

Panic in leadup to Automate '98

Elenex and Automate are two shows run concurrently. They cover the electronics industry (Elenex) and factory automation (Automate). The show venue alternates between Melbourne and Sydney, with this year's show being held in Melbourne. The venue was the Melbourne Exhibition centre, (known by locals as Jeff's shed after the state premier who presided over its rapid conception and construction), which is located on the bank of the picturesque Yarra river alongside the new Crown Casino and the historic sailing ship the Polly Woodside.

This was Microconsultants' exhibition debut, and we were in full panic mode for days before. What with counters to build, signage to design and make and demonstration software to write and test, it was all hands to the oars day and night. Somehow we got it all made, transported, installed, wired, bolted, plugged and turned on in time, but thank heavens for velcro and gaffer tape! Naturally it was not without its little disasters, like a computer choosing the opening day to die, but all in all it went off as smoothly as can be expected (in our alter-lives we are musicians and amateur actors, so "bump-ins" and lastminute scrambles are nothing new).

The show was a great success, with in

excess of 12,000 trade-only visitors. Exhibitors included Festo (pneumatics), Erwin Sick (sensors), Honeywell (controls) and of course Microconsultants with SPLat Controls.

SPLat attracted a lot of attention. At times we had visitors standing three deep around our stand, attracted by the promise of "World's most cost-effective microPLC for OEM use". Many were instantly converted, and we took orders for a significant number of evaluation kits for the new MMI88 controller, which features an inbuilt operator interface (front panel).

It was not only the show visitors who recognised SPLat as an

exceptional product. The MMI88 was selected as a finalist in the "Best new electrical product" category.

Without whose help...

Our thanks to the following people for their invaluable help with the show: Tom Miller of B&G Packaging; Michael Porter of Alpha Research; Fergus Ramsay, Tamas Hume and Carl Davis of Envelopments, Colin Priestley of Fane Acoustics and Judy Murray, all of whom assisted for no other reward than our gratitude. Thank you!



The SPLat stand at Automate 98 (pictured) featured a world globe rotated by a small stepper motor, which in turn was driven by an MMI88. We also featured our friendly, smiling staff (Carla Rea). Just visible on the right-hand curtain is the award won by the MMI88.

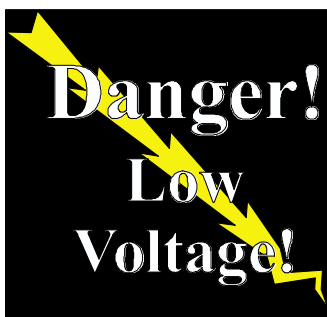
Tech Tip

Keep those contacts wet!

Many technical people, even experienced electronic engineers, do not appreciate the importance of wetting current in relays. Nothing to do with flowing water but with flowing electrons. Consider the contacts in a domestic light switch. Great hunks of brass! What happens to brass in air? It tarnishes and oxidises. Now, brass oxide (BsO_2 ☹), is an insulator, so by rights a dirty old light switch contact will fail to conduct. The reason it does (usually) conduct is that the combination of voltage and current is enough to blast away the oxide.

Similarly with the contacts in relays, limit switches and the like. They need some current and voltage to keep the contacts clean (contacts designed with a mechanical wiping action

are different, but your average relay does not have wiping action). All (non-wiping) contacts have a *minimum*



current and voltage rating. The rating may not always be published, but it certainly exists. We have seen minimum ratings ranging from $10\mu\text{A}/10\text{mV}$ up to $100\text{mA}/12\text{V}$. The latter was in a very nice Omron limit switch connected to a controller (not designed by us) that supplied $50\mu\text{A}$ at 5V . No wonder the user was

having problems!

So, keep in mind that just using a relay or switch with a high current rating isn't always the best solution. You need to also select contacts for their low current ratings. And this, incidentally, is why we give input current characteristics for digital inputs on all SPLat controllers.

Business

Stay fresh by Creating Challenges

It was Samuel Beckett who said that "when one's life personal or professional becomes routine, one loses that spark, that drive to do something new and different, and that can limit potential success."

Business operators can fall victim to the 'deadening' effect.

This can be linked to the business operator losing ambition to introduce new ideas and developments into the business.

As the business ceases to achieve or grow in its success, the owner can become less enthusiastic about the business, which causes stagnation. This can cause a cycle of deterioration.

Much of this can be attributed to the owner being captured by the administrative and financial functions of their business. This does not leave

Did you know?

Many current and prospective customers have misunderstood the SPLat MMI88 specification. They incorrectly believe that the inbuilt front panel buttons and LEDs use up regular inputs and outputs.

In fact, you get 8 uncommitted inputs and 8 uncommitted outputs *in addition* to the 5 push buttons, 7 LEDs and a beeper. You even get two configuration jumpers. How s that for 31 I/O value at a 16 I/O price?

