

Squirrel SQ2020 Wi-Fi



Powerful data loggers for all applications

Overview

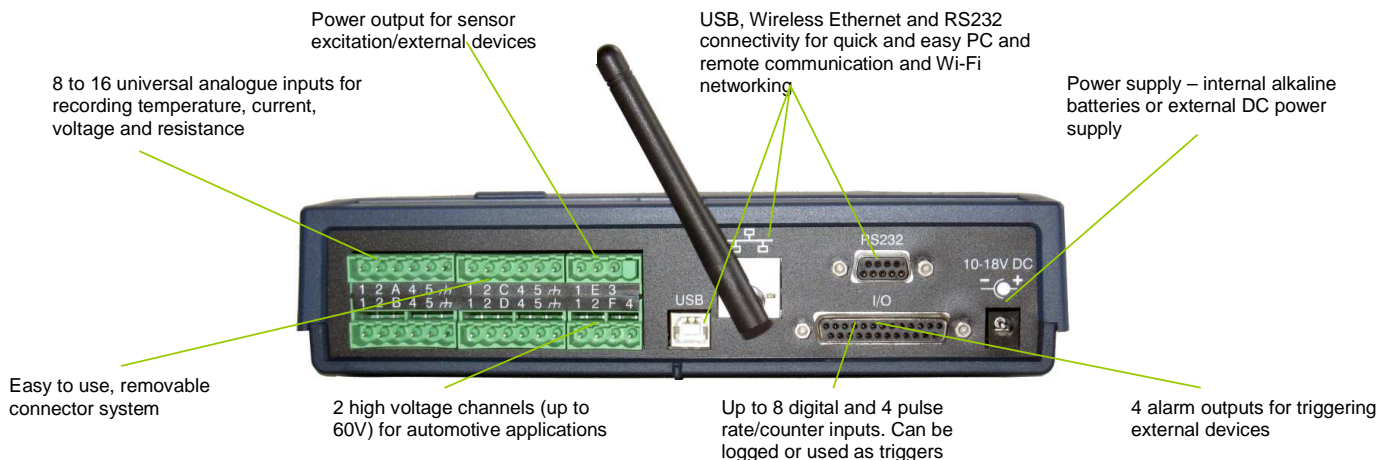
The Squirrel 2020 Wi-Fi hand held data logger combines high performance and universal inputs with the simplicity of Wi-Fi networking in a compact and easy to use instrument.

Using high accuracy 24-bit analogue to digital converters, removable memory and Wi-Fi wireless Ethernet networking, the SQ2020 Wi-Fi is the ideal data logger for industrial, scientific research and quality assurance applications. Together with our comprehensive suite of software, SquirrelView, the SQ2020 provides standalone data acquisition, simple Wi-Fi networking and real-time metering and data analysis straight out-of-the-box.



Key features

- 8 true differential or 16 single ended universal analogue inputs for voltage, current or resistance measurements plus 2 high voltage, 4 pulse and 8 digital event/state inputs
- Analogue inputs can be used with thermistors, thermocouples, 2, 3 or 4 wire RTD temperature sensors and 4-20mA signals
- Logging rates of up to 100Hz on up to two channels
- Large non-volatile internal memory storage for up to 1.8 million readings
- Standard (802.11b) wireless (Wi-Fi) Ethernet networking, USB and RS232 communication ports
- Download of internal data to removable MMC/SD (Multi Media Card / Secure Digital) memory
- Sensor power and FET outputs for use with external devices
- Easy to read LCD and simple 4 button user interface
- Up to 16 calculated / derived channels may be created using mathematical functions



Communications:

Wireless Ethernet, USB and RS232 serial ports are inbuilt. This allows simple wireless connection to a PC based TCP/IP network, or to a GSM modem for remote data downloading. This flexibility enables global data access and retrieval as well as complete system integration of the SQ2020 series into complex and critical applications.

Multiple configurations stored in the logger:

Up to six logger configurations (channel type, names, logging speeds, triggers etc), together with the current configuration, can be held in the logger's internal memory. Additional configuration settings can also be loaded from the external MMC/SD memory card. This allows the operator to quickly and easily switch between logger configurations without the need for a PC.

Comprehensive software configuration via SquirrelView:

The SquirrelView software (supplied with the SQ2020 series data loggers) allows logger configuration, data download and data export whilst giving the user full control over the SQ 2020. The optional SquirrelView Plus gives the user access to many advanced data analysis and data archiving/transfer features. Please refer to our separate SquirrelView data sheet for all its advanced features.

Concurrent sampling:

The SQ2020 series uses multiple analogue to digital converters that enables true concurrent sampling and logging. This allows the user to configure a channel to log at a rate of 100Hz whilst retaining different sample speeds on other channels. This makes the SQ2020 series ideal for measuring dynamic parameters that change at different rates such as temperature and pressure.

