

# Squirrel Data Logger

2020/2040 SERIES

Quick Start



# 1. Hardware Checklist



- A 2020/2040 Logger x 1
- B CD containing software x 1 (SQA100)
- C 2020/2040 SERIES Quick Start manual (this booklet) x 1
- D USB Cable x 1 (LC77)
- E Mounting bracket/stand for logger x 1 (WB6)
- F Batteries, 6 x AA
- G Current shunt resistors, 10R x 4 (CS202)
- H Connectors: 6 way x 4 (18097), 4 way x 1 (13975), 3 way x 1 (14174), with cable ties

Note: 2040 Logger is supplied with an extra 4 x 6 way connectors as above (18097).

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After reading this Quick Start, please refer to SquirrelView Help for further details on your logger and how to use it with SquirrelView.

## 2. General Information

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### Installing the batteries

The 2020/2040 uses six AA size alkaline batteries located under the removable cover shown below. To insert new or change the existing batteries:

1. Open the battery cover by pushing down and sliding as shown.
2. Insert six AA\* batteries, ensuring the correct polarity.
3. Refit the battery cover.

\* It is recommended that all replacement batteries are of the same manufacturer, type and condition.



The 2020/2040 can be used in either the Battery mode or Externally powered mode.



#### Battery mode

When logging in this mode please ensure that the batteries in the unit have sufficient capacity to complete the logging task. This can be checked via the battery indicator located in the top right of the display.

HIGH CAPACITY  LOW CAPACITY 



#### Externally powered mode

The logger may be powered from an external source (10-18V DC)



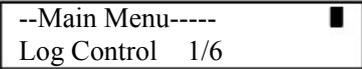
**Note:** To ensure data protection in the case of an unexpected power loss, please ensure that batteries are fitted whilst the unit is operational.

# 3. Menu and Navigation

3.1 Control panel  
The illustration below shows the navigation controls in more detail.



To use the 2020/2040 control panel press , the opening display will be shown (see right). The display timeout is preset to 10 seconds, however this can be changed by selecting the Configuration tab within the Logger Setup window of SquirrelView.



3.2 Control panel menu  
Detailed below is a basic explanation of the top menu structure. For more information on the whole menu structure please refer to the Help/Help Content - Loggers within SquirrelView.

3.3.1 Log Control  
In this menu you can Arm (activate) or Disarm (deactivate) the logger.

3.3.2 Meter  
Here you can view each channel in Real Time mode, data will be updated every 1-2 seconds. You can also scroll or auto scroll through the channels.

3.3.3 Status  
The Status menu gives you access to information relating to the logger such as memory and power supply voltage. You can also override the alarm outputs in here.

3.3.4 Setup  
This contains menus for setting up Language, Time & Date and the opportunity to store and recall Setups.

#### Data Files

This menu allows you to copy data files to an external memory card (if fitted) and Data Files 5/6 delete the data files held within the logger's memory.

3.3.6 Tools  
The tools menu contains maintenance type functions such as querying the software version of the logger and performing a self test and resetting the Logger.

## 4. Getting started

- 4.1 **Quick Start example**

After installing SquirrelView an example setfile will be installed within the SquirrelView installation directory. The example file will log the internal temperature of the logger. In order to familiarise yourself with the logger the novice user may find this example Setup useful.
- 4.2 **Installing SquirrelView software**

Install the software by following the instructions on the SquirrelView Installation Guide. Connect the 2020/2040 to the PC via either USB or Serial connections. If you are using USB the PC will request the USB drivers (it is assumed that SquirrelView is installed into the default directory, if this is not the case then modify the path accordingly), select C:\Program Files\SquirrelView\USB\ then click OK to complete the installation. Please ignore the Hardware Installation warning that refers to Windows Logo testing.
- 4.3 **Startup SquirrelView and select Logger Type**

Click on the shortcut icon on your desktop to launch SquirrelView or select it from your start menu - Program group menu within Windows. When the SquirrelView Assistant has opened, ensure the correct logger type and communication method is selected. This can be viewed in the top right corner of the screen, if you need to make any changes select Logger Selection from the toolbar or run the Communication Wizard.
- 4.4 **Synchronise Logger & PC**

