Squirrel 2020
DATA LOGGERS

Grant
DATA LOGGING

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

Free Software & Technical Helpline

Key Features

- Up to 24 inputs including high voltage, pulse and event with up to 16 universal inputs for voltage, current or resistance
- Inputs can be used with thermistor, thermocouple and RTD temperature sensors and 4-20mA instruments
- Sub second logging and concurrent sampling
- 16Mb of internal memory for approximately 1,000,000 to 2,000,000 readings
- Download to removable MMC (Multi Media Card) memory
- Easy to use removable connector system
- Power outputs for use with external devices
- Comprehensive access to information using the 2 line, 40 character LCD and button panel
- Readings can be scaled
- Calculated channels
- USB and RS232 ports
- Non volatile flash memory - data retention is virtually indefinite
- Multiple 24 bit analogue to digital convertors (ADC) for precision measurements
- Portable, battery operated or mains powered

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 2020.

Multiple set-ups stored in internal and external memory:

A set-up is the instruction that tells the 2020 how it will operate. Up to six preconfigured set-ups, together with the set-up in current use, are held in the internal memory. In addition a further 25 set-ups can be recalled or stored in the external memory. Switching between set-ups 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 2020 data logger. The convenient LCD display and button panel enable metering and logging in true portable operation.

Concurrent sampling:

2020 multiple ADCs enables true concurrent sampling. For instance one channel can sample at high speed whilst retaining different sample speeds on other channels, making the 2020 ideal for measuring parameters that change at different rates such as temperature and pressure.

Software

SquirrelView:

Easy to use set-up 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			
2020 TYPE	ADCs	DIFFERENTIAL	SINGLE ENDED	3 OR 4 WIRE	PULSE	EVENT/DIGITAL	HIGH VOLTAGE	INTERNAL CHANNELS
1F8	x 1	8 or	16	0	(2 x fast - 64kHz) & (2 x slow -100Hz)	8 State inputs or 1 x 8 bit Binary	2	1 Temperature
2F8	x 2	8 or	16 or	4	(2 x fast - 64kHz) & (2 x slow -100Hz)	8 State inputs or 1 x 8 bit Binary	2	1 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 to150	-58 to 302	K: Thermocouple	-200 to 1372	-328 to 2501
S: Thermistor	-30 to150	-22 to 302	T: Thermocouple	-200 to 400	-328 to 752
			J: Thermocouple	-200 to 1200	-328 to 2192
Pt100/Pt1000	-200 to 850	-328 to1562	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	RESISTANCE RANGE 3 AND 4 WIRE (2F8 VERSION)
-0.075 to 0.075V	-3.0 to 3.0V	4.0 to 20.0V	-30.0 to 30.0mA	0.0 to 1250.0 Ω	0.0 to 500.0 Ω
-0.15 to 0.15V	-6.0 to 6.0V	4.0 to 40.0V	4 to 20mA	0.0 to 5000.0 Ω	0.0 to 4000.0 Ω
-0.3 to 0.3V	-6.0 to 12.0V	4.0 to 60.0V		0.0 to 20000.0 Ω	
-0.6 to 0.6V	-6.0 to 25.0V			0.0 to 300000.0 Ω	
-0.6 to 1.2V					
-0.6 to 2.4V					

ANALOG INPUTS
Accuracy: (voltage and resistance) at 25°C ± (0.05% readings + 0.025% range)
Common mode rejection: 100dB
Input impedance: > 1MΩ
Linearity: 0.015%
Series mode line rejection: 50/60Hz 100dB

ANALOG-DIGITAL CONVERSION
Type: Sigma-Delta
Resolution: 24bit
Sampling rate: 1F8-up to 20 readings per second
2F8-up to (2 x 20) readings per second

ALARM OUTPUTS
4 x open drain FET (18V 0.1A Max)

POWER OUTPUT FOR EXTERNAL DEVICE
Regulated 5 VDC or supply voltage

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 64Mb - removable MMC
(For transferring multiple internal memory downloads to the removable external MMC memory)

CALCULATED CHANNELS
Up to 16 virtual channels derived from physical input channels

RESOLUTION
Up to 6 significant digits

PROGRAMMING/LOGGER SET-UP
SquirrelView or SquirrelView Plus software

COMMUNICATION
Standard: RS232 (Auto bauding to 115k baud)
USB 1.1 and 2.0 compatible
External options: GSM and Ethernet

POWER SUPPLY
Internal: 6 x AA Alkaline batteries
External: 10-18VDC
Reverse polarity and over-voltage protected

POWER CONSUMPTION
Sleep mode: 600µA
Logging: 110mA at 9VDC

DIMENSIONS AND WEIGHT
Dimensions: W225 x D170 x H60 mm
Weight: Approx 1.2kgs
Enclosure material: ABS

MEMORY MODES (internal only)
Stop when full or overwrite

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
CAL2020: Test and Calibration certificates
SQ20A802: External GSM communications kit
SQ20A801: External Ethernet adaptor kit

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
Select from up to 6 x pre-stored set-ups
Status/diagnostics/memory
Time and date

OPERATING ENVIRONMENT
-30°C to +65°C
Humidity: 90% at 40°C non condensing

Software

SquirrelView - supplied with 2020
2020 logger set-up, download and data export application for Windows 98, 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.

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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 2020 data acquisition system bears a CE mark and meets relevant European directives.
Quality Statement: Grant Instruments operates a Quality Management System complying with IS09001:2000.
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.