System specifications:**Input channels:**

		SQ2020 Wi-Fi
Analogue input channel options	Analogue to digital converters	2
	Differential	8
	Single ended*	16
	3 or 4 wire	4
Additional channels	Pulse	(2 x fast – 64kHz) & (2 x slow – 100Hz)
	Event/digital	8 state inputs or 1 x 8 bit binary
	High voltage	2
	Internal channels	1 temperature

*Please refer to our Technical Note for the configuration of these inputs

Standard ranges for temperature channels:

Each channel can be individually set to any of the ranges listed below. Pt100 to IEC751 and JIS1604 and Pt1000 to IEC751.

Input type	Ranges °C	Ranges °F
Y & U: Thermistor	-50 to 150	-58 to 302
Pt100/Pt1000*	-200 - 850	-328 to 1562

*2 wire only on 1F8

Input type	Ranges °C	Ranges °F
K: Thermocouple	-200 to 1372	-328 to 2501
T: Thermocouple	-200 to 400	-328 to 752
J: Thermocouple	-200 to 1200	-328 to 2192
N: Thermocouple	-200 to 1300	-328 to 2372
R & S: Thermocouple	-50 to 1768	-58 to 3214

Standard ranges for d.c. voltage:

Each voltage channel can be any of the voltage ranges below. Mixed differential and single ended configurations are permitted. Please refer to our Technical Note for the permitted combinations of inputs.

Voltage range	Voltage range	High voltage input range*
-0.075 to 0.075V	-3.0 to 3.0V	4.0 to 20.0V
-0.15 to 0.15V	-6.0 to 6.0V	4.0 to 40.0V
-0.3 to 0.3V	- 6.0 to 12.0V	4.0 to 60.0V
-0.6 to 0.6V	-6.0 to 25.0V	
-0.6 to 1.2V		
-0.6 to 2.4V		

*max of 2 may be selected

Standard ranges for current and resistance channels:

Each current channel can be any of the current ranges below. Current ranges use differential input channels.

Current range (External 10Ω shunt)	Resistance range 2 wire	Resistance range 3 and 4 wire
-30.0 to 30.0mA	0.0 to 1250.0Ω	0.0 to 500.0Ω
4 to 20mA	0.0 to 5000.0Ω	0.0 to 4000.0Ω
	0.0 to 20000.0Ω	
	0.0 to 300000.0Ω	

Analogue inputs

Accuracy: (at 25°C) voltage and resistance

± (0.05% readings + 0.025% range)

Common mode rejection: 100dB

Input impedance: > 1M Ω

Linearity: 0.015%

Series mode line rejection: 50/60Hz
100dB

Analogue – digital conversion

Type: Sigma-Delta

Resolution: 24bit

Sampling rate: up to 10, 20* or 100*
readings per second per ADC.

* With mains rejection off

Alarm outputs

4 x open drain FET (18V 0.1A)

Power output for external device

Regulated 5 VDC at 50mA or
logger supply voltage at 100mA

Time and date

In-built clock in 3 formats

Scaling data

Displays readings in preferred
engineering units

Memory

Internal: 16Mb (Up to 1,800,000
readings)

External: Up to 1Gb - removable
MMC/SD (For transferring internal
memory and storing setups only)

Calculated channels

Up to 16 virtual channels derived from
physical input channels

Resolution

Up to 6 significant digits

Programming/logger setup

SquirrelView or SquirrelView Plus
software

Communications

Wireless Ethernet (Wi-Fi):

802.11b, 2.4GHz, 1 to 14 channels

Security: Open, WEP (64 or 128bit
encryption), WPA or WPA2 / 802.11i

Network: Infrastructure only with
specified SSID, or any network with
no SSID (external mains power
required for Wi-Fi connection)

RS232: (Auto bauding to 115 K baud)

USB: 1.1 and 2.0 compatible

External options: GSM, WIFI and
PSTN Modems

Power supply

Internal: 6 x AA Alkaline batteries

External: 10-18VDC

Reverse polarity and over-voltage
protected

Power consumption @ 9V

Sleep mode: 600µA

Logging: 40-80mA

Dimensions and weight

Dimensions: W235 x D175 x H55mm

Weight: Approx 1.2kgs

Enclosure material: ABS

Memory modes (internal only)

Stop when full or overwrite

Display and keypad

2 line x 20 character LCD display
Battery state and external power
indicator

Keypad lock

Navigate to:

Arm/disarm/pause/continue

Meter any channel or alarm

Select from up to 6 x pre-stored
setups

Status/diagnostics/memory/time
and date

Download to MMC/SD

Operating environment

-30°C to +65°C

Humidity: 90% at 40°C non-
condensing

Accessories

MPU 12V: Universal (97-263V

AC) mains power supply

LC76: DC lead

SQ20RB12-6: External
rechargeable battery (12V, 6Ah)

SB102: 25 way digital I/O
connector

CS202: Current shunt kit (4 x 10Ω
0.125W)

PEL4: Rugged weather proof
enclosure

CAL2020: Test and Calibration
certificates

SQ20A802: External GSM
communications kit

MMC64: Multi Media Card

(Please see price list for additional
accessories)

Please note: SQ2020 is supplied
complete with software, manual,
USB cable, wall bracket, batteries
and 4 current shunt resistors

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