ISSUE 2.01



Raising gas analysis to new levels

# SERIES 4 WIRELESS TABLET

GRAPHICAL USER INTERFACE (GUI)

# OPERATING MANUAL





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# **DOCUMENT HISTORY**

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 Table 1 : Document history table

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# Contents

1	Intr	oduc	ction	. 5
2	Wh	at's i	in the box	. 5
3	Spe	ecific	ations	. 6
	3.1	Pro	duct Features	. 6
	3.2	Sys	stem hardware	. 6
	3.3	Net	twork connections	. 6
4	Sw	itchir	ng on the device	. 7
5	Co	nnec	ting to the analyser	. 7
6	Но	me p	age	. 8
	6.1	Мо	des of operation	. 8
	6.2	Cal	libration	. 8
	6.3	Sta	tus	. 9
	6.4	Cha	arts	. 9
	6.5	Cha	annels	10
	6.6	Dat	ta Logging	10
	6.7	Re	peater	11
	6.8	Uni	its and Averaging	11
7	Opt	tions	·	12
	7.1	Ana	alyser configuration	12
	7.2	Ana	alyser settings	12
	7.2	-1	Relay options	12
	7.2	-2	Span gas table	13
	7.3	Ala	rm settings	13
	7.3	-1	Alarm setup	13
	7.3	-2	Alarm status	14
	7.4	Set	ting-up time and language	15
	7.5	WI	FI setup	16
	7.6	Ver	rsion information	17
	7.7	Sof	ftware upgrade	17
	7.8	٨d	vanced Options	17
8	Upę	gradi	ing the software	18
9	Tab	ole of	f Figures	20
1(	) Т	able	of Tables	20
1	1 0	Gloss	sary	21



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- If you do not understand any of the instructions, contact your Signal Group Ltd representative for clarification.
- Follow all warnings, cautions, and instructions marked on and supplied with the product.
- Inform and educate your personnel in the proper installation, operation, and maintenance of the product.
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- To ensure proper performance, use qualified personnel to install, operate, update, program, and maintain the product.
- When replacement parts are required, ensure that qualified people use replacement parts specified by Signal Group Ltd. Unauthorised parts and procedures can affect the product's performance, place the safe operation of your process at risk, and VOID YOUR WARRANTY. Substitutions may result in fire, electrical hazards, or improper operation.
- Ensure that all equipment doors are closed, and protective covers are in place, except when maintenance is being performed by qualified persons, to prevent electrical shock and personal injury.

# **1** Introduction

The S4 Wireless tablet with Graphical User interface (GUI) provides the perfect tool to operate our S4 range of gas analysers. This rugged tablet connects wirelessly to the gas analyser via an in-built 802.11 Wi-Fi. This provides the ability to view data, manage configurations, data log, view alarms and calibration of the analyser remotely from different locations.

# 2 What's in the box

- Series 4 Wireless Tablet
- Micro USB Lead
  - Software upgrade
  - Data files export
- Power adaptor AC 100V~240V, 50Hz/60Hz output DC 5V/2.5A
- USB to micro USB lead for charger.
- Holding strap



Figure 1 : S4 Wireless tablet with accessories

#### Issue 2.01

# 3 Specifications

## 3.1 **Product Features**

- Type: Rugged tablet, IP 65 rated
- Dimension: 185mm x 93mm x 20.7mm
- Display: 5.9" (149mm) anti-scratch touch capacitive



Figure 2: S4 Wireless tablet - Front view

## 3.2 System hardware

- CPU: Intel cherry-trail Z8350
- CPU speed:1.44GHz-1.92GHz
- GPU: intel HD Graphics
- RAM capacity: 2GB
- ROM capacity: 326GB



Figure 3: S4 Wireless tablet - Top view

#### 3.3 Network connections

- Wi-Fi: Wi-Fi 802.11 frequency 2.4G+5.9G dual band
- Bluetooth: BT 4.0

# 4 Switching on the device

After pressing and holding the ON/OFF button, located on top of the tablet (See Figure 3), the initialisation will start. When the login page appears, press the LOGIN button.



