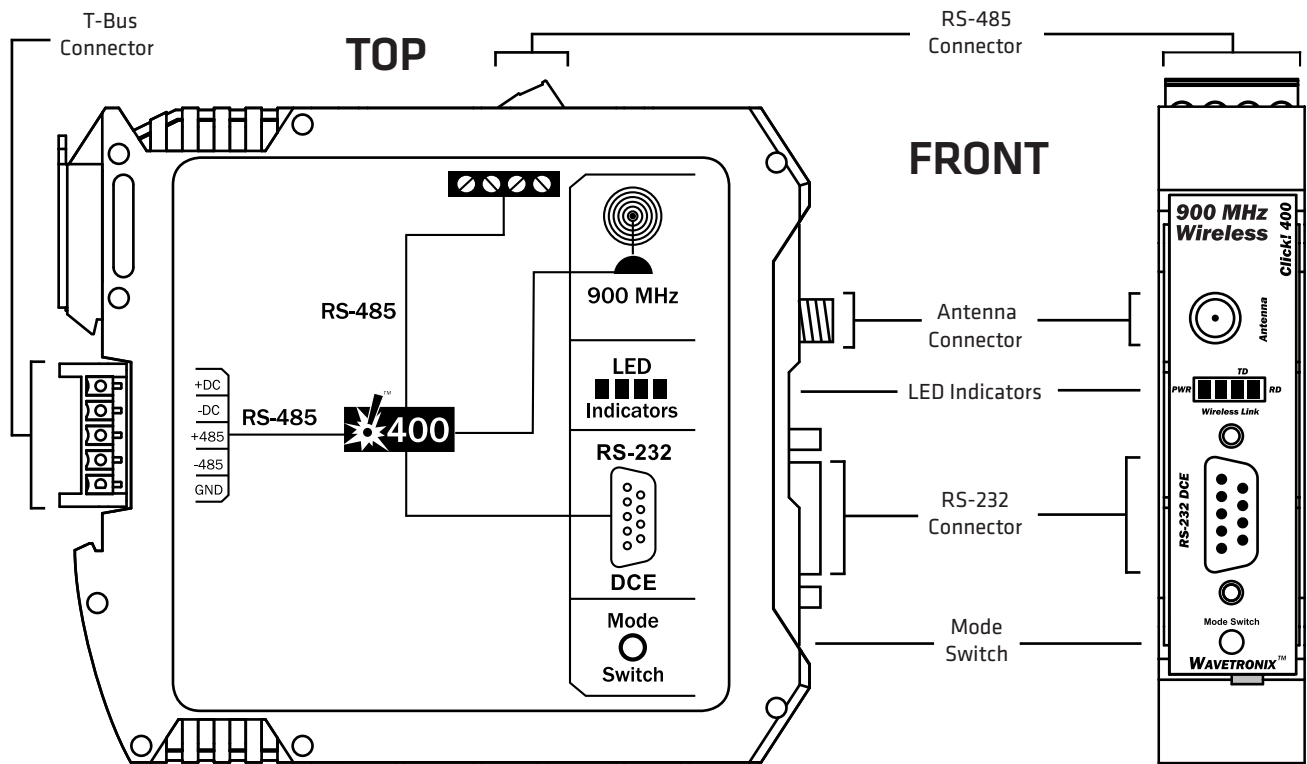


## 900 MHz Spread Spectrum Radio

The Click 400 is a 900 MHz spread spectrum radio with two RS-485 ports and one RS-232 port which are active at all times. The Click 400 auto-detects the serial settings of a SmartSensor™ network for quick and easy installation.

### Features

- Converts half-duplex serial to 900 MHz and vice versa
- Mounts on a DIN rail for quick and easy installation
- Autobauds to serial port devices
- Includes multiple communication ports for RS-232, RS-485 and 900 MHz radio communications
- Uses either 900 MHz or serial interfaces to configure the device
- Conformal coated
- Direct cable replacement with a distance of over 20 miles (line of sight)



## Technical Specifications

### Physical

- Weight: 0.2 lbs (0.1 kg)
- Physical dimensions: 4.5 in. × 4 in. × 0.9 in. (11.4 cm x 10.2 cm x 2.3 cm)
- Ambient operating temp: -29°F to 165°F (-34°C to 74°C)
- Humidity: up to 95% RH

### Mounting

- DIN rail-mountable
- Hot-swappable

### Power

- Power supply voltage: 10 to 30 VDC
- Power consumption: 1.6 W average power when transmitting at 1000 mW with a duty cycle of 15% at 10 VDC to 24 VDC

