

Squirrel 2040 DATA LOGGERS

Squirrel 2040 series, the new generation data logger from Grant Instruments, combines higher channel count with the same high performance, comprehensive features and universal inputs of the smaller 2020 in a neat compact and portable instrument. Using multiple analogue to digital convertors, convenient low cost and removable memory options positions the 2040 series as the ideal data logger for industrial, scientific research and quality assurance applications. The 2040 provides standalone data acquisition and metering that together with a suite of comprehensive software and functional design make the 2040 the “all in one box” first choice.

Key Features

- 32 universal analog inputs for voltage, current or resistance measurements plus 2 high voltage, 4 pulse and 8 digital event/state inputs
- Analog inputs can be used with thermistor, thermocouple and 2 wire RTD temperature sensors and 4-20mA instruments
- User selectable logging rates of up to 100Hz on a single channel
- 16Mb of non volatile internal memory for up to 1,800,000 secure readings
- Download of internal data to removable MMC (Multi Media Card) memory
- Easy to use removable connector system
- Sensor power and relay outputs for use with external devices
- Comprehensive access to information using the 2 line, 40 character LCD and button panel
- Readings can be scaled and viewed in realtime on a PC or on the local LCD
- Calculated channels derived from real channels using basic math's functions
- USB and RS232 communication ports
- Multiple 24 bit analogue to digital convertors (ADC) for precision measurements
- Portable, battery operated or mains powered



Free
Software
&
Technical
Helpline

Communications:

USB and RS232 serial ports are standard with external options for Ethernet, Landline and GSM communications enabling global access and system integration of the 2040.

Multiple setups stored in internal and external memory:

A setup is the instruction that tells the 2040 how it will operate. Up to six preconfigured setups, together with the setup in current use, are held in the internal memory. In addition a further 25 setups can be loaded from the external memory. Switching between setups is extremely easy and fast using the convenient LCD display and button panel, avoiding the need to connect to a PC, thereby reducing time and effort to switch between different data logging applications.

Comprehensive configuration:

SquirrelView configuration, download and data export software permits full control and use of the 2040 data logger. The convenient LCD display and button panel enable metering and logging in true portable operation.

Concurrent sampling:

2040 multiple ADCs allows true concurrent sampling and logging. For instance one channel can sample at a rate of 100Hz whilst retaining different sample speeds on other channels, making the 2040 ideal for measuring parameters that change at different rates such as temperature and pressure.

Software

SquirrelView:

Easy to use setup and download software

SquirrelView Plus:

SquirrelView with on-line and historical graphing

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System Specification

Input channels:		ANALOG INPUT CHANNEL OPTIONS		ADDITIONAL CHANNELS			
2040 TYPE	ADCs	DIFFERENTIAL	SINGLE ENDED	PULSE	EVENT/DIGITAL	HIGH VOLTAGE	INTERNAL CHANNELS
2F16	x 2	16 or	32	(2 x fast - 64kHz) & (2 x slow - 100Hz)	8 State inputs or 1 x 8 bit Binary	2	2 Temperature

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	INPUT TYPE	RANGES °C	RANGES °F
Y & U: Thermistor	-50 to 150	-58 to 302	K: Thermocouple	-200 to 1372	-328 to 2501
S: Thermistor	-30 to 150	-22 to 302	T: Thermocouple	-200 to 400	-328 to 752
			J: Thermocouple	-200 to 1200	-328 to 2192
Pt100/Pt1000 (2 wire only)	-200 to 850	-328 to 1562	N: Thermocouple	-200 to 1300	-328 to 2372
			R & S: Thermocouple	-50 to 1768	-58 to 3214

Standard ranges for d.c. voltage/current and resistance channels:
Each voltage/current channel can be any of the voltage or current ranges below. Mixed differential and single ended configurations are permitted.
Note: current ranges use differential input channels.

