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The V625 is a single-width, C-size, register-based, VXIbus module that contains six channels of time interval counters.

Data from the module can be used to represent the time elapsed between a Start and a Stop pulse, or it can be used to determine the average frequency of an input pulse train.

## APPLICATIONS

Test cells  
Nuclear accelerator control and monitoring  
General-purpose time interval measurement

# V625

## 6-channel Time Interval Counter



Measures the intervals from a common start pulse to 6 stop pulses

## FEATURES

- 6-channel capacity
- TTL and optically-isolated input options
- 8 clock frequencies (1 Hz to 10 MHz)
- 16-bit pulse counters per channel (max count=65,535)
- 24-bit time interval counters per channel (16,777,215)
- Individual interrupt source bit per channel

## GENERAL DESCRIPTION

The V625 is a single-width, C-size, register-based, VXIbus module that contains six channels of time interval counters. Data from the module can be used to represent the time elapsed between a Start and a Stop pulse, or it can be used to determine the average frequency of an input pulse train. Each channel contains a 24-bit time interval accumulator and a 16-bit, presettable input pulse counter. Latches are provided to hold the pulse count, thereby eliminating the need to continuously rewrite the count value. Time intervals are derived from a common, crystal-controlled clock on the module. The clock frequency is software programmable, and can range from 1 Hz to 10 MHz, in decade steps. Once the timing cycle has been initiated (by a software command or front-panel input signal), the accumulators record timing information until the preset number of input pulses has been received by the V625. The overflow from each channel's input pulse counter or time interval accumulator stops the timing sequence for that channel and sets an interrupt source bit. An interrupt Mask register allows any source bit or combination of bits to generate an interrupt request.

The common Start signal and the six pulse inputs are connected to the module's circuitry via single-pin LEMO connectors on the module's front panel. The Start signal is a low-true, TTL pulse which initiates the timing cycle on the low-to-high transition. By order option, the pulse inputs are either TTL-level signals or optically-isolated, 10 V pulses supplying 15 mA of drive current. The maximum frequency of the input pulses is 5 MHz, and the counter chains are incremented on the low-to-high transition of each pulse.

The V625 supports both static and dynamic configuration. Access to the data is through memory locations indicated by the Offset Register within the VXIbus Configuration Register set, using A24/A16, D16 data transfers.

ITEM	SPECIFICATION
Number of Channels	6
Input Signals	TTL-level or optically-isolated, 10 V, 15 mA signals
Pulse Inputs Input-output insulation Input-output resistance	1 $\mu$ A, with 45% relative humidity, $t = 5s$ , $V_{I-O} = 3$ kV dc, $T_A = 25^\circ C$ 1012 $\Omega$
Maximum Input Pulse Rate	5 MHz with a 50% duty cycle
Time Interval Clock Source Frequency choices (programmable)	Crystal-controlled, common to all channels 1 Hz, 10 Hz, 100 Hz, 1 kHz, 10 kHz, 100 kHz, 1 MHz, and 10 MHz
Crystal Source Overall stability	$\pm 0.01\%$ , $0^\circ C$ to $+70^\circ C$
Maximum Count Value Input pulse counter chain Time interval accumulators	65,535 (16 bits) 16,777,215 (24 bits)
Input Connector Types	Single-pin LEMO receptacle, shell size 00
Mating Connectors	KineticSystems Model 5910-Z1A
Power Requirements +5 V	3.2A, typical
Environmental and Mechanical Temperature range Operational Storage Relative humidity Cooling requirements Dimensions Front-panel potential	$0^\circ C$ to $+50^\circ C$ $-25^\circ C$ to $+75^\circ C$ 0 to 85%, non-condensing to $40^\circ C$ 10 CFM 340 mm x 233.35 mm x 30.48 mm (C-sized VXIbus) Chassis ground

#### RELATED PRODUCTS

Model 5857-Axyz	Cable—1-contact LEMO to Unterminated
Model 5857-Bxyz	Cable—1-contact LEMO to 1 -contact LEMO
Model 5857-Hxyz	Cable—1-contact LEMO to BNC shielded
Model 5910-Z1A	Connector—1-contact LEMO

#### ORDERING INFORMATION

MODEL	DESCRIPTION
V625-LA11	6-channel Time Interval Counter, TTL Inputs
V625-LB11	6-channel Time Interval Counter, Optically-isolated Inputs

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