### Connections

- Device has the following connection points:
  - Power: 5-position connector for connecting from the T-bus
  - RS-232: DB-9 connector
  - RS-485: 5-position connector for connecting from the T-bus as well as one pluggable screw terminal
  - Wireless: reverse polarized SMA male connector for connecting an external antenna

### Communication

- Converts RS-232 to RS-485 and vice versa
- Converts serial communication (RS-232 and RS-485) to spread spectrum wireless 900 MHz

### RF Specifications

- 32 different channels in the US
- 56 bit DES Encryption
- 256 Byte input and output buffer
- Operate 902-928 MHz frequency band using frequency hopping spread spectrum
- Adjustable transmitted RF power from 1mW to 743mW.
- -110dB receiver sensitivity in "Long Range" mode
- 20 mile range at full power with directional 6 dBi Yagi antenna
- Point to multipoint configuration where a single master is able to transmit the same data to multiple slaves at the same time and vice versa
- Point to point configuration where a single master is able to transmit to a single client and vice versa

### Baud Rates

- Supports the following baud rates:

## Ordering Information

Click 400 900 MHz spread spectrum radio  
**CLK-400**

### ACCESSORIES

**CLK-250** – Click 250 N-female to N-female bulk-head coaxial surge

**100-0119** – 900 MHz 5 dBi omni antenna

**100-0120** – 900 MHz 9 dBi Yagi antenna

**100-0155** – 900 MHz/2.4 GHz 3 dBi omni low profile antenna

## Wavetronix

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- 1200 bps
- 2400 bps
- 4800 bps
- 9600 bps
- 19200 bps
- 38400 bps
- 57600 bps
- 115200 bps

### Configuration Features

- Push-button on faceplate does the following:
  - Resets device to factory defaults
  - Autobauds device to match the baud rate of the attached serial device
  - Selects whether the device is a client or server
  - Selects Link Test mode, where a data sequence is transmitted from the server to the client
- LEDs:
  - Blue LED helps set up link test
  - Red LED illuminates when device has power
  - Green LED (TD) illuminates when data is transmitted
  - Yellow LED (RD) illuminates when data is received



## Pocket PC & PC Configuration Software

- Comes with Click Supervisor, configuration software with the following features:
  - Runs on Pocket PC or Windows desktop or laptop PC (Windows XP and newer)
  - Configures serial communication settings including serial baud rates
  - Can remotely and directly upgrade the device firmware to add new features to the device
  - Can save/open a configuration to/from a file, allowing a common configuration to be easily programmed into many devices
  - Has customizable drivers that are stored in an XML file that describes the settings for a device as well the graphical user interface for that driver in the configuration software

## Remote Upgradeability

- Flash memory can be remotely upgraded to add functionality to the firmware when new features have been developed to improve the performance of the installation

## NEMA TS2-1998 Testing

- Complies with the applicable standards stated in the NEMA TS2-1998 Standard
- Test results available for each of the following tests:
  - Shock pulses of 10g, 11 ms half sine wave
  - Vibration of .5 Grms up to 30 Hz
  - 300 V positive/negative pulses applied at one pulse per second at minimum and maximum DC supply voltage
  - Stored at -49°F (-45°C) for 24 hours
  - Stored at 185°F (85°C) for 24 hours
  - Operation at -29.2°F (-34°C) and 10.8 VDC
  - Operation at -29.2°F (-34°C) and 26.5 VDC
  - Operation at 165.2°F (74°C) and 26.5 VDC
  - Operation at 165.2°F (74°C) and 10.8 VDC

## Testing

- Passes manufacturer's test before shipping

## Extended Support

- Extended support options are available from Wavetronix; contact a Wavetronix representative for more information

## Warranty

- One-year warranty against material and workmanship defect (see Click Warranty datasheet for complete details)

## Click 400 Bid Specification

**1.0 General.** This item shall govern the purchase and installation of a serial to 900 MHz spread spectrum wireless module (SSWM) equivalent to the Wavetronix Click 400. Test results and other documentation demonstrating performance and capabilities shall be provided.

**2.0 Product Description.** The SSWM shall be a serial to spread spectrum wireless 900 MHz converter module for use with serial devices, such as the Wavetronix SmartSensor™. The SSWM shall convert serial communications (2-wire half duplex RS-485 and half duplex RS-232) to spread spectrum wireless 900 MHz communication, and vice versa; it shall also convert 2-wire half duplex RS 485 to half duplex RS-232 and vice versa.

**3.0 Physical.** The SSWM shall not exceed 0.2 lbs. (0.1 kg) in weight.

The SSWM shall not exceed 4.5 in. × 4 in. × 0.9 in. (11.4 cm x 10.2 cm x 2.3 cm) in its physical dimensions.

The SSWM shall operate in the temperature range of -29°F to 165°F (-34°C to 74°C).

