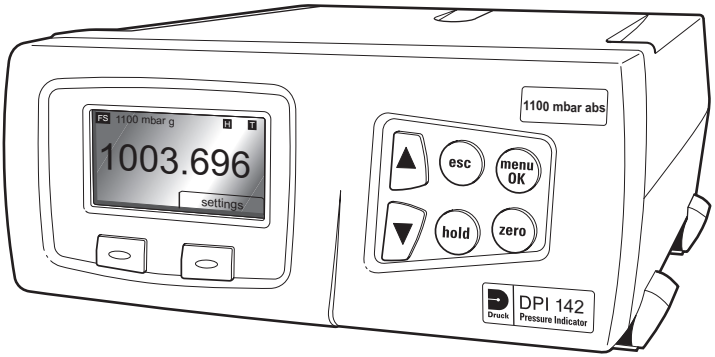
GE
Sensing & Inspection Technologies

Druck DPI 142

Precision Barometer
User Manual - K0343



Approved Service Agents

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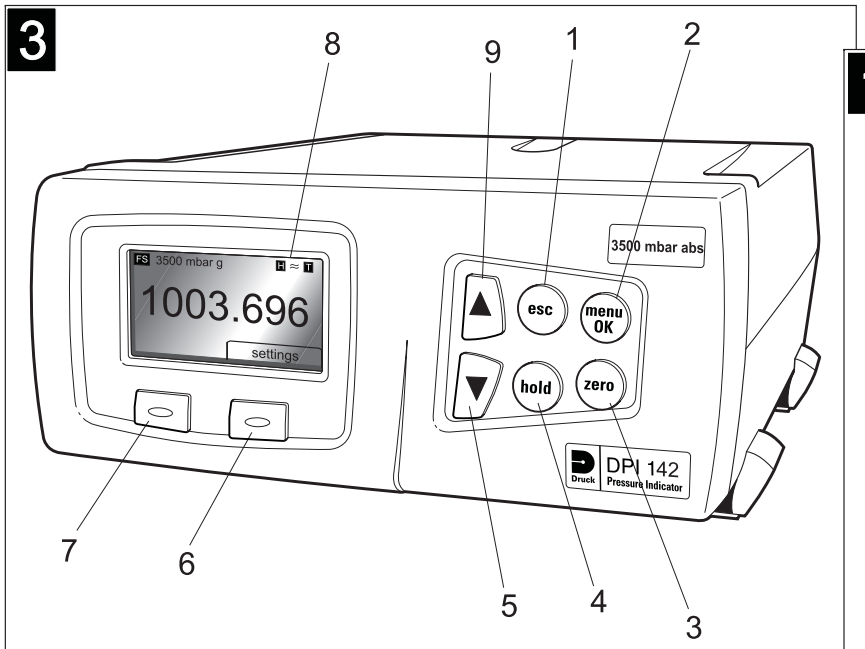
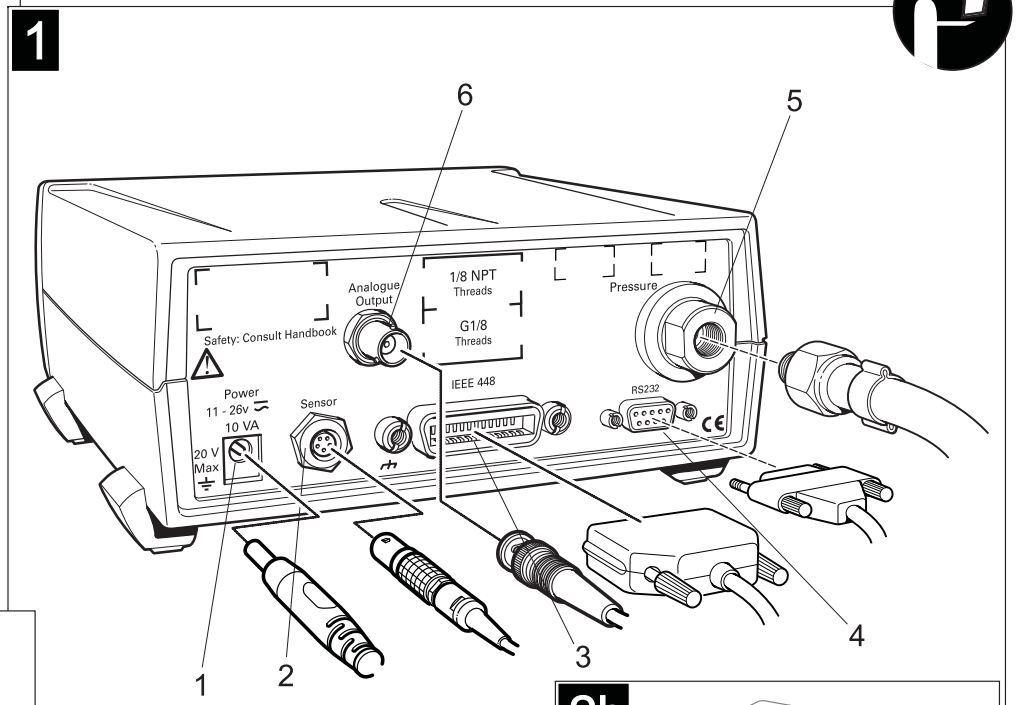
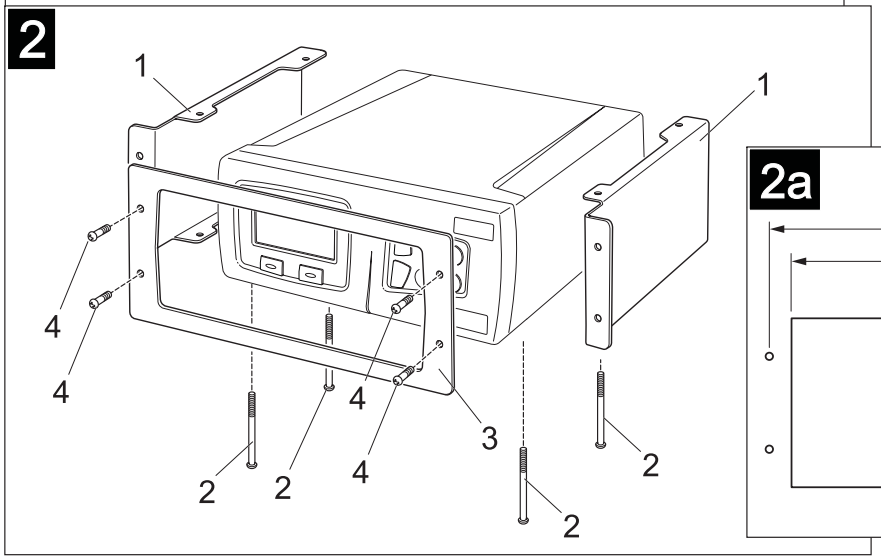
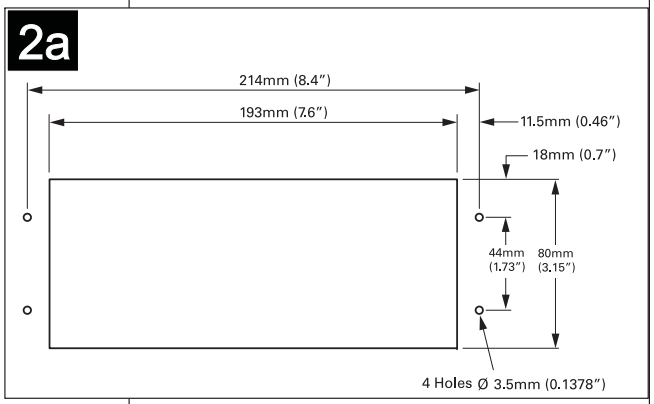
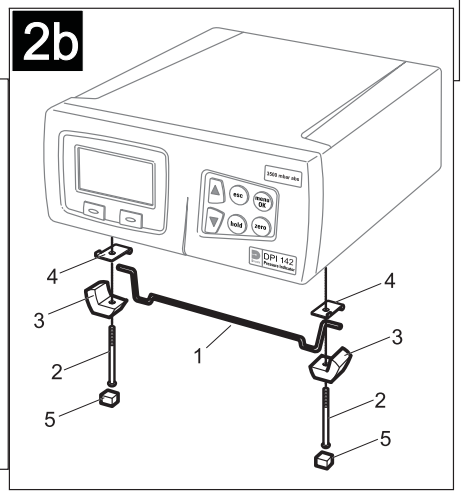

