

Squirrel Data Logger

2020/2040 SERIES

Quick Start



1. Hardware Checklist



- Ⓐ 2020/2040 Logger
- Ⓑ CD containing software (SQA100)
- Ⓒ 2020/2040 series Quick Start manual (this booklet)
- Ⓓ USB Cable (LC77)
- Ⓔ Mounting bracket/stand for logger (WB6)
- Ⓕ Batteries, 6 x AA
- Ⓖ Current shunt resistors, 10R x 4 (CS202)
- Ⓗ Connectors: 6 way x 4 (18097), 4 way (13975), 3 way (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 the Help contents within SquirrelView (press F1) for further details on your logger and how to use it with the software.

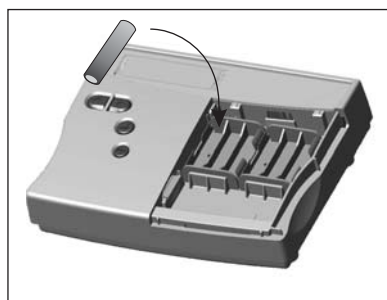
2. General Information

2 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.

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

HIGH CAPACITY  LOW CAPACITY 




Important: 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.

--Main Menu-----
Log Control 1/6

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. | ▶ | --Main Menu-----
Log Control 1/6 |
| 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. | ▶ | --Main Menu-----
Meter 2/6 |
| 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. | ▶ | --Main Menu-----
Status 3/6 |
| 3.3.4 | Setup
This contains menus for setting up Language, Time & Date and the opportunity to store and recall Setups. | ▶ | --Main Menu-----
Setup 4/6 |
| 3.3.5 | Data Files
This menu allows you to copy data files to an external memory card (if fitted) and delete the data files held within the loggers memory. | ▶ | --Main Menu-----
Data Files 5/6 |
| 3.3.6 | Tools
The Tools menu contains maintenance type functions such as querying the software version of the logger, performing a self test and resetting the Logger. | ▶ | --Main Menu-----
Tools 6/6 |

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\Drivers\20xx 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

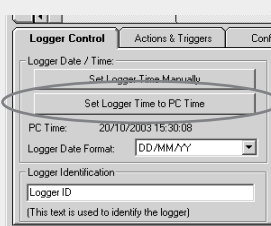
It is advisable to start by synchronising the Logger clock with the PC clock. See step 1 and 2 below:

Synchronise clocks:

1 From SquirrelView Assistant click on Logger Setup.

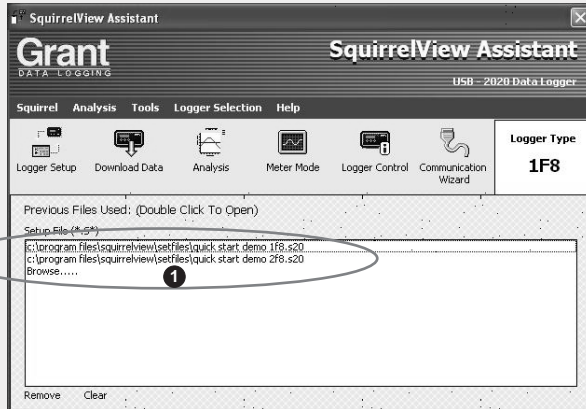


2 From the Logger Setup screen select the Logger Control tab. Click on Set Logger Time to PC Time, click OK on the confirmation screen.