It is advisable to start by synchronising the Logger clock with the PC clock. See step 1 and 2 below:

Synchronise clocks:

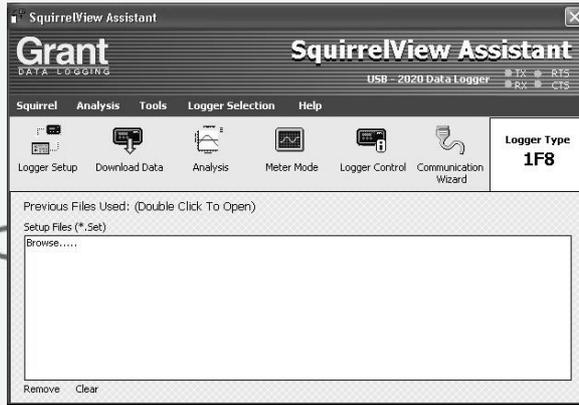
1 From SquirrelView Assistant click on Logger Setup.



2 From the Logger Setup screen select the Logger Control tab. Click on Set Logger Time to PC Time, click OK on the confirmation screen.

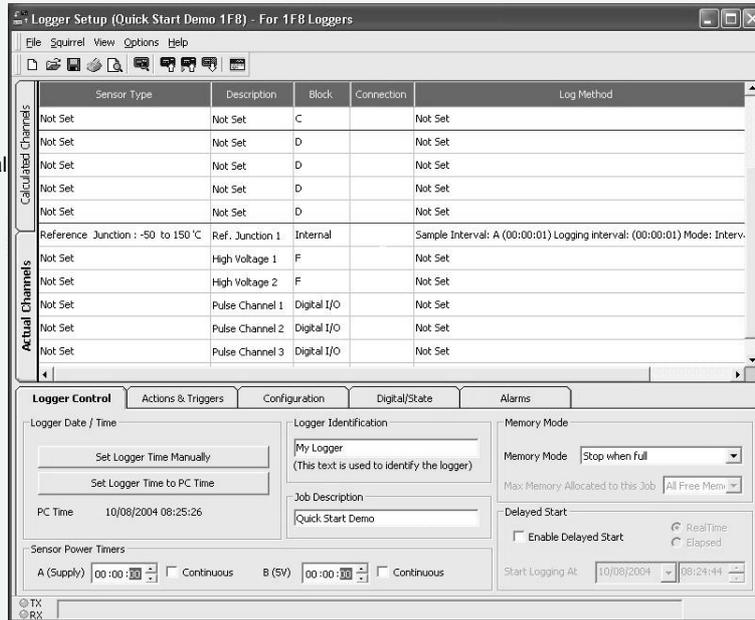


1 In the SquirrelView Assistant, double click on Browse... or select File - Open from Logger setup to open a setfile Or select the quick start demo file appropriate to your logger type.



2 The Logger Setup screen is now visible, from here you will be able to set up your logging requirements. Within the Actual Channels tab scroll down the Sensor Type column to Ref.J1. This will be the input you will be reading in this example.

3 The Job Description can be used to describe your setup.



4 Click to send setup to logger and start logging. Let the unit log for a few minutes.



5 Click for SquirrelView Assistant.



6 If you wish to meter the input in Real Time click this icon.



7 To pause or stop the logging process click the Logger Control icon.



8 In the Logger Control window you can view relevant information on the state of the logger. To stop logging click on the stop button.

The screenshot shows the 'Logger Control' window with the following data:

Logger Information		Memory	
Logger ID	Logger ID	Internal Memory Total	15616 KB
Serial Number	Not Defined	Internal Memory Used	7948 KB
Logger Type	2F8	Internal Memory Free	7668 KB
Logger State	Logging		

Date and Time		Power Supply	
Logger Time	10/08/2004 08:26:14	Internal Supply	9.7 V
Status Last Updated	10/08/2004 08:27:07	External Supply	12.1 V
PC Time	10/08/2004 08:27:07		

9 To Download the logger click on the Download Data icon from the SquirrelView Assistant.



**10** In this screen you can now download the Data file and invoke the Export Wizard or download the Datafile via Analysis\*

