

DEWE-ORION-1616-50X

- 16 simultaneous sampled channels
- 500 kS/s per channel
- 16 bit resolution
- 4 input ranges (from ± 1.25 V to ± 10 V)
- Synchronous digital inputs
- 8 digital I/Os, e.g. alarm output
- 32 bit synchronous counter/encoder
- 2 synchronous CAN interfaces



Model Overview

Model	Analog input channels	Max. sampling rate / channel	Digital input channels	Digital I/O	Ext. Clock	Ext. Trigger	Counter Encoder TTL	Counter Encoder ADJ	CAN
DEWE-ORION-1616-500	16	500 kS/s	2 (8*)	8	1	1	2	-	-
DEWE-ORION-1616-501	16	500 kS/s	2 (8*)	8	1	1	2	-	2
DEWE-ORION-1616-502	16	500 kS/s	10 (40*)	8	1	1	2 + 8	-	-
DEWE-ORION-1616-503	16	500 kS/s	10 (40*)	8	1	1	2 + 8	-	2
DEWE-ORION-1616-504	16	500 kS/s	10 (40*)	8	1	1	2	8	-
DEWE-ORION-1616-505	16	500 kS/s	10 (40*)	8	1	1	2	8	2

* Without using counter inputs

Analog Input Specifications

Analog input	
Channel characteristics	
Number of channels	16 simultaneously sampled
Input configuration	Single ended with remote sense
Resolution	16 bit
Effectiv number of bits	14.7
Type of ADC	Successive approximation (SAR)
Sampling rate	1 to 500 kS/s per channel
Sampling rate accuracy	25 ppm
Input amplifier characteristics	
Input ranges	± 1.25 , ± 2.5 , ± 5 or ± 10 V
Small signal bandwidth (-3 dB)	900 kHz
Input impedance	10 M Ω parallel (5.1 k Ω + 30 pF)
Overvoltage protection	± 30 V
Common mode rejection ratio (CMRR) of AISense	> 54 dB, $f_{in} < 1$ kHz
Channel separation (cross talk)	> 90 dB @ f_{in} 1 kHz
Transfer characteristics	
Gain (amplitude accuracy)	± 0.02 %
Offset (residual DC)	$\pm 0.01\%$ of Range ± 150 μ V
Gain drift (typ)	± 8 ppm/K
Offset drift (typ)	± 5 ppm/K of Range
Dynamic characteristics	
Signal to noise	89 dB
THD ($f_{in} = 1$ kHz) 0 dB _{FS} input	< -86 dB
THD ($f_{in} = 1$ kHz) -20 dB _{FS} input	< -93 dB
Interchannel gain mismatch	± 0.015 %
Inter channel phase mismatch ($f_{in} < 250$ kHz)	$0.012^\circ * f_{in} \text{ (kHz)} + 0.08^\circ$
Maximum working voltage	
Channel-to-ground	10 V, installation category I
Channel-to-channel	10 V, installation category I

Digital and Counter Input

Digital and Counter input	
Counter resolution	32 bit
Counter time base	80 MHz
Time base accuracy	25 ppm
Maximum input frequency	40 MHz
Input signal characteristic main board	
Compatibility	TTL/CMOS
Configuration	Pull-up with 100 kOhm
Input low level	-0.7 V to 0.8 V
Input high level	2 V to 5 V
Input low current	< -50 μ A
Input high current	< 10 μ A
Input capacitance	< 5 pF
Overvoltage protection (DI 0 to DI 7)	\pm 25 V continuous
Overvoltage protection (DI 8 to DI 15)	-1 to 6 V
Input signal characteristic CLK and Trigger	
Compatibility	TTL Schmitt trigger
Configuration	Pull-up with 100 kOhm
Input low level	-0.7 V to 2 V
Input high level	3 V to 5 V
Input low current	< -50 μ A
Input high current	< 10 μ A
Input capacitance	< 5 pF
Overvoltage protection	-1 to 6 V
Input signal characteristic expansion board with TTL input (used on ORION-1616-502 and -503)	
Compatibility	TTL/CMOS
Configuration	Pull-up with 100 kOhm
Input low level	-0.7 V to 0.8 V
Input high level	2 V to 5 V
Input low current	< -50 μ A
Input high current	< 10 μ A
Input capacitance	< 5 pF
Overvoltage protection	\pm 25 V
Input signal characteristic expansion board with adjustable input (used on ORION-1616-504 and -505)	
Compatibility	Adjustable trigger levels
Configuration	Symmetric differential
Input coupling	DC / AC (1 Hz)
Input impedance (ground referenced)	1 MOhm / 5 pF
Bandwidth (-3dB)	5 MHz
Trigger adjustment range	0 to 40 V
Trigger resolution	40 mV
Trigger level accuracy	\pm 100 mV \pm 1% of trigger level
Common voltage range	-35 to 50V
Common mode rejection ratio	>40 dB
Overvoltage protection	\pm 100 V continuous
Max. DC level @AC coupling	\pm 50 V continuous
Input signal characteristic with isolated inputs (optional external cards)	
Compatibility	CMOS
Configuration	Isolated input
Input low level	$U_{IN} < 1.8$ V
Input high level	$U_{IN} > 3.2$ V
Input high current @ 5 V U_{IN}	< 3.5 mA
Input high current @ 30 V U_{IN}	< 7 mA
Propagation delay	< 160 nsec
Bandwidth	3 MHz
Overvoltage protection	35 V continuous (65 V peak)
Isolation voltage (channel to channel)	100 V
Isolation voltage (input to output)	250 V

Digital and Clock Divider Output

Digital and clock divider out	
Compatibility	TTL/CMOS
Characteristic	
Low voltage level	< 0.4 V @ 4 mA load
High voltage level	> 3 V @ 4 mA load
Output current	
Sink (low level)	-20 mA
Source (high level)	20 mA
Output impedance	50 Ohm

CAN Interface

CAN interface	
Specification	CAN 2.0B
Physical layer	High speed
Listen only mode	Supported
Galvanic isolation	Not isolated
Bus pin fault protection	±36 V
ESD protection	12 kV (HBM)
CAN transceiver	SNHVD235
PCI data transfere mode	DMA with SW pooling

Power Requirements

ORION Type	I _{12V} [mA]	I _{5V} [mA]	I _{3.3V} [mA]	P _{tot.} [Watt]
ORION-1616-500	---	710	240	4,3
ORION-1616-501	---	780	240	4,7
ORION-1616-502	---	730	340	4,8
ORION-1616-503	---	800	340	5,1
ORION-1616-504	---	840	430	5,6
ORION-1616-505	---	910	430	6

General Specifications

General Specifications	
Environmental	
Operating temperature	0 to 50 °C
Storage temperature	-20 to 70 °C
Relative humidity	10 to 90%, non condensing
Maximum altitude	2000 m
Pollution degree (indoor use only)	2
Physical	
Dimensions (not including connectors)	17.5 x 10.7 cm (6.9 x 4.2 in.)
Analog input connector (main board)	68-pin SCSI male (AMP 174341-5)
Analog input connector (expansion)	68-pin SCSI male (Honda PCS-68LMD)
Counter input connector (expansion)	68-pin SCSI male (Honda PCS-68LMD)
CAN input connector	
SUBD	2 x D-Sub 9-pin male
Lemo	7-pin Lemo connector female (Type: EPG.0B.307.HLN)