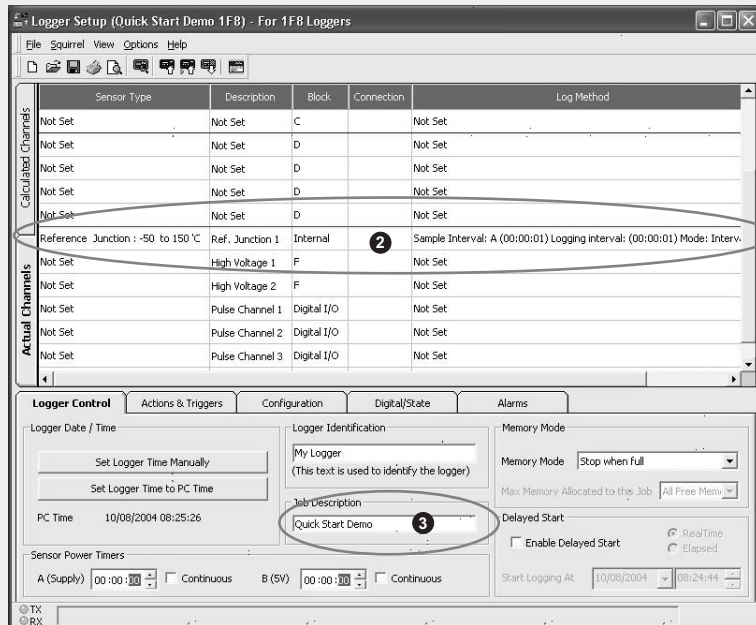


4.5 Running Quick Start Demo

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. Junction 1. 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.

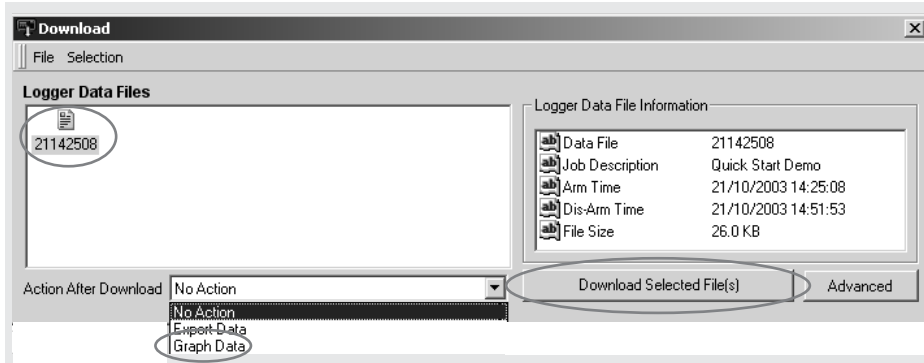
The screenshot shows the 'Logger Control' window with the following data:

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		

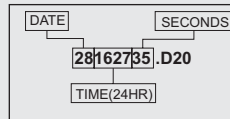
9 To Download the logger click on the Download Data icon from the SquirrelView Assistant.





- 10 In this screen you can now download the Data File and invoke the Export Wizard or download the Data File via Analysis*

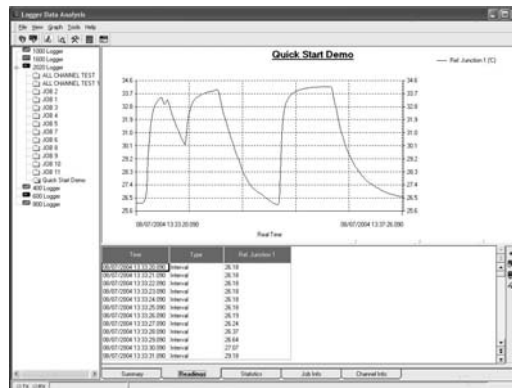
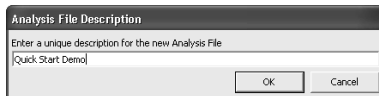
The data File is given a unique name (e.g. 28162735.D20). An explanation of the file name is shown on the right.



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 File Description window will be presented, click OK to view your Data.

