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The V258 is a double-width, C-size, register-based, VXIbus module which functions as a multi-turn resolver-to-digital or synchro-to-digital converter.

This module is available in either two-channel or four-channel versions.

APPLICATIONS

Engine and powertrain testing
Monitoring high-speed steel rolling mills

V258

Resolver- or Synchro-to-Digital Converter



Converts shaft position to digital values

FEATURES

- Options available for 2 or 4 channels
- Programmable bandwidth
- Programmable resolution
- Accuracy to ± 2.3 arc minutes.
- Loss-of-signal indication
- Angle and turns monitor
- Simultaneous channel measurements
- Independent preset functions
- Available in either 3-wire synchro or 4-wire resolver input configurations

GENERAL DESCRIPTION

The V258 is a double-width, C-size, register-based, VXIbus module which functions as a multi-turn resolver-to-digital or synchro-to-digital converter. This module is available in either two-channel or four-channel versions.

Each channel is monitored by a single-speed, tracking resolver-to-digital or synchro-to-digital converter. Separate registers are provided for turn count and angle data. The module can continuously scan all channels and store the data in internal registers. The module can be directed to stop scanning the inputs to allow simultaneous angle measurement of all channels. While scanning is disabled, the turn counters internally track the inputs to prevent loss of data.

The V258 may be operated in absolute angle mode (in which the current angle is stored in the data registers) or in the offset mode. The offset mode is used to specify a reference point to reduce the amount of overhead required to monitor turns correctly. In the offset mode, the user may assign a reference point by setting a channel's angle-and-turns count data to the desired value. The present angle value now becomes the zero degree angle position for calculating angle information.

To further reduce overhead and eliminate the need for polling, the V258 utilizes interrupts to signal when a given angle and turn value have been reached. Each channel has a 32-bit compare register which describes a channel compare point. This register contains a 16-bit angle value and a 16-bit turn value. When a channel input value matches or passes through both values, an interrupt may be generated. This eliminates the need for the host computer to constantly monitor each channel. An interrupt may also be generated when a channel's converter detects a Loss-of-Signal.

Angle resolution is user programmable for 10, 12, 14, or 16 bits. The bandwidth for each channel is also programmable. Each channel's converter may be programmed for higher precision in the higher resolution mode or faster settling in the lower resolution modes. This allows the converter to settle faster for step inputs.

The V258 supports both static and dynamic configuration. Access to the module's operational registers is via memory locations pointed to by the Offset Register within the VXIbus Configuration Register set, using A24/A16, D16 data transfers.

Resolver-to-Digital	Units	Bandwidth							
		High				Low			
Resolution	Bits Degrees	10 0.35	12 0.088	14 0.022	16 0.0055	10 .035	12 0.088	14 0.022	16 0.0055
Input Frequency	kHz	1-6	*	2-6	NR	0.36-6	*	*	2-6
Tracking Rate	RPS [†]	800	200	50	12.5	200	50	12.5	3.2
Closed Loop Bandwidth	Hz	530	*	*	*	130 k	*	*	*
Acceleration Constant, Ka	1/s ²	1.4 M	*	*	*	90 k	*	*	*
Acc-1 LSB Lag	°/s ²	512 k	128 k	32 k	8 k	32 k	8 k	2 k	500
Settling Time	ms	10	15	30	75	40	60	120	300
Accuracy Signal Input resolver Zin line to line Zin each line ground Common mode range Max voltage w/o damage	2 minutes max. + 1 LSB of selected resolution (4 LSBs differential linearity) 11.8VL-L 140 kohm 80 kohm 26 V peak 110V transient, 15 V Continuous								
Power Requirements +5V +24 V -24 V									
Environmental and Mechanical Temperature range Operational Storage Relative humidity Cooling requirements Dimensions Front-panel potential	0°C to +50°C -25°C to +75°C 0 to 85%, non-condensing to 40°C 10 CFM 340 mm x 233.35 mm x 60.66 mm (C-size VXIbus) Chassis ground								



RELATED PRODUCTS

- Model 5851-Bxyz Cable—50S "D" to Unterminated
- Model 5851-Dxyz Cable—50S "D" to 50S "D"
- Model 5851-Exyz Cable—50P "D" to 50S "D"
- Model 5934-Z1A Connector—50S "D"
- Model 1850-E1D Rack-mount Termination Panel

ORDERING INFORMATION

MODEL	DESCRIPTION
V258-ZA21	4-channel, Resolver-to-Digital Converter
V258-ZB21	4-channel, Synchro-to-Digital Converter, 90 V Signal
V258-ZC21	4-channel, Synchro-to-Digital Converter, 11.8 V Signal

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