noise due to high-frequency switching and changes in current or voltage levels. Inductive components integrated into industrial equipment PCBs can protect sensitive electronic circuits from the harmful effects of electrical noise. Inductors are passive components capable of storing electrical energy in magnetic fields. When used in combination with capacitors, they provide magnetic filtering to stabilize the output from voltage regulators.

Eaton SDCx semi-shielded drum core power inductors offer a wide range of inductance values, making them ideal for use in many types of buck, boost, and buck-boost converter designs and power filtering operations. The SDCx family consists of 2 product groups — SDCL (low-profile) and SDCH (high-profile) — with 7 SMT footprints and 12 inductor sizes that cover a wide range of PCB applications. Their low- and medium-height (1 mm to 4 mm) profiles offer engineers greater flexibility and the ability to shrink board sizes or ramp up power within the same footprint.

In the harshest industrial settings or environments, Eaton SDCx inductors offer application reliability over a wide range of operating temperatures from - 40 °C to +125 °C. The SDCL family offers inductances from 0.33 uH to 470 uH, while SDCH has inductance values ranging from 1.0 uH to 1000 uH (1 mH). Industrial applications for Eaton SDCL and SDCH inductors include motion controls, sensors, cameras, buck/boost power converters, battery backup, wireless TX/RX modules (such as remote-controlled applications or wireless data transfer), and LED drivers. SDCL/SDCH power inductors utilize semi-magnetic shielding rather than conventional ferrite shielding. The embedded magnetic material on Eaton's SDCx inductor coil provides higher

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