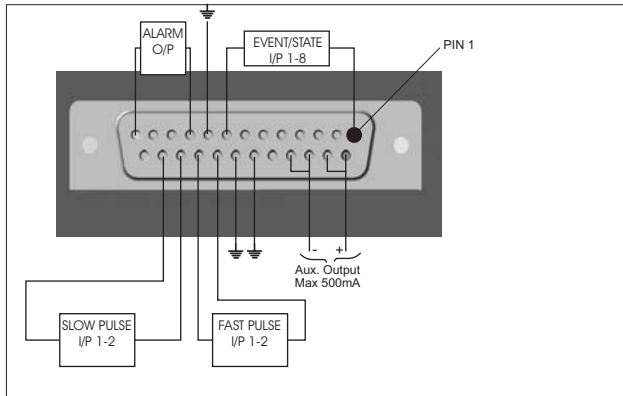


5. Connections

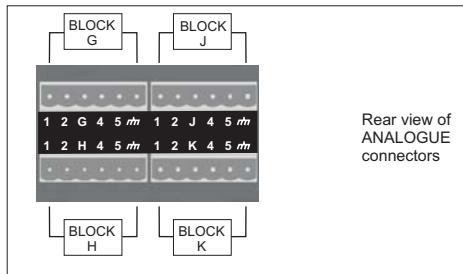
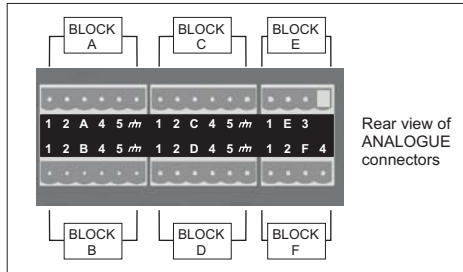
**External MMC/SD Card Reader slot
(located inside the battery compartment as shown below)**



I/O SOCKET Wiring information

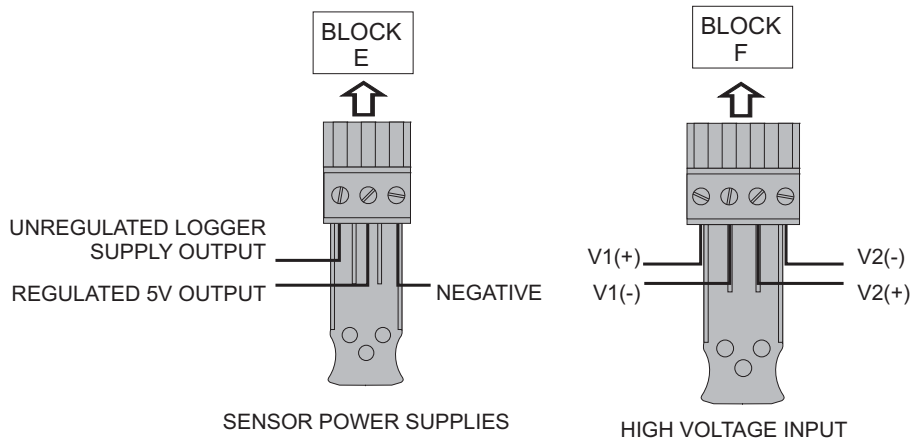


Analogue Inputs (I/P)



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

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



6. Specifications

ANALOGUE INPUTS

Basic accuracy: (5-45°C)± (0.05% readings + 0.025% range)
Common mode rejection: 100dB
Input impedance: > 1MOHM
Linearity: 0.0015%
Series mode line rejection:.....50/60Hz 100dB

DIGITAL INPUTS

Zero input voltage..... 0 to 0.5V (or shorted input)
One input voltage.....2.7 to 5V (or open circuit input)
Input protection.....will turn on below about -0.5V and above about 6V

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 256Mb removable MMC/SD memory cards for download and loading setups

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 supplied AA alkaline batteries is 50°C

POWER CONSUMPTION @ 9V

Sleep mode:<600µA
Logging:40 - 120mA

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) when used with sensor leads up to 3m long, compliance may be affected by using longer leads.

Applied Standards:-	EN 61326:1997(+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



This product complies with the requirements of the European EMC standards indicated above which meet the requirements for C-Tick marking.



Grant

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Printed in England - Squirrel/2020/2040-18108/UK