

Simple **monitoring and logging** of flow and process variables

JBJ Techniques reckons it has spotted a gap in the market for an effective, simple to use, four-channel process monitor and alarm controller, combined with PC-based visualisation and data logging software. So the company has addressed this requirement by developing its own cost-effective package. Mark Simms reports



Why is it that, in so many different industries and market sectors, there are a myriad of all-singing-and-dancing high end products, swathes of simple, low-end, single-function products, but very little in between. Take, for example, the monitoring of fluid systems in various processes. At one end of the scale, there are simple indicators to show pressure or flow – barely more than a dumb display with an alarm output or two. And then at the other end you can spend many thousands of pounds on custom designed data logging and analysis software that will monitor as many channels as you could conceive and give you more alarm outputs than you could imagine. But what lies between these two extremes? In reality, very little.

This gaping hole in the market had not escaped the attention of JBJ Techniques. And it became particularly apparent when the company looked around for an effective process indicator and alarm controller to accompany the high quality flow meters that it distributes for Italian manufacturer Siem in the UK. “As standard, the flowmeter came with a fairly basic, single channel indicator with a four-digit display and a couple of alarm outputs,” says product development manager Tony Fletcher. “But our experience of the market is that anyone monitoring flow is also going to be interested in one or more pressure points, temperature variations, and perhaps a range of other process variables. There needs to be an instrument with that sort of functionality mounted locally.

“At the same time, it’s rare these days not to need some remote monitoring and datalogging capability, but there’s nothing out there that can address the sorts of markets we’re looking at straight out of the box. There are lots of very good packages that you can program to fit the bill, but those packages are not cheap and the programming requirement is far from trivial.”

This, then, was the market need that JBJ Techniques sought to address. And the first part of its solution was

a new process instrument capable of displaying up to four process variables, and providing all the outputs that engineers could need for a typical process application. The unit provides a dedicated pulse input for flow meters, with the remaining inputs configurable either as three 4-20mA inputs (for the likes of pressure sensors and thermocouples) or as two 4-20mA inputs and one thermistor input. Two alarm outputs are provided with no-volt contacts, along with a 4-20mA output of the flow. “It’s a modern-looking process monitor with flexible set-up options and all the functions that today’s applications require,” says Fletcher.

The unit also sports a serial port on the rear, making all of that data available to a connected PC. And that was where the next stage of development took JBJ, with the design of a complementary software package.

Ready to run, straight out of the box

“Our goal,” says Fletcher, “was to create something akin to a dashboard for a hydraulic system – a complete package that was ready to run straight out of the box and which would provide hydraulic systems engineers with all the information they needed in order to monitor the process, perform trend analysis, diagnose faults, dig down into systems and store historical data.”

On launching, the software presents you with four graphical digital displays, but each can be toggled between various display options, including the likes of analogue dials and temperature gauges. All of the inputs to the local process monitor are retransmitted to the PC as standard, so you just need to select the input ports from within the software to make that data available. Then you simply set your scaling, alarm points, data logging intervals and a few other set-up parameters, and you’re ready to go. The software does everything you need it to do, combining full data logging capability with a real-time line graph display of the four process inputs.

The sampling interval can be set at anything up to a frequency of 500 samples per second, which Fletcher

reckons is more than good enough for pressure transient analysis in hydraulic systems. All data is logged as standard, complete with time and date stamp, and that data can be readily accessed, or pulled straight into a spreadsheet package from where any number of graphically-based reports could be generated. High and low alarm points can be set for each channel, and the software creates a separate log file for all data taken whilst in the alarm state. It also records the time and date going into and coming out of the alarm state, whilst the graphical display highlights the maximum deviation whilst in the alarm state. The real-time line graph monitor builds in a high degree of display flexibility, including allowing you to zoom in on events.

So, then, here we have a package which is highly flexible, simple to use, and that is a fraction of the price of other graphical monitoring systems. In fact, probably the best way to look at the cost is that you’re buying a high quality, four channel process instrument, and getting the software thrown into the bargain, free of charge. And whilst it might have been designed to meet the needs of hydraulic system monitoring, the adaptability of the package means that it is equally applicable across a far broader spread of applications.

“There are lots of instruments out there, and lots of software monitoring packages, but nothing that really addresses the market for essential monitoring and cyclic testing of hydraulic pressure lines, or indeed any other applications involving combinations of pressure, flow and temperature variables,” concludes Fletcher. “What we’ve done is to look at the real requirements of those applications in terms set-up, functionality and resolution of data, and bring together an affordable, easy-to-use solution that answers those needs.”

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