**4.0 Mounting.** The SSWM shall mount to a DIN rail with hot-swappable, power and communication buses for quick installation and replacement.

**5.0 Power.** The SSWM shall operate using less than 1.6 W of average power when transmitting at 1000 mW with a duty cycle of 15% at 10VDC to 24VDC.

The SSWM shall have a power supply voltage of 10 to 30 VDC.

**6.0 Connections.** The SSWM shall include the following connections for power and communication:

**6.1 Power.** The SSWM shall include a 5-position connector, with two contact points reserved for connecting power through the bus.

**6.2 RS-232.** The SSWM shall feature a DB-9 connector for RS-232 communication.

**6.3 RS-485.** The SSWM shall feature a pluggable screw terminal for RS-485 communication. The 5-position connector shall have three contact points reserved for connecting RS-485 through the bus.

**6.4 Wireless.** The SSWM shall include one 900 MHz wireless communication connection port, which shall be accessed through a reverse polarized SMA male antenna connector.

**7.0 Communication.** The SSWM shall have the following communication capabilities:

**7.1 Serial Protocol Conversion.** The SSWM shall convert 2-wire half duplex RS-485 communication to half duplex RS-232 communication or vice versa. The WSCM module shall allow the user to communicate with a RVSD or any other device with a RS-232 connection.

**7.2 Wireless.** The SSWM shall allow wireless communications with any serial device by converting serial communications (2-wire half duplex RS-485 or half duplex RS-232) to spread spectrum wireless 900 MHz, and vice versa.

**8.0 RF Specifications.** The SSWM shall have:

- 32 different channels in the US
- 56 bit DES encryption
- 256 byte input and output buffer
- Operate 902–928 MHz frequency band using frequency hopping spread spectrum
- Adjustable transmitted RF power from 1mW to 743mW.



- -110dB receiver sensitivity in “Long Range” mode
- 20 mile range at full power with directional 6 dBi Yagi antenna
- Point to multipoint configuration where a single master is able to transmit the same data to multiple slaves at the same time and vice versa
- Point to point configuration where a single master is able to transmit to a single client and vice versa

**9.0 Baud Rates.** The SSWM shall support baud rates of 1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps and 115200 bps.

**10.0 Configuration Features.** The SSWM shall have a push-button on the faceplate of the unit that:

- Resets the SSWM factory defaults
- Autobauds the SSWM to match the baud rate of the attached serial device
- Selects whether the SSWM is a client or server
- Selects a Link Test mode where a data sequence is transmitted from the server to the client

The front panel shall include a blue LED, which shall illuminate when a client SSWM is in range of a server on the same channel. The LED shall blink if the SSWM is set as a server.

The front of the SSWM shall include a red power LED, as well as green and yellow TX and RX LEDs that shall illuminate when corresponding data is successfully transmitted or received.

**11.0 Pocket PC & PC Configuration Software.** The SSWM shall be provided with configuration software that:

- Runs on both a Pocket PC and a Windows desktop or laptop PC (Windows XP and newer)
- Configures serial communication settings including serial baud rates
- Can remotely and directly upgrade the SSWM firmware to add new features to the SSWM
- Can save/open a configuration to/from a file. This allows a common configuration to be easily programmed into many devices.
- Has customizable drivers that are stored in an XML file that describes the settings for a device as well the Graphical User Interface for that driver in the configuration software.

**12.0 Remote Upgradeability.** The SSWM shall have flash memory that can be remotely upgraded to add functionality to the firmware when new features have been developed to improve the performance of the installation.

**13.0 NEMA TS2-1998 Testing.** The SSWM shall comply with the applicable standards stated in the NEMA TS2-1998 Standard. Test results shall be made available for each of the following tests:

- Shock pulses of 10g, 11 ms half sine wave
- Vibration of 0.5 Grms up to 30 Hz
- 300 V positive/negative pulses applied at one pulse per second at minimum and maximum DC supply voltage
- Cold temperature storage at -49°F (-45°C) for 24 hours
- High temperature storage at 185°F (85°C) for 24 hours
- Low temp, low DC supply voltage at -29.2°F (-34°C) and 10.8 VDC
- Low temp, high DC supply voltage at -29.2°F (-34°C) and 26.5 VDC
- High temp, high DC supply voltage at 165.2°F (74°C) and 26.5 VDC
- High temp, low DC supply voltage at 165.2°F (74°C) and 10.8 VDC

**14.0 Testing.** Before shipping, each SSWM shall have passed a manufacturer’s test.

**15.0 Extended Support.** Extended support options shall be available. Contact the manufacturer’s representative for more information.

**16.0 Warranty.** The SSWM shall be warranted to be free from material and workmanship defects for a period of one year from date of shipment.