Figure 4 : Wireless tablet - Switching on the device

# **5** Connecting to the analyser

If the tablet does not connect automatically with the analyser, you will see this screen. Select your analyser from the list shown and the tablet will connect to it through the chosen connection method.



Figure 5 : Tablet GUI - Home screen

# 6 Home page

Once the tablet is connected to the analyser, you will see the Home page, which shows the main functions of the analyser:

Home			Flow	0.000l/min	1			
6.	.3	6	.5			6.8		
98		Channel	Conce	ntration		Averaging	Range	Mode
Status	4	THC		1.50	mg/m³	none	10000	Zero
Charls		CH4		-0.91	mg/m³	none	10000	Zero
6.	.6 I	NMHC		2.40	mg/m³	none	10000	Zero
Data loggi	ng							
6	.7							
Repeate			6.2				6.1	7
CAL	Ő	í	2		Ň	0 0	zzz	Þ.
Cal	Zero	Span 1	Span 2	Pause	Sample	Standby S	leep Opt	ions
HFID-DNN	<b>AHC 20</b>	0315 *	Battery 100%	Wil	Fi Ch1 999	% 1.	4/04/2021 11:	05:19

Figure 6 : Tablet GUI - Home screen

#### 6.1 Modes of operation

The following options will initiate warm-up on the S4 SOLAR analysers. Modes may vary depending on your type of instrument. Use the analyser operation manual for more details.

- **Sleep:** the unit is powered but not heated. No gas valves will be open.
- Standby: the unit will be heated and ready for measurement. No gas valves will be open.
- Sample: the unit will automatically initiate ignition, and once the flame is lit, open the Sample valve to begin measuring Sample gas.
- Pause: Allows isolation from any measurement gas path by closing all valves whilst the unit remains lit.

## 6.2 Calibration

For optimal performance you need to calibrate your analyser. (It is recommended to do this daily) You can calibrate from the following modes by pressing the **CAL** button:

- Zero: calibration in this mode will adjust the zero offset only.
- **Span:** calibration in this mode will adjust the span coefficient only.
- Sample: calibration in this mode will adjust the zero offset, followed by the span coefficient.

# NOTE – it is advisable to leave your instrument lit for at least an hour before first calibration.

#### 6.3 Status

This page shows all the main parameters of the gas analyser. Different S4 analysers will display different information.

0.00	0
-	
\$	-

#### Figure 7 : Tablet GUI - status screen

#### 6.4 **Charts**

In this page, the trends of the different channels are displayed graphically.



#### 6.5 Channels

By selecting each channel's name from either the Home or Charts screen, more information is available in the Channel page. From this page the operating range can be changed by selecting the appropriate Scale button.



Figure 9 : Tablet GUI - Channel Screen

#### 6.6 Data Logging

In this section, you can configure the logging rate and setup your file before starting your data logging. The Base file name is the name of the file when it's created and the description is the title on the page when the log is opened. When finished, you can export your data via the micro USB port.

HFID-DNMHC 20312 *	Battery 1003	WiFi Ch11 74%	16/04/2021 10:13:59	1.11
			Back	Home
			\$	Ø
	Export data		The space meson	
1 hour			Free shace 102 5GB	
5 minutes	Start			
2 minutes				
1 minute				
30 seconds	Include	e header text		
	Test			
20 seconds	Base file nar	me		
1 second	description	for testing		
Logging rate	Description			
	Description			

#### 6.7 Repeater

The Repeater function allows you to magnify the display of the concentration readings.



Figure 11 : Tablet GUI - Repeater screen

#### 6.8 Units and Averaging

The displayed units as well as the averaging applied to the concentration value can be changed by selecting them, this will cause a drop down menu to appear.