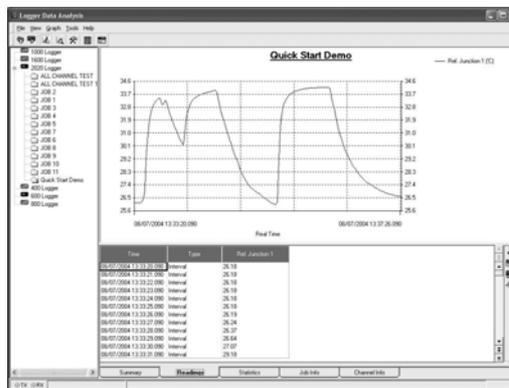
The datafile is given a unique name (e.g. 28162735.D20). An explanation of the file name is shown on the right.

DATE	SECONDS
28	62735
TIME(24HR)	

In this example you will download and view the Data in the Analysis\* window. Start by selecting the Data file and Graph Data action, then click Download Selected File(s). You will be prompted to save the Data file. Once you have done this then the data will be converted for viewing.

\*Available with SquirrelView Plus only.

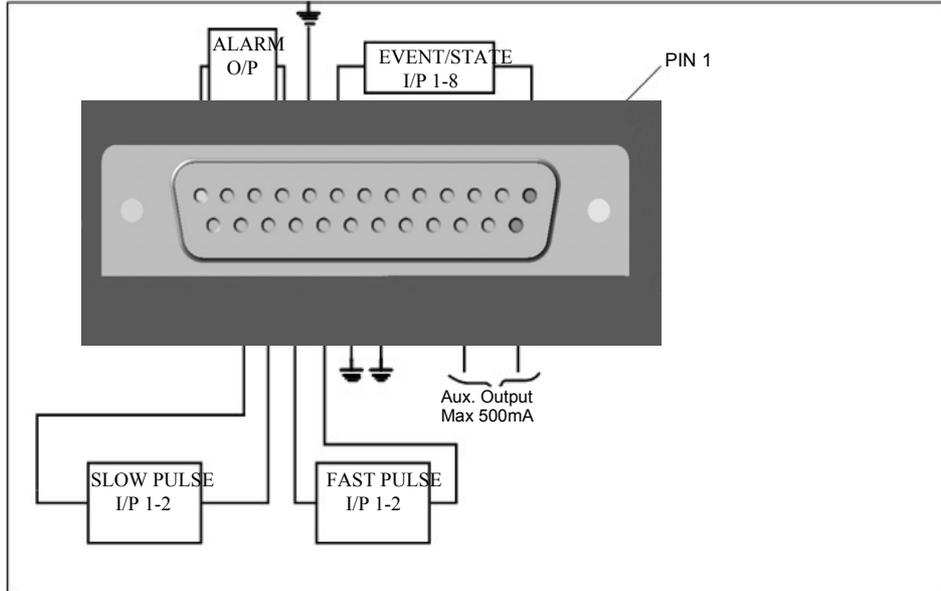
**11** Once the decoding has taken place the Analysis Job Description window will be presented, click OK to view your data.



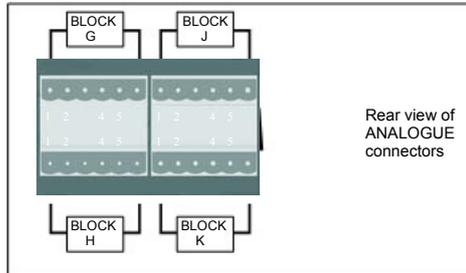
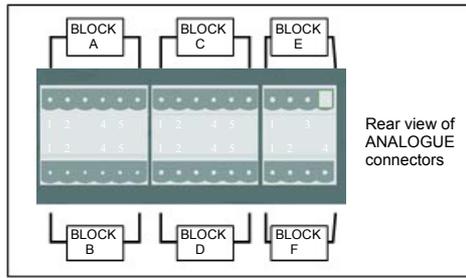
# 5. Connections

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## I/O SOCKET Wiring information

