



# UTILITIES COMMUNICATION SOLUTIONS

**SINCLAIR**  
A DIVISION OF NORSAT INTERNATIONAL INC.

# INNOVATIVE COMMUNICATION SOLUTIONS FOR THE UTILITIES INDUSTRY



Sinclair Technologies has been providing major hydro, electric, and water companies with a full line of antennas, combiners, and filter systems worldwide. Built for performance, Sinclair products have been used in the utilities industry for over 60 years. Reliable with SCADA, AMI, and smart grid communications, Sinclair offers superior products ensuring seamless wireless network performance. Sinclair antennas range from a wide variety of product lines including yagi, dipole, omni, and multi-band antennas which are all available in low to high frequency bands. Sinclair products are innovative, cost effective, and robust solutions for your communications systems.



ELECTRIC  
COOPERATIVES



OIL & GAS



HYDRO COMPANIES



MAJOR UTILITIES



Sinclair is Member of



We work together to define the vision  
for the North American market.

# AURORA™ COLLINEAR OMNI ANTENNAS

Utilizing cutting-edge, field-proven balanced design technology, the Aurora antenna design achieves an unparalleled combination of higher gain, wider bandwidth, highly consistent RF pattern, higher wind rating, and lighter weight, all in the smallest form factor.



## RUGGED CONSTRUCTION

UV-protected radome and heavy-duty materials allow for long life span in harsh environments.



## ULTRA-WIDE BANDWIDTH

Patent-pending PCB design covers wider frequency ranges and higher gains creating more efficient and effective communication systems.



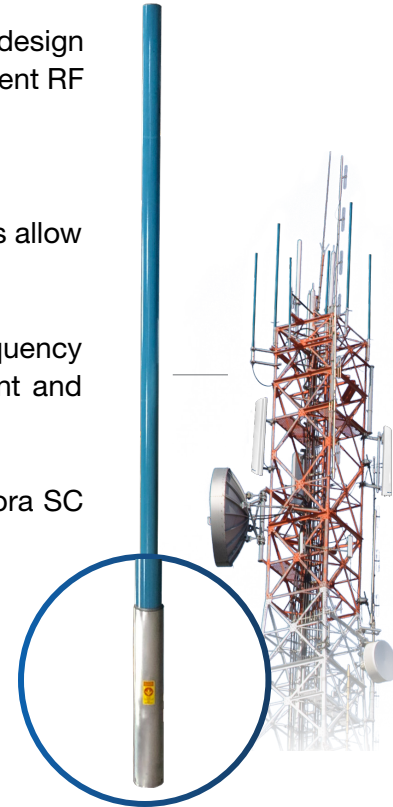
## LOW NOISE CHARACTERISTICS

Industry-leading -150 dBc PIM rating. The Aurora SC series is ideal for public safety applications and trunking systems.



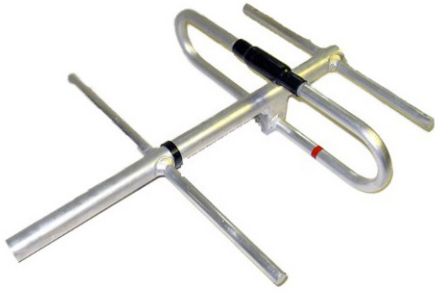
## EASY-TO-INSTALL

Lighter weight and small wind-loading profile allows for easy installation.



	SC246	SC346	SC469
<b>Electrical Specifications</b>			
Frequency Range	136 to 225 MHz	380 to 480 MHz	746 to 869 MHz
Bandwidth	8 MHz	20 MHz	123 MHz
Gain (Nominal)	6 dBi (8.1 dBd)	6 dBi (8.1 dBd)	11.1 dBi (9 dBd)
Input VSWR (Max)	1.5:1	1.5:1	1.5:1
Polarization	Vertical	Vertical	Vertical
Pattern	Omni-directional	Omni-directional	Omni-directional
Electrical Tilt (Available)	0, 2, 4 or 6 degrees	0, 3 or 6 degrees	0 to 10 degrees
<b>Mechanical Specifications</b>			
Length/ Height	256 in (6502 mm)	-	135 in (3429 mm)
Base Pipe Mounting Length	-	12 in (305 mm)	16 in (406 mm)
Radome Material	Fiberglass (UV Protected)	Fiberglass (UV Protected)	Fiberglass (UV Protected)
Weight	36 lbs (16.34 kg)	20 lbs (9.08 kg)	25 lbs (11.35 kg)
<b>Environmental Specifications</b>			
Temperature Range	-40 to +60°C (-40 to +140°F)	-40 to +60°C (-40 to +140°F)	-40 to +60°C (-40 to +140°F)

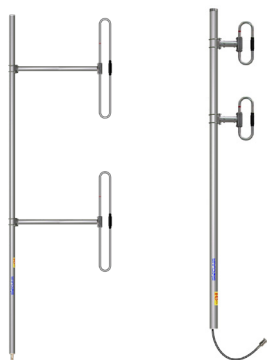
# YAGI ANTENNAS



The SY series of antennas consists of a six-element yagi with outstanding durability and performance, perfect for the utilities industry. All elements including the folded dipole are maintained at DC Ground potential for lightning protection. All elements on this antenna are attached to the boom with solid cast aluminum clamps. This highly versatile antenna is supplied as a standard mount yagi, or, as an endboom mounted unit.

