RT411

Time Signal Distributor



RT411 - Time Signal Distributor is a signal multiplier to synchronize multiple devices in the substation. It works as a time signal transceiver providing IRIG-B demodulated, PPS or any signal with frequencies up to 5 MHz, through optical and electrical outputs with voltage between 0 and 5 V d.c. The RT411 act as a slave from timing signals received from a clock.

Customer Benefits

- Sustains 100 nanosecond accuracy of GPS clock
- 10 TTL electrical outputs
- 10 fiber optic outputs
- Robust design for the substation environment
- Converts optical and electrical inputs whilst extending the number of outputs available

Technical Specification

ELECTRICAL OUTPUTS	
Connectors	8x header type 2x BNC (female)
Drive	150 mA
High level	Between 4.5 Vdc and 5 Vdc
Low level	< 0.2 Vdc
Impedance	18 Ω
Electrical Cable Length	Up to 100m

OPTICAL OUTPUTS	
Connector	10x ST
Wavelength	820nm
Multimode fiber type	50/125 µm, 2.5/125 µm, 100/140 µm or 200 µm HCS
Output power	−17.8 dBm (50/125 µm) −14.0 dBm (62,5/125 µm) −8.5 dBm (100/140 µm) −5.7 dBm (200 µm HCS)
Optical Fiber Length	up to 2 km

SAFETY TESTS	
Safety	IEC 61010-1
IEC 60255-5	Impulse: 5 kV Dielectric withstand: 2.8 kV dc Insulation: > 100 MΩ

OPTICAL INPUT	
Connector	1x ST
Wavelength	820nm
Multimode fiber type	50/125µm, 62.5/125µm, 100/140µm or 200µm HCS
Sensitivity	-24 dBm
Input Selection	Opened (without jumper)

ELECTRICAL INPUT	
Connector	1x Header type
Voltage level	TTL
Impedance	> 500 Ω
Input Selection	Closed (with a jumper)

POWER SUPPLY	
Operating nominal voltage	100-250 Vdc 110-240 Vac
Operating voltage range	80-300 Vdc 88-264 Vac
Frequency	50/60 Hz ± 3 Hz
Power consumption	Max 20 VA
	Typical 15 W

DIMENSIONS AND WEIGHT	
Height	1 U
Width (frontal panel)	19"
Width (body)	430 mm (16.9in)
Depth	180 mm (7.1in)
Weight	2.7 Kg (5.9 lbs)

ENVIRONMENTAL CONDITIONS	
Temperature range	-40°...+55°C (-40°...+131°F)
Enclosure protection	IP40
Relative humidity	5...95% noncondensing

ENVIRONMENTAL TESTS	
IEC 60068-2-1	-40°C, 16 hours (Cold)
IEC 60068-2-2	+85°C, 16 hours (Dry heat)
IEC 60068-2-30	95% no condensation, +55°C (Damp heat)
IEC 60068-2-14	-40°C to +85°C / 9 hours / 2 cycles (Change of temperature)
IEC 60255-21-1	Class 2 (Vibration)
IEC 60255-21-2	Class 1 (Shock)

TYPE TEST	
EMC tests were performed according to IEC 60255-26 referring to the following standards	
IEC 61000-4-2:2008	6 kV contact / 8 kV air
IEC 61000-4-3:2006	10 V/m
IEC 61000-4-4:2012	2 kV @ 5 kHz
IEC 61000-4-5:2005	Differential mode: 1 kV Common mode: 2 kV
IEC 61000-4-6:2008	10 V

TYPE TEST	
IEC 61000-4-8:2009	30 A/m continuous 300 A/m @ 1 s
IEC 61000-4-11:2004 IEC 61000-4-29:2000	- A.C. and D.C. voltage dips Test level: 0% residual voltage Duration time A.C.: 1 cycle D.C.: 16,6 ms - Test level: 40% residual voltage Duration time A.C.: 12 cycles D.C.: 200ms - Test level: 70% residual voltage Duration time A.C.: 30 cycles D.C.:500 ms - A.C. and D.C. voltage interruptions Test level: 0% residual voltage Duration time A.C.: 300 cycles D.C.: 5 s
IEC 61000-4-17:1999	Test level: 15% of rated DC value Test frequency: 120 Hz, sinusoidal waveform
IEC 61000-4-18:2006	Voltage oscillation frequency: 1 MHz Differential mode: 1 kV peak voltage; Common mode: 2.5 kV peak voltage
IEC 60255-26	Shut-down ramp: 60 s Power off: 5 m Start-up ramp: 60 s
CISPR11:2009	Radiated emission Limits: 30 to 230 MHz – 50 dB (µV/m) quasi peak at 3 m 230 to 1000 MHz – 57 dB (µV/m) quasi peak at 3 m

For more information, visit
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