RPC Remote Panel Control

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RPI

Early versions of the Remote Panel Interface were based on the Intel 8051 and came in two versions RS232 (single drop) and RS485 (multi drop), the RS485 version had a 4 way DIL address switch.

RPIC

Remote Panel Interface PIC, is the current version and is based on the Microchip PIC range of microcontrollers. A single PCB design caters for RS232, RS485 or USB depending on the components fitted. Although USB is provided for, development has not progressed beyond proof of concept, using one USB interface several other RS485 interfaces can be daisy chained from it.

Protocol

The communication protocol is based on having a number of 'message types' which are defined in the header, along with the board address for the multidrop system. Most commonly used of these is type 0 which transmits data for the entire stack of modules and receives data back from all modules. Other message types allow writing and reading of single bits or bytes of data. Type F messages were developed for use specifically with the USB version to take account of the limited packet size available with USB1.

The Stack

Connectors on the stack modules carry power lines 0V and +5V for the electronics on each board, attached devices may require separate supplies. There are four control lines, these are Data out, Data in, Clock and Strobe. When the interface receives a message the Strobe line is activated in order to read the current state of Inputs into the shift registers. The Clock is then activated in multiples of 8 pulses and data is sent out and received by the interface. When shifting is complete the Strobe line is activated again to output the new data to the layout devices.

Links

Carstairs at the Nottingham club.
Around Carstairs from the cab
Pictures of Carstairs and Dagworth both of which use RPC.
Horton presented by the late Stephen Parascandolo.

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