	<b>SY206(C)</b>	<b>SY206(E)</b>	<b>SY350</b>	<b>SY406</b>
<b>Electrical Specifications</b>				
Frequency Range	138 to 225 MHz	152 to 159 MHz	380 to 512 MHz	835 to 900 MHz
Bandwidth	4 MHz	7 MHz	132 MHz	65 MHz
Connector	N-Male	N-Male	N-Male	N-Male
Gain (Nominal)	9.5 dBd (11.6 dBi)	9.5 dBd (11.6 dBi)	7.5 dBd (9.6 dBi)	10 dBd (12.1 dBi)
Input VSWR (Max)	1.5:1	1.5:1	2:1	1.5:1
Polarization	Vertical or Horizontal	Vertical or Horizontal	Vertical or Horizontal	Vertical or Horizontal
Pattern	Directional	Directional	Directional	Directional
Average Power Input (Max)	175 W	250 W	150 W	125 W
<b>Mechanical Specifications</b>				
Depth	5.75 in (146 mm)	-	3.75 in (95 mm)	2.63 in (67 mm)
Length/ Height	80.91 in (2055 mm)	108 in (2743 mm)	34 in (864 mm)	24 in (610 mm)
Width	42.17 in (1071 mm)	37 in (940 mm)	14.81 in (376 mm)	7.08 in (180 mm)
Base Pipe Diameter	1.5 in (38 mm)	-	0.84 in (21 mm)	-
Radiating Element Material	Aluminum	Aluminum	-	Aluminum
Reflector Material	Aluminum	Aluminum	-	Aluminum
Weight	12.5 lbs (5.68 kg)	35 lbs (15.89 kg)	2.85 lbs (1.29 kg)	1.06 lbs (0.48 kg)
Mounting Hardware (Standard)	Clamp001	Clamp064	Clamp115	Clamp115 (Included)
<b>Environmental Specifications</b>				
Temperature Range	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)
Wind Loading Area (Flat Plate Equivalent)	1.41 ft <sup>2</sup> (0.13 m <sup>2</sup> )	1.85 ft <sup>2</sup> (0.17 m <sup>2</sup> )	0.38 ft <sup>2</sup> (0.04 m <sup>2</sup> )	0.18 ft <sup>2</sup> (0.02 m <sup>2</sup> )
Wind Loading Area (Ice)	2.9 ft <sup>2</sup> (0.27 m <sup>2</sup> )	5.96 ft <sup>2</sup> (0.55 m <sup>2</sup> )	1.06 ft <sup>2</sup> (0.1 m <sup>2</sup> )	0.53 ft <sup>2</sup> (0.05 m <sup>2</sup> )
Rated Wind Velocity (No Ice)	145 mph (233 km/h)	-	185 mph (298 km/h)	150 mph (242 km/h)
Rated Wind Velocity (1/2" Radial Ice)	85 mph (137 km/h)	-	110 mph (177 km/h)	85 mph (137 km/h)
Lateral Thrust (100mph)	31 lbs (137.9 N)	289 lbs (1285.5 N)	15.1 lbs (67.2 N)	7 lbs (31.1 N)
Bending Moment	81 ft-lbs (109.4 Nm)	1253 ft-lbs (1691.6 Nm)	19.2 ft-lbs (25.9 Nm)	5.26 ft-lbs (7.1 Nm)

# DIPOLE ANTENNAS



The SD242 series is an extremely rugged 2-bay exposed dipole antenna designed for applications where moderate gain is required and Passive Intermodulation interference (PIM) is a consideration. These premium-quality antennas are well suited for public safety applications. The design of these antennas provides for coverage from 118 to 225 MHz in 3 sub bands, the 138-174 MHz band is for private mobile networks and public safety.

The SD312 series is an extremely rugged 2-bay exposed dipole antenna designed for applications in the 370-512 MHz range where the moderate gain is required. These premium-quality antennas are well suited to public safety applications.

