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V880 delay generator for facility timing systems

HIGHLAND TECHNOLOGY

Features



- Eight output channels, isolated electrical or 850 nanometer optical fast-rise pulses
- Each channel may be programmed to respond to selected data fields in a fiberoptic master timing signal; this allows both periodic and single-shot triggers to be defined for an overall facility or for selected subsystems
- Each channel is equipped with a 3 second range, 1 picosecond resolution programmable digital delay generator
- Typical jitter is below 4 picoseconds RMS averaged over one minute
- Typical drift is below 1 picosecond per degree C, 10 picoseconds per day
- Standard single-wide, 16-bit VME module with fast dual-port memory interface and onboard microprocessor

The V880 is a VME-based system timing module, used to distribute picosecond-precision timing pulses across physically distributed facilities. The V880 receives a 155.52 MHz (OC3 rate) fiberoptic master timing signal and outputs eight local triggers. A typical facility timing system would consist of one master optical signal generator, fiberoptic fanouts as needed, and several to hundreds of V880 timing units.

Test features include:

- LED indicators for VME access, phaselock, trigger
- Electrical test trigger input
- Reference pulse output
- Analog output-signal monitor
- VME monitoring of optical power level, phaselock status, temperatures, error statistics

Master fiberoptic timing signal generators are available.

18 Otis Street San Francisco, CA www.HighlandTechnology.com tel: 415 551-1700 fax: 415 551-5129

Specifications : V880 delay generator for facility timing systems

FUNCTION	8-channel digital timing generator
DEVICE TYPE	16-bit register-based VME slave; A16:D16 Implements 256 16-bit registers in the VME 16-bit addressing space
INPUTS	Primary timing input: 155.52 Mbps, biphase-encoded data stream, 1310 or 1550 nm, -20 to -28 dBm, APC/SC bulkhead connector Electrical test trigger, +1 V nominal threshold, 50Ω termination, SMB connector
OUTPUTS	Reference timing pulse, +1.75 V nominal into external 50Ω load, 180 ns nominal width, 700 ps nominal rise/fall, SMB connector Test output, sample of software-selected output channel pulse; +1 V nominal into 50Ω, SMB connector Eight channel outputs, 180 ns pulse each, available as electrical or optical outputs in groups of four channels Electrical outputs are +4 V nominal into 50Ω, transformer isolated, 750 ps nominal risetime, SMB connectors Optical outputs are 850 nm, 500 µW nominal, 500 ps max risetime, ST 62/125 µm multimode connectors
DELAYS	Eight channels; each channel includes a VME-programmable 128-bit pattern match array, a 128-bit pattern mask array, and a 0 to 3 second range digital delay generator with 1 ps LSB resolution Each channel is triggered when its programmed pattern match aligns with the time data fields in the master fiberoptic input signal A ninth reference channel is provided, with pattern match capability but no programmable delay
ACCURACY	Jitter is below 15 [25] ps RMS measured over 10 seconds or less Delay accuracy is ±250 [500] ps; resolution 1 ps; monotonicity 40 [100] ps Insertion delay is 96.0 ns relative to the end of frame sync Reference pulse delay is 63 ns ±450 [750] ps Temperature drift is below 1 [2.5] ps/°C Optical power sensitivity is below 15 [50] ps/db, -20 to -28 dBm
OPERATING TEMPERATURE	10 to 35°C
CALIBRATION INTERVAL	One year
POWER	Standard VME supplies: +5 V: 1.75 A +12 V: 0.4 A -12 V: 0.6 A
INDICATORS	LEDs indicate VME access, channel trigger, and phaselock
PACKAGING	6U single-wide VME module
CONFORMANCE	ANSI/VITA 1-1994 (R2002) VMEbus spec

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