



# Kronos Series 2R

## 19" Rackmount – Satellite Clock



### Description

The Kronos Series 2R Satellite Clock is purpose-built for the demanding requirements of protection, automation, and control applications within power systems. The Series 2R features expanded output capacities with a variety of IRIG-B and NTP outputs, offering versatility in critical operations within utility substations. Configuration is simple and intuitive using the WebUI, and status is quickly observed on the integrated LED display.

Designed with utility-grade reliability, the Series 2R seamlessly integrates into standard 19" racks and occupies 1 rack unit of space. With support for multiple constellations, the Series 2R ensures fast lock and minimal time in holdover while maintaining accuracy of  $\pm 60$ ns.

### Key Features

#### Ethernet Integration

- Supports browser-based configuration and SNMP
- Optional second Ethernet Port, supports port bonding

#### Output Flexibility

- NTP and SNTP
- IRIG-B (unmodulated and modulated)
- Ethernet, twisted pair, coax, fiber
- PPS or PPM signals

#### Multi-Constellation Support

- Locks onto GNSS constellations: GPS, GLONASS, BeiDou, Galileo
- Assures fast lock and minimal time in holdover

#### High Precision

- Available with standard TCXO
- Antenna cable-delay compensation for enhanced accuracy
- Accuracy 60ns (99%, clear sky)



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## Technical Data

### General Data

Unit Dimensions	19"W x 1.73"H x 7.7"D (483 x 44 x 155mm)
Mounting / Front Panel Height	19" Rack / 1 RU
Housing Material	Aluminum
Degree of Protection	IP40-rated enclosure protection
Weight	5.5 lb (2.5 kg)

### Power Supply

Supply Voltage Range	LV: 24-48V dc +/-20% HV: 80-300V dc / 90-240V ac (50/60 Hz) +/-20%
Max Power Consumption	43VA
Redundant Power Supply	Optional

### Indicators

LED	Locked (Green) Holdover (Yellow) Alarm (Red)
Display	Red Dot Matrix Display (5.0"x0.7"/127x18mm)

### Environmental

Operating Temperature	-40°C to +70°C (-40°F to +158°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	5% to 95%, non-condensing
Altitude	2000m

### Unmodulated IRIG-B

Supported IRIG-B Protocols	B000/B002/B004/B006
Connector Type / Quantity	Pluggable compression screw terminal (twisted pair): up to 6 BNC female (coax): up to 12 ST (fiber): up to 6
Physical Performance (twisted pair, coax)	200mA drive capability at 5V level Up to 160 ft (50 m) cable 15 $\Omega$ output impedance Fully-isolated
Optical Performance (fiber)	820nm wavelength Optical power: -15.8dBm into 50/125 $\mu$ m fiber (-12dBm into 62.5/125 $\mu$ m fiber)

### Modulated IRIG-B

Supported IRIG-B Protocols	B120/B122/B124/B126
Connector Type / Quantity	BNC female (coax): up to 6
Electrical Performance (twisted pair, coax)	5V pp (no load) / 3.2V pp (50 $\Omega$ load) output voltage 25 $\Omega$ output impedance



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Ethernet	
Connector Type	1 RJ45 10/100BaseT Ethernet Port Optional second port (See Output Expansion Cards)
Protocols	DHCP VLAN IEEE 802.1Q NTP/SNTP SNMP MQTT HTTPS
Bonding / Link Aggregation (with second Ethernet Port option added)	None: two distinct IP addresses, one for each network interface Round-robin: alternate network packets over both interfaces Active-backup Broadcast: all packets are sent over both interfaces

GNSS Interface	
GNSS Receiver Multi-constellation 72-channel	L1-C/A (1575.42 MHz) GPS signal E1-B/C (1575.42 MHz) Galileo L1OF (1602 MHz) GLONASS B1 (1561.098 MHz) BeiDou  Note: TCXO supports GPS, Galileo, and GLONASS or BeiDou simultaneously
Antenna Connector Type	TNC (female), 50 $\Omega$
Antenna Type	Active
Holdover Oscillator	TCXO (standard): 0.1 ppm (approx. 8.64ms/24hrs) typical drift
Tracking Sensitivity	-166dBm

Functional	
Alarm Dry Contact	Type C / Breaking Capacity: 300mA @ 300V dc (resistive load)
Additional Features	Built-in SNMP agent, with trap generation User-configurable rules for daylight saving time (DST) Antenna cable open and short-circuit detection PPS/PPM signal

