

4R2V Interface

External Relay and Valve Controller

Introduction

The 4R2V is designed to connect to one of the two digital ports of a MicroStream card and is operated using the Autotimer function, which is part of the MicroStream software package. The interface converts the digital signals from the MicroStream port into outputs that can switch external mains powered equipment on and off.



The Autotimer

The function of the Autotimer is to provide fully automatic start-up and close-down for up to two automatic analyser systems. One 4R2V unit would be required for each system.

The Autotimer is basically a sophisticated alarm clock with output 'alarms' for each analyser system. The 'alarms' can be timed and set to either output an ON or an OFF state. In addition, the timers are initiated by a master 'alarm', which is based on what day of the week it is. Start-up operations on a Sunday, for example, may be inhibited by putting a null entry into the Sunday start-up timer table.

Startup and Closedown Sequences

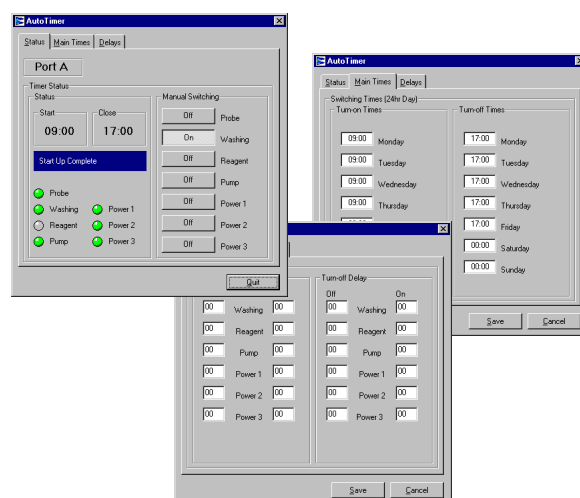
The startup of an analytical system would consist of switching components of the system on, so that an analysis can be performed as soon as staff come in for work. Colorimeters and heaters would need to be turned on for some time to heat up and stabilise. The pump needs to be set for continuous pumping and, a little later, the wash solution (that will have been trickle pumped through the system overnight) will need to be replaced with a flow of reagents.

Each event can be defined as a switch-on or a switch-off. During Startup, one would suppose that all that is needed is a switch-on and during Closedown a switch-off.

However, there are occasions during Startup when *both an on and an off* may be required. This might be to flush the system through with a special reagent (e.g. acid wash). There might also be occasions when an *off* is needed rather than an *on*; this might depend on the way that valves are plumbed in. This is why both Startup and Closedown sequences are provided with two columns, one for on, the other for off.

Pumping

The pump is operated in a more sophisticated way compared with the other switching points. When initialising, MicroStream will detect if an autotimer is specified. If so, it will activate the pump control routines in the interface. There are three modes. If no autotimer is active, then the pump switch can be used for other purposes. If there is, then the pump can be either active continuously or in intermittent mode. In the latter case, the pump is activated for a couple of seconds once a minute. This ensures that the system does not dry out and that the pump tubes do not get compressed by the rollers.



Specification & Features

- Automatic timed Startup and Closedown
- Four solid state relays for powering mains equipment
- Two Valve Outputs
- Passthrough circuit for control of autosampler
- Two units may be connected to a single MicroStream