
CDA-2990

Specifications

2024-10-11



Contents

CDA-2990 Specifications 3

CDA-2990 Specifications

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.

Definitions

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

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 performance met by a majority of models.
- **Nominal** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are **Characteristics** unless otherwise noted.

Conditions

Specifications are valid at 25 °C unless otherwise noted.

Input

Table 1. 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

Table 2. 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
Voltage, minimum logic level high (V _{IH})	1.8 V
Compatible logic families	TTL, CMOS, LVTTTL, 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.

Table 4. Clock Output

Frequency	10 MHz
Frequency accuracy without GPSDO	Dependent on input
Frequency accuracy with GPSDO, unlocked	25 ppb
Power	10 dBm, typical
Voltage	1.4 V _{pk-pk}

Waveform	Square wave
Impedance	50 Ω
Coupling	AC

Table 4. 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 μ s
With GPSDO, locked	50 ns

GPS Disciplined Oscillator (GPSDO)

Table 5. Active antenna

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

Table 6. Sensitivity

Acquisition	-142 dBm
Tracking	-158 dBm

Table 7. GPS TTFF

Cold start	<45 s
Warm start	1 s

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

Hot start	1 s
Allan deviation (ADEV) ²	1×10^{-12}
Warm-up/stabilization time ³	<5 min



Note NI recommends periodically locking the GPS for at least 1 hour to recalibrate the GPSDO module accuracy.

Power Supply

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

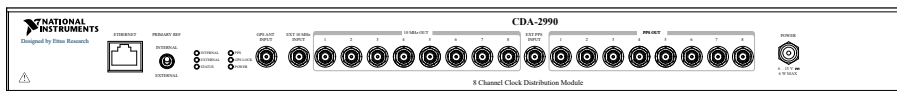
Physical Characteristics

Table 8. 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



Environment

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution Degree	2

- At 10 ks (OCXO, GPS locked, no motion).
- To 1×10 accuracy

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)