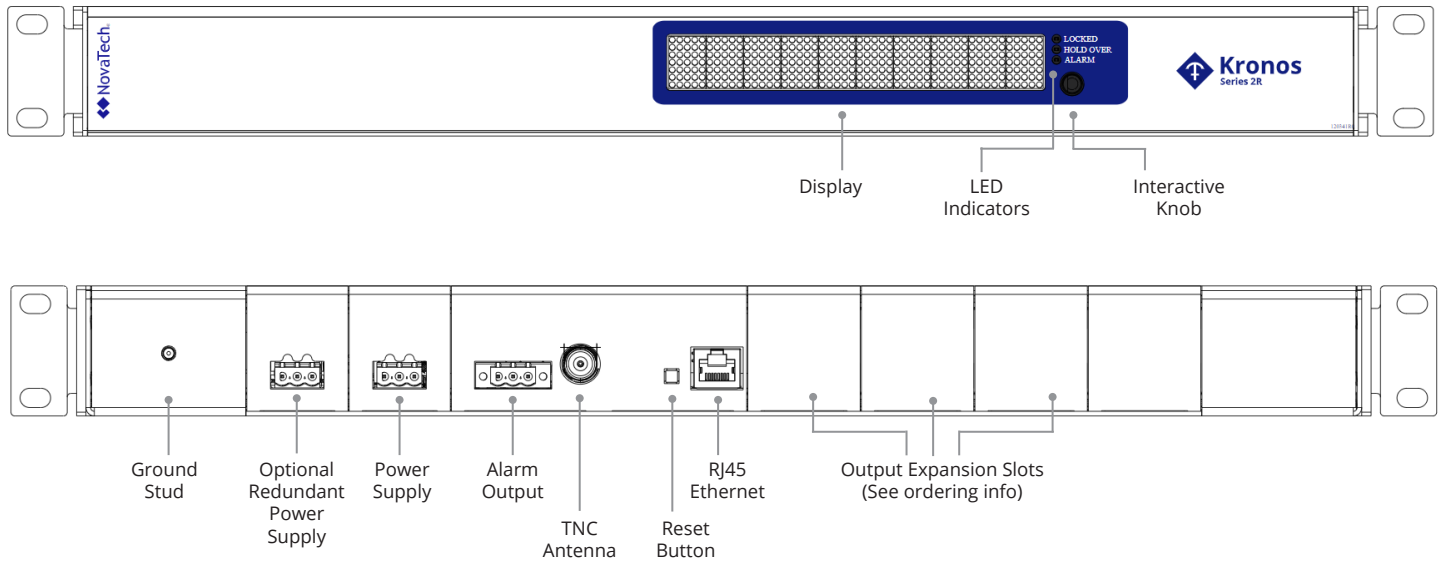
Export Information	
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HS Code	8517.62