- Units available : mg/m<sup>3</sup>, %, PPM, PPb, μmol/mol, μg/m<sup>3</sup>
- Averaging available : None, 30 seconds, 1 minute, 5 minutes, 10 minutes

Home			F	low 0.000l/min	n				
50		Channel		Concentration		Averagi	ng Range		Mode
Status		THC	1	1.50	mg/m³	non	e 100	00	Zero
Charles	1	CH4		-0.91	mg/m³	none	e 100	00	Zero
Data long	,	NMH	c	2.40	mg/m³	non	e 100	00	Zero
Repeate	er								
CAL	Ő	î	2		Å	Ċ	CZZ	Ø	
	7	Span 1	Span 2	Pause	Sample	Standby	Sleep	Options	
Cal	Zero			and the second se	and the second se	the second se	the second se	the second second second second second	

# 7 Options

# 7.1 Analyser configuration

Press the Options Icon to have access to main settings of the gas analyser.

Options				SIC	
7.2-1 Analyser settings 7.2-2 -0 0-	7.4 V Time / language setup	7.5 Analyser of	onfiguration 7.6	7.7 Software update	Signal Group Ltd. 14 (0) 1276 682 841 44 (0) 1276 691 302 signal-group.com
7.3-1 Alarm settings 7.3-2		Advanced Mainter	options 7.8		
HFID-DNMHC 20315 * Batte	ry 100%. W	/iFi Ch1 9	18%	14/04/2021 10:20:46	Home
Figu	re 13 : Tablet	GUI - Opti	ions screen		

#### 7.2 Analyser settings

#### 7.2-1 Relay options

The active relays and solenoid valves are highlighted.



Figure 14 : Tablet GUI - Relay options screen



#### 7.2-2 Span gas table

All span gases can be set using this table. If required, you can apply Calibration to all the ranges. The Refresh button gets the information from the analyser.



#### 7.3 Alarm settings

In this section, the setup of the alarms can be carried out and access to the alarms/warnings.

#### 7.3-1 Alarm setup



Figure 16 : Tablet GUI - Alarm setup screen

#### 7.3-2 Alarm status

This section shows any alarms or warnings and will allow you to acknowledge (Ack) them. You can also clear the list when the information is no longer required.

Status						
		no errors / warnings repo	orted			
Clear	کم list					
1 de la companya de l						
Ack a	larms					
					~	
					~	
HFID-DNMHC 2031	5 *	Battery 100%	WiFi	Ch1 98%	14/04/2021 10:30	:54 110

Figure 17 : Tablet GUI - Alarm status screen

Any Alarms that occur on the analyser will be displayed on the home screen, highlighted by the blue box shown below. There are two types of alarms, indicated by their colours; yellow 'warnings' and red 'alarms' which are more serious.

	Flo	w 0.000l/min		C)			
Channel	Co	ncentration		Averag	ing Rang	e	Mode
THC		1.50	mg/m³	non	e 100	000	Zero
CH4		-0.91	mg/m <sup>3</sup>	non	e 100	000	Zero
NMHC	-	2.40	mg/m³	non	e 100	000	Zero
ì	2	П		Ċ	CZZ	ø	
Course 1	Snan 2	Pause	Sample	Standby	Sleep	Ontions	
	Channel THC CH4 NMHC	Channel Co THC CH4 NMHC	Flow 0.000l/mir Channel Concentration THC 1.50 CH4 -0.91 NMHC 2.40	Flow 0.000l/min Channel Concentration THC 1.50 mg/m <sup>3</sup> CH4 -0.91 mg/m <sup>3</sup> NMHC 2.40 mg/m <sup>3</sup>	Channel Concentration Average THC 1.50 mg/m <sup>3</sup> non CH4 -0.91 mg/m <sup>3</sup> non NMHC 2.40 mg/m <sup>3</sup> non	Channel Concentration Averaging Rang THC 1.50 mg/m <sup>3</sup> none 100 CH4 -0.91 mg/m <sup>3</sup> none 100 NMHC 2.40 mg/m <sup>3</sup> none 100 III III III III III IIII IIII IIIIIIII	Flow 0.0001/min       Image: Flow 0.0001/min         Channel       Concentration       Averaging       Range         THC       1.50 mg/m³       none       10000         CH4       -0.91 mg/m³       none       10000         NMHC       2.40 mg/m³       none       10000