How many first year engineering students does it take to change a lightbulb? None. That's a second year subject.

Custom board slashes pump control costs

When specialist switchboard maker Pump and Motor Controls Pty Ltd in Dandenong, Victoria inquired about the use of SPLat to control sewerage and stormwater pumps, it became quickly apparent that this was an ideal task for an Application Targeted controller. The result is the PMC3, a SPLat controller that includes a 6-stage **80% savings** (conductivity) water level probe interface, as well as onboard operator controls and power supply componentry. A PMC3 based control panel has recently completed a series of tortuous field tests, and is now being deployed in pumping stations throughout Victoria. It has also attracted serious inquiries from a major pump manufacturer. According to P&M Director Eric Anderson, the PMC3 has not only allowed substantial (up to 80%) savings in the cost of controllers, but the ease of SPLat programming has also given his firm considerable more scope for ongoing improvement and product customisation. 



Smiles all round! Peter Slavuj (right) of Pump and Motor Controls Pty Ltd shows SPLat marketing manager Roger May how his customised SPLat controller board fits into P&M's 2-pump control cubicle. The board is mounted directly behind the front panel of the cubicle (top left) with a screen printed graphics overlay (visible) providing a proprietary appearance to the operator controls (7 push buttons and 23 LEDs) that are an integral part of the controller board.

SPLat People

Smile of the Month

Meet Linda Ranik, our accounts guru. Linda is the lady who helps us keep track of our finances, processes our overseas credit card sales, clears credit applications and (if we ask very nicely) makes coffee.

We'd have her do debtor collections, too, but she just doesn't know how to get nasty enough. (That's why we are currently negotiating a contract with the Hell's Angels Debt Collection Services ... but that's another story!)

When she's not flashing her smiling face around the office, Linda spends her time looking after a husband, two school age children, two horses, three dogs and countless chickens. They all live on a rustic property in rural Pearcedale, a few kmsouth of the SPLat factory. 



New Product

Analog SPLat, and more, Real Soon Now!

As we go to press, functional details of the next SPLat product have been finalised. The OEM36 will have 2 analog outputs, 2 analog inputs and 32 digital I/O points. A brand new innovation is our Bidirectional Input/Output Technology (BIOTECHNOLOGY). With this, 16 of the IO points can each be used either as inputs or as outputs, meaning the same board will suit any application from 24I/8O to 8I/24O. All at a price projected to knock your socks off. First samples are expected January. 

Programming

Don't wait forever!

One of the most commonly programmed operations in machine control is to wait for something to happen. In fact, most fairly simple machines go through a set sequence, initiating an action, waiting for it to complete, then initiating the next action, and so on until the whole sequence is completed.

And yet, herein lies a commonly overlooked danger: What if the action never completes? Typically we might have a limit switch to detect that a moving part has completed its stroke, but supposing the switch fails? We had a very real experience with this recently, when the pressure switch in a dish washer failed. The result was several thousand dollars worth of water-damaged carpet.

Good controller design will ensure that if anything conceivable goes wrong, there will be a safety net there to catch the problem before carpet gets soaked or lives get lost. In the case of the overdue input (pressure switch, limit switch), the most universal method is to use a timer, with a timeout limit set to somewhat beyond the longest time the expected event is likely to take to occur. The code for this is quite simple. Say we are waiting for input 5 to go ON, and know it cannot take more than 2 seconds:

```
Prepare      SetTimer      0,20      ;2 second timer
Wait         Test         0          ; timed out?
              GoIfZ        Problem
              Input        5
              GoIfZ        Wait
              ..... continue normal flow
```

In this program fragment, the first line starts the timer. The 2nd line is the start of the wait loop. The first thing we do is to test the timer for timeout. If it has timed out, we go to the line "Problem" (not shown) where the overdue input is given appropriate treatment. Thereafter we test the input, and if its not yet on go back to Wait and try again.

And what to do if there is a problem. Well, that's sort of left as an exercise for the reader. Suffice to say that the overall logic of the specific job should suggest an answer, for example to shut down the machine (make safe) and sound an alarm. 

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them enough time to be innovative because they are too busy dealing with day-to-day operations.

Taking time out to plan your business future is the first step in reinvigorating this process.

Thank you to **Aston Ryan & Malcolm**, our accountants, for these thoughts. You can call AR&M on (03) 9551 2822 to discuss their monthly planning workshop. It will provide plenty of ideas. 

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Meet our company mascot (the rubber plant, not Carla!) This remarkable plant started life as a domestic pet, but at the age of two had to be moved into our factory to give it room to grow. The monster pot dweller is now 4.8m tall and still growing strong in a 30cm pot. Sadly it (he?) remains unnamed. So to the first person to suggest a name suitable for this lofty latex leaf-bearer we will happily donate an SL884 board to play with. The only condition is that "mother" Carla must like it. Just mail or email your suggestion to us by the end of the year: nametheplant@microconsultants.com