

C:\Rod_busy\prel_specs_3.doc

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Revised Preliminary Specification of the ATLAS ROD BUSY Module

Front panel signal levels:	TTL (open-collector, where TRUE is 0 V and FALSE is +5 V)
Input/Output Terminations:	The inputs have low resistive pull-up's to +5 V. The outputs have high resistive pull-up's to +5 V.
Busy Inputs:	15 (LEMO® #00) from ROD's (via 74F14 Schmitt Trigger I/P inverters)
Busy Carry Input:	1 (LEMO® #00) from previous ROD BUSY module Is in fact a 16 th input like the other 15. (via 74F14 Schmitt Trigger I/P inverter)
Busy Out:	4 (LEMO® #00) one to next ROD BUSY module, the other for monitoring (via 74F06 O/C drivers).
Input Test Register:	A 16 bit VME register feeding Busy Inputs and Busy Carry Input via O/C drivers.
Busy Indicators:	Front panel LED's show the state of each input/output.
Input Monitoring:	All 16 inputs may be monitored by reading the Input Monitor Register.
Input Enable:	Each Busy Input and the Busy Carry Input can be disabled by setting bits in the Input Enable Register.
Busy Duration Monitor:	Max duration: $2^{16} * 1/10 * 10^{-6} = 6.55 \text{ ms}$, (i.e. 16 bit counter incremented at 10 MHz) Counter outputs feed Busy Duration Buffer. Counter reset via a global reset command. Counters not affected by the state of the Input Enable Register bits.
Busy Duration Buffer:	By FIFO 16x512 written every $\approx 6.5 \text{ ms}$. FIFO's are full after $\approx 3.3 \text{ sec}$. FIFO's are reset by global command. Each of the 16 FIFO's are readable from VME.
Busy Out Generation:	The sum of all enabled Busy and Carry Inputs.
Busy Out Time-Out:	An interrupt request may be generated when the Busy Out has been asserted longer than a programmable time-out.
Busy Out Monitoring:	State reflected by a bit in the Status Register.

Back plane protocol: VME: A24,A16/D16

Address Modifiers: Standard: 39, 3A, 3D, 3E
Short : 29, 2D
Extended: 09, 0A, 0D, 0E (for CPU compatibility)

VME Interrupter: ROAK type (release on acknowledge),
programmable IRQ priority level (1 to 7),
programmable STATUS I/D D08(odd) or D16

Configuration ROM: EEPROM to store manufacturer/board/revision ID

Power Requirements: + 5.0 volt

Module PCB size: 233.4 * 160.0 mm (height * width)

Front panel size: 261.9 * 20.0 mm (6U * 4TE)

A conversion kit is foreseen in order to be compatible with 9U / 400 mm ROD - crates.