Figure 18 : Tablet GUI - Home screen with Alarm

The flashing alarm icon can be selected in order to navigate directly to the alarms page, If a Calibration fail alarm occurs, this will remain until a successful calibration is completed, it is not dismissible .



## 7.4 Setting-up time and language

Select the Time / language setup icon. You can setup the date and time of the analyser and the tablet by selecting the 'Tablet time' box, adjusting it to suit then pressing the 'set time' button. Once the tablet time is adjusted, press the 'Synchronise time' button in order to synchronise the analyser with the tablet's time, this is important to do to ensure that any data logging files will output the correct date and time.



Figure 19 : Tablet GUI - Time/language setup screen

You can also change the language of the tablet, if your desired language is not available, please contact Signal.

# 7.5 WIFI setup

Select the WIFI setup Icon, choose the WIFI option, the tablet will look for available analysers to connect to. Select your analyser of choice and the tablet will begin connecting to it.

Wifi	Q 3 Analysers found Search	
Serial	GFC-20P 20573	
	HFID-DNMHC 20315 Press here	
	HFID-THC 20562	

Figure 20 : Tablet GUI - WIFI setup screen

This page below confirms that the connection to the analyser was successful.



Figure 21 : Tablet GUI - WIFI confirmation screen

By selecting the Serial mode, you can connect the tablet or computer to the analyser by using the RS232 port located on the back of the analyser.

If you cannot connect via WIFI, contact Signal Group for help selecting an alternative WIFI channel.

www.signal-group.com



### 7.6 Version information

This page allows you to view current Firmware details and the analyser serial number. The customer Identification field (Customer ident) can be used to rename the analyser if desired.

598600				
Firmware issue	 _			
1.218				
Customer ident				
*				
Serial number				
and a second	273			
20315				
0 WiFi Channel			Ş	

## 7.7 Software upgrade

This function allows to upgrade the Graphical User Interface (GUI) and will be covered in the Upgrade section of this manual (see section 8).

## 7.8 Advanced Options

This is reserved for maintenance, contact Signal Group for more information.

# 8 Upgrading the software

The software of the tablet can easily be upgraded using the micro USB port. In the option page, select the Software upgrade icon and accept the request to update.



Figure 23: S4 GUI software updater – Update request

Then, when prompted on the following page, insert the USB flash drive, and select the latest version available.



Figure 24: S4 software updater – Software version selection

When prompted for a confirmation of the Update software request, accept.



Figure 25: S4 GUI software updater - Update confirmation

This page shows that the current version (indicated in the blue box) of the tablet has been updated.



Figure 26: S4 GUI software updater - update completed.

