SPECIFICATIONS

CDA-2990

Clock Distribution Device

These specifications apply to the CDA-2990 Clock Distribution Device and the CDA-2990 Clock Distribution Device with GPSDO. When not otherwise specified, the specifications for the CDA-2990 in this document refer to both the CDA-2990 and the CDA-2990 with GPSDO.

This icon denotes a caution, which advises you of precautions to take to avoid injury, data loss, or a system crash.

Caution The protection provided by this product may be impaired if it is used in a manner not described in this document.

Contents

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

NATIONAL INSTRUMENTS

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- *Typical* specifications describe the expected performance met by a majority of the models.
- *Nominal* specifications describe parameters and attributes that may be useful in operation.

Specifications are *Characteristics* unless otherwise noted.

Conditions

Specifications are valid at 25 °C unless otherwise noted.

Input

Reference Clock Input	
Frequency	10 MHz
Power range	0 dBm to 20 dBm (0.632 V_{pk-pk} to 6.325 V_{pk-pk} into 50 Ω)
Coupling	AC
Impedance	50 Ω
PPS Input	
Voltage, recommended minimum	2.5 V
Voltage, recommended maximum	5 V
Voltage, operating maximum	5.3 V
Voltage, absolute maximum	6.8 V
Voltage, maximum logic level low (V_{IL})	0.74 V
Volts, minimum logic level high (V_{IH})	1.8 V
Compatible logic families	TTL, CMOS, LVTTL, LVCMOS

Output

Note In addition to the ability to distribute external sources, the CDA-2990 with GPSDO can also generate clock and PPS signals internally. To activate the GPSDO, move the switch on the front panel to INTERNAL.

Clock Output	
Frequency	10 MHz
Frequency accuracy	
Without GPSDO	Dependent on input
With GPSDO, unlocked	25 ppb
Power	10 dBm, typical
Voltage	1.4 V_{pk-pk}
Waveform	Square wave
Impedance	50 Ω
Coupling	AC
PPS Output	
Voltage, maximum	5 V
Positive duty cycle	20%, typical
Period	1 s, typical
Waveform	Logic-level pulse
Accuracy	
Without GPSDO	Dependent on input
With GPSDO, unlocked[1]	<±20 µs
With GPSDO, locked	50 ns

GPS Disciplined Oscillator (GPSDO)

Active antenna	
Voltage	5 V
Power	0.7 W
GPS Frequency	L1, C/A 1,574 MHz
GPS Antenna	Active or passive

[1] Over a 3-hour period at 25 °C (OCXO, no motion).

Sensitivity	
Acquisition	-142 dBm
Tracking	-158 dBm
GPS TTFF	
Cold start	<45 s
Warm start	1 s
Hot start	1 s
Allan deviation (ADEV)[2]	1×10^{-12}
Warm-up/stabilization time[3]	<5 min

Power Supply

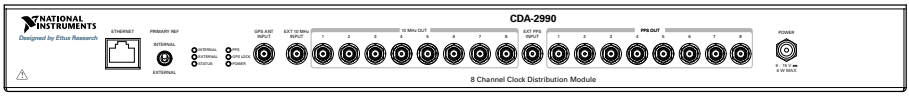
Input voltage	6 V to 15 V DC
Input power	6 W maximum

Physical Characteristics

Physical dimensions	
(L × W × H)	4 in. × 17.19 in. × 1.75 in. (10.16 cm × 43.66 cm × 4.45 cm)
Weight	2.6 lbs (1.18 kg)

Hardware Front Panel

Figure 1. Clock Distribution Accessory Front Panel



[2] At 10 ks (OCXO, GPS locked, no motion).
[3] To 1×10^{-8} accuracy

Environment

Ambient temperature range	0 °C to 55 °C (tested in accordance with IEC 60068-2-1 and IEC 60068-2-2.)
Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Operating temperature	23 °C ± 5 °C, room temperature.
Relative humidity range	10% to 90%, noncondensing (tested in accordance with IEC 60068-2-56)

Compliance and Certifications

Safety

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

Note For UL and other safety certifications, refer to the product label or the *Online Product Certification* section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions

Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe,

Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.

Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.

Note For EMC declarations, certifications, and additional information, refer to the *Online Product Certification* section.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit *ni.com/certification*, search by model number or product line, and click the appropriate link in the Certification column.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at *ni.com/environment*. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

Waste Electrical and Electronic Equipment (WEEE)

EU Customers At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit *ni.com/environment/weee*.

电子信息产品污染控制管理办法（中国 RoHS）

中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令(RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)

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