VOLTAGE RANGE	VOLTAGE RANGE	HIGH VOLTAGE RANGE	CURRENT RANGE (Ext.10Ω SHUNT)	RESISTANCE RANGE (2 WIRE ONLY)
-0.075 to 0.075V	-0.6 to 2.4V	4.0 to 20.0V	-30.0 to 30.0mA	0 to 1250 Ω
-0.15 to 0.15V	-3.0 to 3.0V	4.0 to 40.0V	4.0 to 20.0mA	0 to 5000 Ω
-0.3 to 0.3V	-6.0 to 6.0V	4.0 to 60.0V		0 to 20000 Ω
-0.6 to 0.6V	-6.0 to 12.0V			0 to 300000 Ω
-0.6 to 1.2V	-6.0 to 25.0V			

<p>ANALOG INPUTS Accuracy: (voltage and resistance) at 25°C ± (0.05% readings + 0.025% range) Common mode rejection: 100dB Input impedance: > 1MΩ Linearity: 0.0015% Series mode line rejection: 50/60Hz 100dB</p> <p>ANALOG-DIGITAL CONVERSION Type: Sigma-Delta Resolution: 24bit Sampling rate: up to 10, 20* or 100* readings per second per ADC</p> <p>ALARM OUTPUTS 4 x open drain FET (18V 0.1A)</p> <p>POWER OUTPUT FOR EXTERNAL DEVICE Regulated 5 VDC at 50mA or logger supply voltage at 100mA</p> <p>TIME AND DATE In built clock in 3 formats</p> <p>SCALING DATA Displays readings in preferred engineering units.</p> <p>MEMORY Internal: 16Mb (Up to 1,800,000 readings) External: Up to 64Mb - removable MMC (For transferring multiple internal memory downloads to the removable external MMC memory) * With mains rejection off</p>	<p>CALCULATED CHANNELS Up to 16 virtual channels derived from physical input channels</p> <p>RESOLUTION Up to 6 significant digits</p> <p>PROGRAMMING/LOGGER SETUP SquirrelView or SquirrelView Plus software</p> <p>COMMUNICATION Standard: RS232 (Auto bauding to 115k baud) USB 1.1 and 2.0 compatible External options: Ethernet, GSM and PSTN Modems</p> <p>POWER SUPPLY Internal: 6 x AA Alkaline batteries External: 10-18VDC Reverse polarity and over-voltage protected</p> <p>POWER CONSUMPTION @ 9V Sleep mode: < 600µA Logging: 40-80mA</p> <p>DIMENSIONS AND WEIGHT Dimensions: W235 x D175 x H92mm Weight: Approx 1.5kgs Enclosure material: ABS</p> <p>MEMORY MODES (internal only) Stop when full or overwrite</p>	<p>ACCESSORIES MPU 12V: Universal (97-263V AC) power supply LC76: DC lead SQ20RB12-6: External rechargeable battery (12V, 6Ah) SQ20RB12-15: External rechargeable battery (12V, 15Ah) SB102: 25 way digital I/O connector LC77: Replacement USB lead LC71: RS232 serial lead WB6: Replacement wall bracket CS202: Current shunt kit (8 x 10Ω 0.125W) PEL4: Rugged weather proof enclosure CAL2040: Test and Calibration certificates SQ20A802: External GSM communications kit SQ20A801: External Ethernet adaptor kit</p> <p>DISPLAY AND KEYPAD 4 navigation keys 2 line x 40 character LCD display Battery state and external power indicator Keypad lock Navigate to: Arm/disarm/pause/continue Meter any channel or alarm Change sensor range Select from up to 6 x pre-stored set-ups Status/diagnostics/memory Time and date</p> <p>OPERATING ENVIRONMENT -30°C to +65°C Humidity: 90% at 40°C non condensing</p>
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Due to our policy of continuous improvements, specifications may change without prior notice. Grant believe that all information declared is correct at the time of issue. No liability is accepted for errors and omissions.



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Software

SquirrelView - supplied with 2040

2040 logger setup, download and data export application for Windows 98SE, 2000 and XP. Features include metering and support for Modem, Ethernet and GSM communications.

SquirrelView Plus

As SquirrelView with additional features including export of data direct to Excel, on-line or historical graphing of data with manual and automatic scaling of charts. Readings can be listed in tabular format with date and time.

Warranty: Equipment manufactured by Grant Instruments is warranted against faulty materials or workmanship for three years. For repairs carried out under warranty, no charge is made for labour, materials or return carriage.

CE mark: The Grant 2040 data acquisition system bears a CE mark and meets relevant European directives.

Quality Statement: Grant Instruments operates a Quality Management System complying with ISO9001:2000.

It is Grant's policy to supply customers with products which are fit for their intended purpose, safe in use, perform reliably to published specification and are backed by a fast and efficient customer support service.

Manufactured and designed in Cambridge, England.