	<b>SD242</b>	<b>SD312-H</b>
<b>Electrical Specifications</b>		
Frequency Range	138 to 174 MHz	370 to 512 MHz
Gain (Nominal)	5 dBd (7.1 dBi)	5.5 dBd (7.6 dBi)
Input VSWR (Max)	1.5:1	1.5:1
Connector	7/16 DIN-Female	N-Male
Polarization	Vertical	Vertical
Pattern	Offset or Bi-directional	Offset or Bi-directional
Average Power Input (Max)	300 W	150 W
<b>Mechanical Specifications</b>		
Depth	3.5 in (76 mm)	3.5 in (89 mm)
Length/ Height	120 in (3048 mm)	83.13 in (2112 mm)
Width	42 in (1067 mm)	12.25 in (311 mm)
Base Pipe Diameter	1.9 in (48 mm)	1.9 in (48 mm)
Radiating Element Material	Aluminum	Aluminum
Base pipe material	Aluminum	Aluminum
Weight	23.2 lbs (10.53 kg)	9.6 lbs (4.36 kg)
Mounting Hardware (Standard)	Clamp005 or Clamp005X	Clamp005, Clamp015, Clamp130, or Clamp125U
Mounting Configurations	Universal	Universal
<b>Environmental Specifications</b>		
Temperature Range	-40° to +140°F (-40° to +60°C)	-40° to +140°F (-40° to +60°C)
Wind Loading Area (Flat Plate Equivalent)	1.86 ft <sup>2</sup> (0.17 m <sup>2</sup> )	0.97 ft <sup>2</sup> (0.09 m <sup>2</sup> )
Wind Loading Area (Ice)	3.31 ft <sup>2</sup> (0.31 m <sup>2</sup> )	3.53 ft <sup>2</sup> (0.33 m <sup>2</sup> )
Rated Wind Velocity (No ice)	150 mph (242 km/h)	240 mph (386 km/h)
Rated Wind Velocity (1/2" Radial Ice)	105 mph (169 km/h)	170 mph (274 km/h)
Lateral Thrust (100mph)	79.9 lbs (355.4 N)	38.4 lbs (170.8 N)
Bending Moment	233.7 ft-lbs (315.5 Nm)	109 ft-lbs (147.2 Nm)

# IntelliTUNE™ Auto Tunable Combiner

## VHF/UHF/700/800MHz



### FLEXIBILITY

Deploy without prior knowledge of precise TX frequencies. Ideal for emergency situations where flexibility and rapid deployment are key, or systems that often require changing operating frequencies.



### REMOTE MONITORING

Facilitates comprehensive remote alarm monitoring for all ports.



### EASY EXPANSION

Easy expansion makes for a future proof communications system. Up to 32 channels can be supported by a single controller.



### NEW TECHNOLOGY

The INTELLITUNE™ patent pending design comes with cutting-edge technologies and optimized architecture for outstanding performance and reliability.

