

General Information

Frequently Asked Questions

About DIN43650 Connectors and Assemblies

What is DIN?

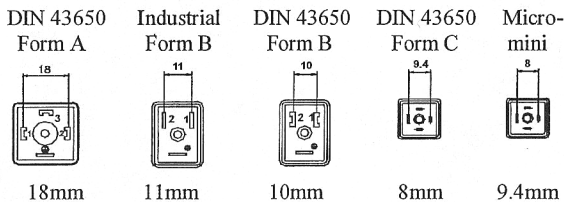
DIN (or Deutsche Industrial Normale) is a series of uniformity standards developed in Germany, which apply to commonly manufactured items.

What is DIN 43650?

DIN 43650 is the standard for a series of electrical connectors, which are commonly used with solenoid valves (especially those used on valves in hydraulics and pneumatics). Other applications include the connection special sensors, such as pressure switches, filter switches, optical, proximity and limit switches.

What does DIN 43650 include?

The DIN43650 family consists of 5 connectors:



Although their "official" names are listed on top, we generally refer to them as 18mm, 11mm, 10mm, 8mm or 9.4mm, which is the actual spacing between pin #1 and pin #2.

How are these connectors applied?

Generally, the male connector is attached to the solenoid valve or sensor and the female side connects to the cable.

The general rule in applying connectors is that a female connector is used to transfer the power to the male. This prevents the possibility of direct exposure to "hot pins", (exposed male pins carrying voltage).

Female connectors are offered as shells, which allow you to attach your own cable via screw terminals or in molded cable assembly form, pre-wired with the cable attached to a solid molded plastic connector.

Why use a molded assembly?

Molded assemblies provide a more secure installation, offer many technical advantages and save installation time, labor and cost. Hand wiring a DIN connector is very labor intensive. Considering the overall cost of the connector, wire and labor, molded cable assemblies are generally much less expensive.

What other advantages do molded cable assemblies offer?

- Solid plastic construction super durability and resistance to harsh environments
- Impact resistant with greater cable strain relief
- Cleaner looking installation
- Available in all DIN 43650 configurations
- Offered in a large range of cable lengths
- With (or without) built in LED indication and surge suppression

What does the light indicate?

The LED on the top of the connector indicates if the connector is receiving power and is used for diagnostic purposes. Connectors with dual colored LED's are also available to show the state of pressure and filter switches.

Why use surge suppression?

In solenoid valve applications, a magnetic field is created around the coil. When the power is turned off (as the coil is de-energized) the remaining magnetic field collapses back onto the coil. This creates an electrical surge, which can exceed 3,000 volts. This happens in both AC and DC applications, with operating voltages as low as 12 volts. The resulting surge can cause component damage (both short and long term) and can create noise problems that can interfere with control and measurement signals.

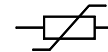
Building in surge suppression into the connector, stops the transient surge at the source. Some solenoid valves offer built in surge suppression, however since heat can effect the performance of surge suppression components, this is not always possible.

How does common surge suppression work?

Typically simple surge suppression components either re-direct or absorb the transient surge. There are several different components which are commonly used:



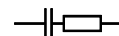
Suppression Diodes – (also called "fly-back" diodes or "avalanche" diodes) allow voltage and current to flow in only one direction. Placed in parallel to the load, the diodes react to the surge's polarity and re-direct the spike back to the coil where it dissipates. Diodes offer very good suppression; eliminating most of the surge. They are, however, polarity dependant (if they are installed incorrectly they cause a dead short). They also only work in DC circuits and can cause a release delay problem (the energy directed to the coil may delay the solenoid operation).



Varistors – (also called VDR's or MOV's) are voltage dependant resistors, which close the circuit once an assigned voltage is exceeded. Placed in parallel to the coil, they redirect any voltage, which is above the assigned or "cut off" levels, back to the coil where they dissipate. Varistors work for both AC and DC application and are polarity independent.



Zener Diodes (also called Z diodes) are also voltage dependant devices which work similarly to Varistors.



Resistor-Capacitor Networks – (also called RC's and snubbers) absorb the surge and gradually discharge the energy back onto the circuit.

