WinDaq and the DI-730 Service and Maintain Injection Molding Machines

DATAQ Instruments

The operation of an injection molding machine is fairly simple in concept: Put plastic pellets in one end and force them with a worm gear through a tube under high pressure. The pressure creates heat that melts the pellets. The molten plastic is sucked into a mold. The plastic cools and out pops the product. In practice many elements need to operate in concert to produce a perfectly molded product, and ensuring that they do requires a lot of instrument flexibility. Our customer chose us exactly for that reason.

Under normal circumstances, the instrument you use to maintain and service an injection molding machine must be able to measure a host of variables: Temperature, pressure, load, rpm, high source voltages, and low-level shunt voltages. But our customer is an injection molding machine refabricator, so most of their work is concentrated in maintenance and repair. Their activity could take them anywhere within the spectrum of measurement variables, or define the need to measure them all at once. This need for flexibility led them to DATAQ Instruments. The DI-730 allows direct voltage and current measurements from the variety of electric motors on the typical machine. The DI-75B backpack mounted on top of the DI-730 can be populated with a variety of isolated signal conditioners to measure load and pressure from various strain-based sensors, and temperature from thermocouples. The pulse stream from a hall-effect sensor near the worm gear is connected to a frequency module allowing a direct readout in rpm. Of course, WinDaq software provides the no-programming environment to acquire, display, record, and analyze data from the machine. All waveforms are displayed in calibrated units making interpretation a snap. WinDaq's speed comes in handy as well. The fastest transients, especially present on the pressure signals, are easily captured and displayed along with other relevant waveform information.

The compact DI-730/75B combination replaced a host of separate components providing isolation, amplification, and digitization that consumed enough space to require a pushcart.