# 9 Table of Figures

Figure 1 : S4 Wireless tablet with accessories	5
Figure 2: S4 Wireless tablet - Front view	6
Figure 3: S4 Wireless tablet - Top view	6
Figure 4 : Wireless tablet - Switching on the device	7
Figure 5 : Tablet GUI - Home screen	7
Figure 6 : Tablet GUI - Home screen	8
Figure 7 : Tablet GUI - status screen	9
Figure 8 : Tablet GUI - Charts screen	9
Figure 9 : Tablet GUI - Channel Screen	. 10
Figure 10 : Tablet GUI - Data logging screen	. 10
Figure 11 : Tablet GUI - Repeater screen	. 11
Figure 12 : Tablet GUI - Units and averaging	. 11
Figure 13 : Tablet GUI - Options screen	. 12
Figure 14 : Tablet GUI - Relay options screen	. 12
Figure 15 : Tablet GUI - Span Gas table screen	. 13
Figure 16 : Tablet GUI - Alarm setup screen	. 13
Figure 17 : Tablet GUI - Alarm status screen	. 14
Figure 18 : Tablet GUI - Home screen with Alarm	. 14
Figure 19 : Tablet GUI - Time/language setup screen	. 15
Figure 20 : Tablet GUI - WIFI setup screen	. 16
Figure 21 : Tablet GUI - WIFI confirmation screen	. 16
Figure 22 : Tablet GUI - Version information screen	. 17
Figure 23: S4 GUI software updater – Update request	. 18
Figure 24: S4 software updater – Software version selection	. 18
Figure 25: S4 GUI software updater - Update confirmation	. 19
Figure 26: S4 GUI software updater - update completed	. 19

# **10 Table of Tables**

Table 1 : Document history	/ table	2
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# **11 Glossary**

Calibrate

Zero

Span 1

Span 2

Pause

Sample

Standby

Sleep

Options

Return

Parameters

Charts

Data logging

**Relay options** 

Span gas table

Alarm setup

Alarm status

Maintenance

Time setup

WiFi setup

Version information

Software update

Exit

Debug

Refresh

Disconnect

Search

Configure

Save

Start

Export data

www.signal-group.com

Clear alarms

Acknowledge alarms

Return

Battery

Refresh

Home

Channel

Concentration

Range

Mode

Parameters

Charts

Data logging

Ranges

Range 1

Range 2

Range 3

Range 4

Range X

Scale

Auto

Time

Gas concentration (% of maximum)

Units

Alarms

High limit

Low limit

Concentration (PPM)

Flow (I/min)

About

WiFi Channel

Serial number



Firmware version

Customer ident

Firmware issue

Tablet time

Analyser time

Channel 1

Channel 2

Channel 3

Channel 4

Channel 5

All Channels

Analyser settings

**Relay options** 

Span gas table

Alarm settings

Alarm setup

Alarm status

Advanced options

Maintenance

Analyser configuration

Time setup

WiFi setup

Version information

Software update

Attempting to connect to

Waiting for response

Initialising analyser

Initialising

Connecting

Error – disconnecting

Waiting for serial

Configure logging

Description

Base file name

Export data

Include header text

Logging rate

Free space:

Current log file name :

No log folder selected...

Log folder:

Stop

Start

1 second

20 seconds

30 seconds

1 minute

2 minutes

5 minutes

1 hour

Temperatures (°C)

Pressures (mBar)

Flows (I/min)

Status

errors / warnings reported:

one error / warning reported:

no errors / warnings reported:

Clear List

Acknowledge Alarms

Do you want to update S4 GUI software?

Relays and solenoids

Relays

Solenoid valves

Span gas configuration



Span gas
Carbon number
Apply calibration to all ranges
Debug
From analyser
To analyser
Send
Filter
Relay
Assignment
None
Alarms
Valves
Serial
Analyser found
Analysers found
Serial port found
Serial ports found
Test
Reset
Sleep
Standby
Pause
Sample
Span1
Span2
Zero
Purging
Calibrating
Zero Calibrating
Span1 Calibrating
Span2 Calibrating

Heating up

FID Ignition

Zero Coarse Cal

Span1 Coarse Cal

Span2 Coarse Cal

THC Flame Opt

CH4 Flame Opt

Gas channel

Detector

Language

English

French

Chinese

Password

Any

Gas concentration (% of maximum)

gas path

updating

calibration in progress

Connected to

No analysers found

Configure analyser using

Please insert USB

Confirm deletion of

OK

Cancel

Select data file

Data file

Save

Delete

Destination

Export folder



New folder

Delete folder

Rename folder

Day

Month

Year

Hours

Minutes

Seconds

Synchronise time