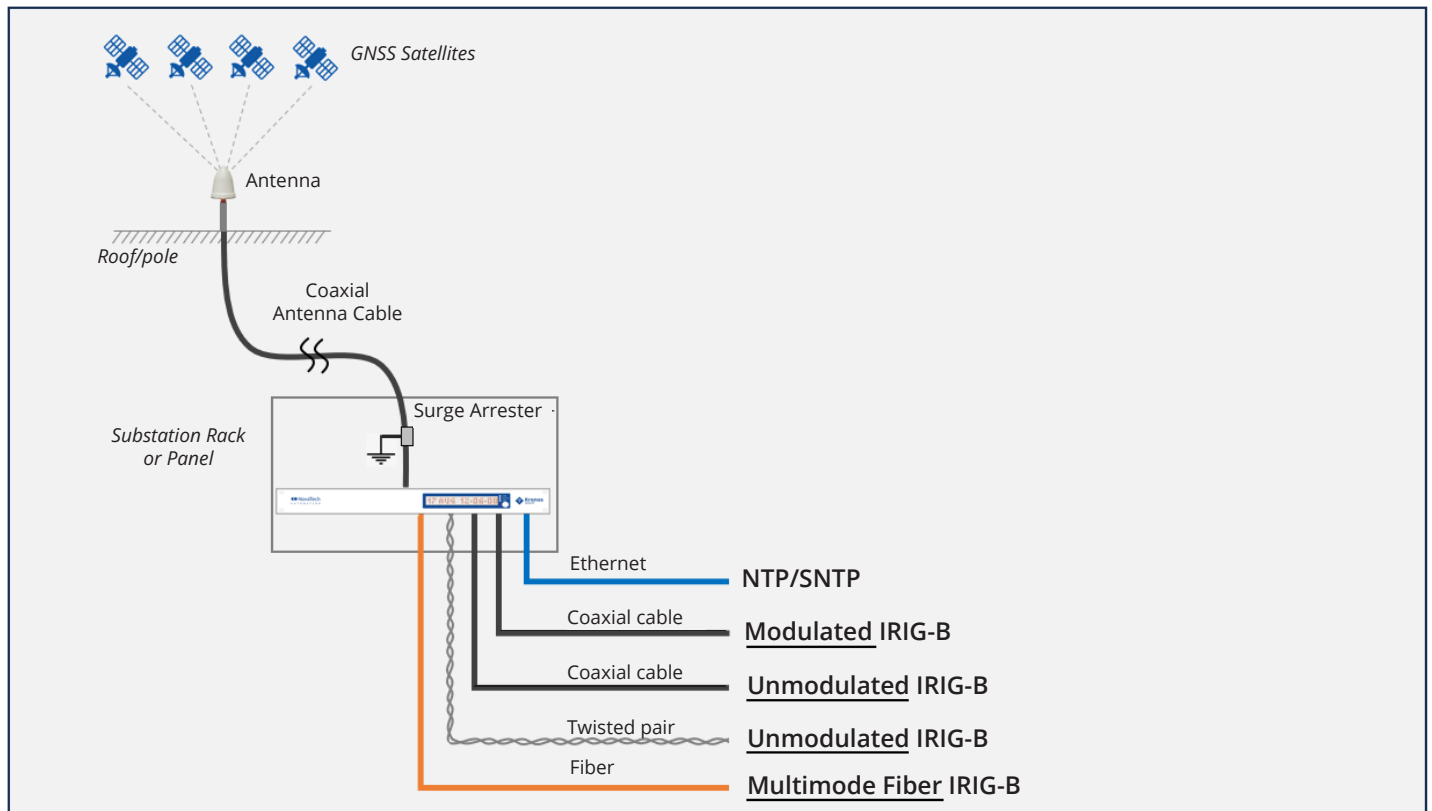
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### Product Diagram



### Application Diagram





**Kronos Series 2R**  
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**Ordering Information**

Output Expansion Cards

Card P/N	-1	-2	-4	-A	-F	-P
Type	Unmodulated	Unmodulated	Unmodulated	Modulated	Multimode Fiber	Ethernet (Copper)
Connectors	1 BNC + Compression screw terminal	Compression screw terminal	4 BNC	2 BNC	2 ST	1 RJ45
IRIG Formats	B000/2/4/6	B000/2/4/6	B000/2/4/6	B120/2/4/6	B000/2/4/6	N/A
Output Power	1 x 200mA	2 x 200mA	4 x 200mA	2 x 200mA	-15.8dBm in 50/125µm fiber	N/A
Diagram						



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## Ordering Information

Model Builder

Model		Power Supply 1	Power Supply 2		Expansion Card 1	Expansion Card 2	Expansion Card 3		Antenna		Antenna Cable		Antenna Mount		Description
Kronos 2R	-			-				-							Rack mount satellite clock, includes 1 RJ45 Ethernet Port, 10' coax cable and surge arrestor
		HV	HV	-	-	-	-	-	-	-	-	-	-	-	80-300V dc/85-264V ac Power Supply
		LV	LV	-	-	-	-	-	-	-	-	-	-	-	18-60V dc Power Supply
			XX	-	-	-	-	-	-	-	-	-	-	-	No Redundant Power Supply
					A	A	A	-	-	-	-	-	-	-	Dual Modulated Output Card
					1	1	1	-	-	-	-	-	-	-	Single Unmodulated Output Card
					2	2	2	-	-	-	-	-	-	-	Dual Unmodulated Output Card
					4	4	4	-	-	-	-	-	-	-	Quad Unmodulated Output Card
					F	F	F	-	-	-	-	-	-	-	Dual Fiber Output Card
					P	-	-	-	-	-	-	-	-	-	Second Ethernet Port
					X	X	X	-	-	-	-	-	-	-	Empty Expansion Slot (note: Must fill in order)
									AU	-	-	-	-	-	Universal Antenna
									XX	-	-	-	-	-	No Antenna
											C015	-			Antenna Cable 15' (4.5m) – RG58
											C030	-			Antenna Cable 30' (9m) – RG58
											C050	-			Antenna Cable 50' (15m) – RG58
											C080	-			Antenna Cable 80' (25m) – RG58
											C200	-			Antenna Cable 200' (60m) – LMR400
											XXXX	-			No Antenna Cable
													MT		Antenna Mount for Universal Antenna (AU)
													XX		No Antenna Mount