

DEWE-ORION-1622-10X

DEWE-ORION-3222-10x

- 16 simultaneous sampled channels
- 102.4 kS/s per channel
- 22 bit resolution
- Input range ± 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-1622-100	16	102.4 kS/s	2 (8*)	8	-	1	2	-	-
DEWE-ORION-1622-101	16	102.4 kS/s	2 (8*)	8	-	1	2	-	2
DEWE-ORION-1622-102	16	102.4 kS/s	10 (40*)	8	-	1	2 + 8	-	-
DEWE-ORION-1622-103	16	102.4 kS/s	10 (40*)	8	-	1	2 + 8	-	2
DEWE-ORION-1622-104	16	102.4 kS/s	10 (40*)	8	-	1	2	8	-
DEWE-ORION-1622-105	16	102.4 kS/s	10 (40*)	8	-	1	2	8	2
DEWE-ORION-3222-100	32	102.4 kS/s	18 (24*)	8	1	1	2	-	-
DEWE-ORION-3222-101	32	102.4 kS/s	18 (24*)	8	1	1	2	-	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	22 bit, nominal	
Type of ADC	Delta-sigma	
Sampling rate	102.4 kS/s per channel	
Data throughput	1.6 MS/s max.	
Oversampling, for sample rate (fs)		
Frequency accuracy	± 25 ppm	
100 S/s $\leq f_s \leq 51.2$ kS/s	256 f_s	
51.2 kS/s $< f_s \leq 102.4$ kS/s	128 f_s	
Input signal range	± 10 V _{peak}	
FIFO buffer size	4096 samples	
Data transfers	DMA	
Transfer characteristics		
DC accuracy	% of reading	% of range
± 10 V	0.05 %	0.01 %
Gain drift	± 15 ppm/K	
Amplifier characteristics		
Input impedance (ground referenced)	10 M Ω in parallel with 60 pF	
Overvoltage protection	± 30 V	
Common mode rejection (CMR) with AISense		
$f_{in} < 1$ kHz	> 60 dB, typ.	

Flatness digital filter 1 kS/s $\leq f_s \leq 51.2$ kS/s 51.2 kS/s $< f_s \leq 102.4$ kS/s	-0.035 dB to +0.01 dB, DC to $0.475 f_s$ -0.035 dB to +0.01 dB, DC to $0.45 f_s$
-3 dB bandwidth digital filter 1 kS/s $\leq f_s \leq 51.2$ kS/s 51.2 kS/s $< f_s \leq 102.4$ kS/s	$0.494 f_s$ $0.49 f_s$
Analog bandwidth -1 dB Bandwidth -3 dB Bandwidth	90 kHz 160 kHz
Maximum working voltage	
Channel-to-ground, channel-to-channel	10 V, installation category I
Max. working voltage refers to the signal voltage plus common-mode voltage.	

Dynamic Characteristics

Dynamic characteristics	
Alias-free bandwidth (passband) 1 kS/s $\leq f_s \leq 51.2$ kS/s 51.2 kS/s $< f_s \leq 102.4$ kS/s	DC (0 Hz) to $0.42 f_s$ DC (0 Hz) to $0.32 f_s$
Alias rejection 1 kS/s $\leq f_s \leq 51.2$ kS/s 51.2 kS/s $< f_s \leq 102.4$ kS/s	-95 dB -92 dB
Signal to noise 1 kS/s $\leq f_s \leq 51.2$ kS/s 51.2 kS/s $< f_s \leq 102.4$ kS/s	102 dB 99 dB
Spurious free dynamic range 1kS to 51.2 kS/s 51.2kS to 102.4 kS/s	126 dB 121 dB
THD (1kS/s $\leq f_s \leq 102.4$ kS/s)	0 dB _{FS} input < -90 dB -20 dB _{FS} input < -100 dB -60 dB _{FS} input < -60 dB
Crosstalk (channel separation) f_{in} 0 to 10 kHz f_{in} 10 to 50 kHz	105 dB 90 dB
Typical interchannel gain mismatch	± 0.002 dB
Filter delay through ADC 1 kS/s $\leq f_s \leq 51.2$ kS/s 51.2 kS/s $< f_s \leq 102.4$ kS/s	$12 / f_s$ $9 / f_s$
Inter channel phase mismatch	$0.02^\circ * f_{in}$ (kHz) + 0.08°

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-1622-102 and -103)	
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 continuous
Input signal characteristic expansion board with adjustable input (used on ORION-1622.104 and -105)	
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-1622-100	---	1240	---	6,2
ORION-1622-101	---	1310	---	6,6
ORION-1622-102	---	1360	---	6,8
ORION-1622-103	---	1430	---	7,2
ORION-1622-104	---	1560	---	7,8
ORION-1622-105	---	1630	---	8,2
ORION-3222-100	---	2230	---	11,2
ORION-3222-101	---	2300	---	11,5

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)