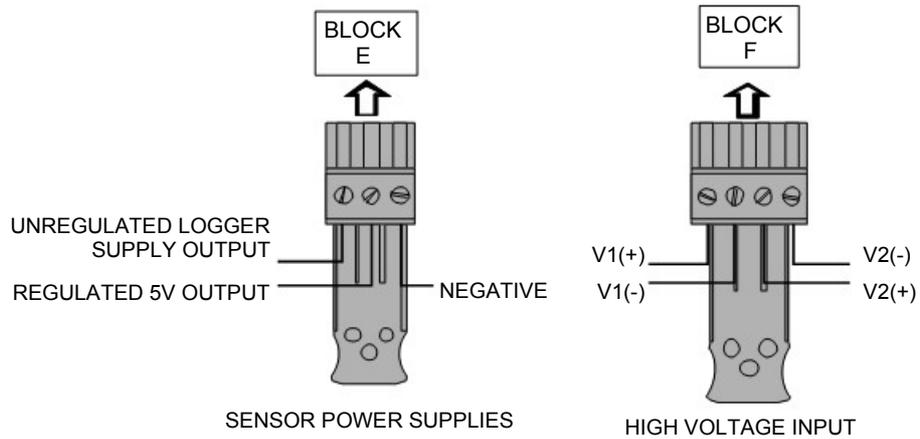


## Analogue Inputs (I/P)



NOTE: Blocks G TO K are only available on 2040 loggers.

FOR ANALOGUE INPUT CONNECTIONS  
REFER TO SquirrelView/ Logger Setup/Sensor Type.



# 6. Specifications

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## ANALOGUE INPUTS

Basic accuracy: (5-45°C) . ± (0.05% readings + 0.025% range)  
Common mode rejection: . 100dB  
Input impedance: . > 1MOHM  
Linearity: . 0.015%  
Series mode line rejection: . 50/60Hz 100dB

## ANALOGUE-DIGITAL CONVERSION

Type: . Sigma-Delta  
Resolution: . 24bit  
Sampling rate: . Up to 20/100 readings per second

Note: 100Hz Mode not available on 1F8 models

## ALARM OUTPUTS.

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

## SENSOR POWER SUPPLY.

.Regulated 5 VDC (50mA) or supply voltage (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 64Mb removable MMC

## RESOLUTION.

.Up to 6 significant digits

## PROGRAMMING/LOGGER SET-UP.

.SquirrelView or SquirrelView Plus software

## COMMUNICATION.

.USB 1.1 and 2.0 / RS232

External options: .

.GSM and Ethernet

POWER SUPPLY

Internal: .6\* x AA Alkaline batteries  
External: .10-18VDC Reverse polarity and over-voltage protected



\* Maximum operating temperature for AA alkaline batteries is 50°C

POWER CONSUMPTION @ 9V

Sleep mode: .<600µA  
Logging: .40 - 80mA

DIMENSIONS AND WEIGHT

2020 Logger

Dimensions: .W235 x D175 x H55 mm  
Weight: .Approx 1.2kgs  
Enclosure material: .ABS

2040 Logger

Dimensions: .W235 x D175 x H92 mm  
Weight: .Approx 1.5kgs  
Enclosure material: .ABS

MEMORY MODES (internal only). .Stop when full or overwrite

DISPLAY AND KEYPAD

2 line x 20 character LCD display

OPERATING ENVIRONMENT .

.-30°C to +65°C

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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.

# Declaration of Conformity

Manufacturer:	GRANT INSTRUMENTS (CAMBRIDGE) LTD, Shepreth, Cambridgeshire SG8 6GB
Equipment Name/Type Number:	2020/2040
Description of Equipment:	Squirrel 2020/2040 Data Logger
Directives:	EMC Directive 89/336/EEC
Including Accessories:	MPU 12V Universal power supply LC71            RS232 serial lead LC77            USB lead

This product complies with the requirements of the above Directive(s)

Applied Standards:	EN 61326-1:1998 (+A1/A2)
Harmonized Standards:	Electrical Equipment for measurement, control and laboratory use - EMC requirements

#### USA

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### AUSTRALIA & NEW ZEALAND

 ANC 006 134 863	This product complies with the requirements of the European EMC standards indicated above which meet the requirements for C-Tick marking.
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# Grant

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