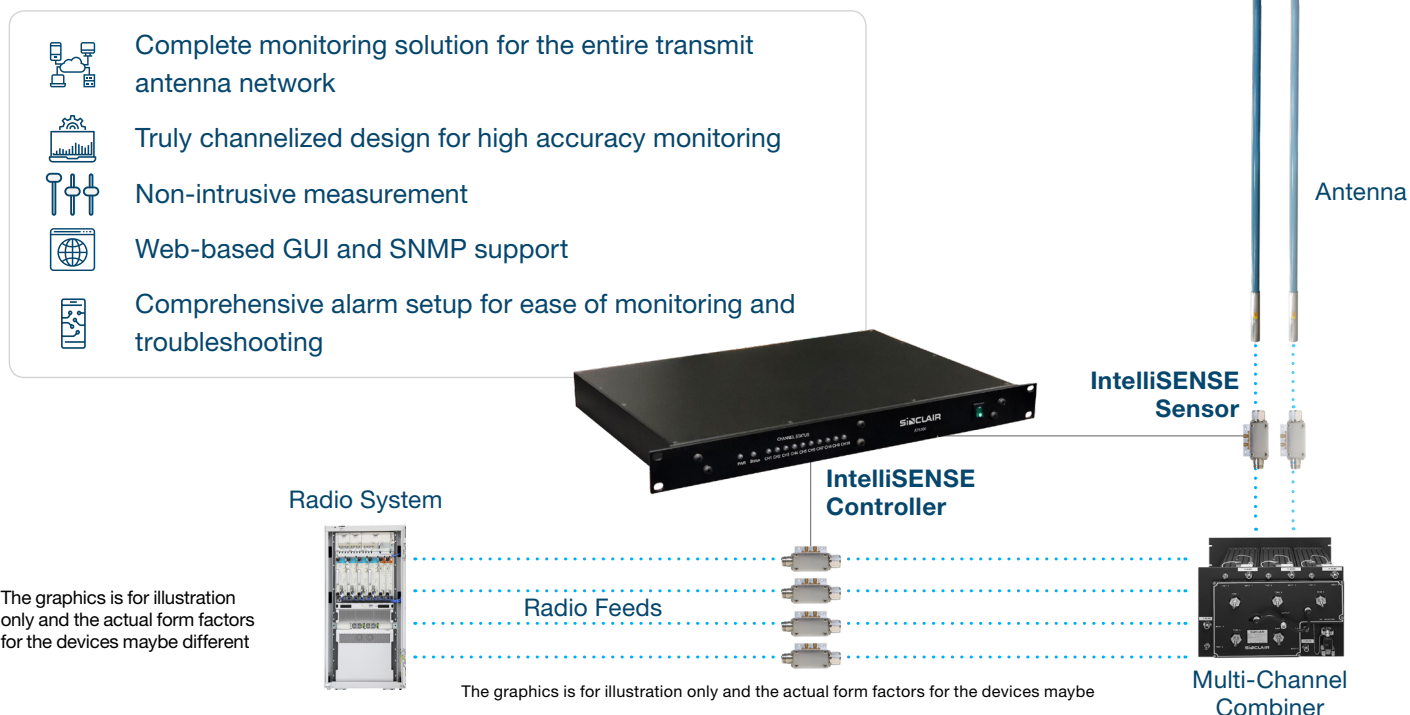


### TUNE ON THE FLY

Fully automated in detecting and tuning each channel to Tx frequency for multiple applications.

	TJA2	TJA3
<b>Electrical Specifications</b>		
Frequency Range	132 to 174 MHz	320 to 512 MHz
Automatic Tx Frequency Detection		Yes
Automatic Re-tuning		Yes
Tuning Accuracy		± 15 kHz
Number of Channels	2 to 8	2 to 32
Input VSWR		1.25 : 1
Output VSWR	2 : 1	2 CH 1.8 : 1 >=4 CH 2 : 1
Communication Interface	1 x Ethernet port (RJ45), and 1 x USB port	
Alarm Support	GUI/SNMP	
Power Handling	Up to 100 Watts per Channel	
Easy Expansion		Yes
Power Supply Voltage	12 VDC (other options available)	
<b>Environmental Specifications</b>		
Temperature Range	-30 to +60°C (-22 to +140°F)	

# IntelliSENSE System Monitoring (100-1000MHz)



## Electrical Specifications - System Monitoring Control Unit

Frequency Range	100-1000 MHz
Power Sensor	Bi-directional
Impedance	50 Ohm
VSWR Alarm Range	1:1 to 3:1
Power Reading Accuracy	±5%
Frequency Resolution	±1 kHz
Power Supply	1A @ 12 VDC

## Electrical Specifications - Power Sensor

Frequency Range	100-1000 MHz
Input/output Connector	N type, or DIN
VSWR (max)	1.1:1
Insertion Loss	0.1 dB
Directional Isolation	22 dB
Maximum Power handling	300 W
Monitor outputs connectors	SMA F
PIM	-150 dBc

## Mechanical Specifications - Monitoring System

Width	483 mm (19 in)
Depth	254 mm (10 in)
Length/ Height	44 mm (1.75 in)
Weight	2 kg (4.5 lbs)
USB connector	USB-mini-B
Ethernet connector	RJ-45 10/100

## Monitoring Features

Average Antenna VSWR	√
Average Antenna Forward Power	√
User/Alarm Management	√
Antenna VSWR Alarm	√
SNMP Support	√
Individual Tx Channel Frequency	√*
Individual Tx Channel Power	√*
Individual Tx Channel Return Loss	√*
Antenna Individual-channel VSWR (graphic view)	√*
Individual Channel Insertion Loss	√*
Individual Channel Forward Power to Ant	√*
Antenna Individual VSWR Alarm	√*
Individual Tx Return Loss Alarm	√*
Individual Tx Power Alarm	√*
Individual Tx Insertion Loss Alarm	√*

\*Requires a sensor hardware configured and installed for each input channel.

## Mechanical Specifications - Power Sensor

Width	51 mm (2 in)
Depth	91 mm (3.6 in)
Length/ Height	57 mm (2.25 in)
Weight	0.23 kg (0.5 lbs)

## Environmental Specifications

Temperature range	-30 to +60 °C (-22 to +140°F)
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## SINCLAIR TECHNOLOGIES

Sinclair Technologies is a global leader in the design and manufacture of high-quality fixed and mobile antennas, filters, combiners, and related products. Designed to function in extreme conditions, Sinclair's products have a globally recognized reputation for quality, reliability, durability, and value. For over 60 years, Sinclair has provided custom-designed antennas and RF signal conditioning products to fit our customer's unique requirements. From simple to complex issues, Sinclair offers antenna and RF signal conditioning solutions for utilities industry paired with the industry's best RF expertise.

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