3
8
9
1
2
3500 mbar abs
FS 3500 mbar g
1003.696
settings
esc
menu
OK
hold
zero
Druck
DPI 142
Pressure Indicator
7
6
5
4
3


1
6
5
Analogue
Output
1/8 NPT
Threads
G1/8
Threads
Pressure
Safety: Consult Handbook
Power
11 - 26v
10 VA
20 V
Max
Sensor
IEEE 448
RS232
1
2
3
4


2
1
1
4
4
4
3
2
2
2
4
2
2


2a
214mm (8.4")
193mm (7.6")
11.5mm (0.46")
18mm (0.7")
44mm
(1.73")
80mm
(3.15")
4 Holes Ø 3.5mm (0.1378")


2b
4
3
2
5
1
4
3
2
5

General Introduction

This manual provides operating instructions for the DPI 142 Precision Barometer compatible with the requirements of operating the instrument.

Safety

The manufacturer has designed this equipment to be safe when operated using the procedures detailed in this manual. The user must not use this equipment for any other purpose than that stated.

This manual contains safety and operating instructions that must be followed to make sure of safe operation and to keep the equipment in a safe condition. The safety instructions are either warnings or cautions issued to protect the user and the equipment from injury or damage. Use suitably qualified personnel and good engineering practice for all procedures in this manual.

Pressure

Do not apply pressure greater than the maximum safe working pressure stated in the specification.

Technical advice

For technical advice contact the manufacturer or subsidiary.

Symbols

The following symbols mark this equipment:


Refer to the manual.


Read this manual before operating the instrument.


This product meets the essential requirements of the relevant EC directives.


Do not dispose of this product as household waste.

ABBREVIATIONS

The following abbreviations are used in this publication.

Note: *Abbreviations are the same in the singular and plural.*

abs	absolute	MWP	maximum working pressure
°C	degrees Celsius	mbar	millibar
DPI	digital pressure indicator (GE product)	mm	millimetre
EMC	electro-magnetic compatibility	mmH_2O	millimetres of water
esc	escape	NPT	National Pipe Thread
°F	degrees Fahrenheit	PIN	personal identification number
g	gauge	psi	pounds per square inch
inHg	inches of mercury	QFE	barometric pressure at airfield level
IEEE 488	institute of electrical and electronic engineers standard 488 data	QFF	calculated barometric pressure at sea level including air temperature
kg	kilogram	QNH	calculated barometric pressure at sea level
kts	knots	Ref.	reference
lbs	pounds	RS232	serial interface communication standard
LVD	low voltage directive	SCPI	standard commands for programmable instruments
m	metre	(s)	seconds

CONTENTS

Associated publications

The following e-documents can be downloaded from ***www.gesensinginspection.com***.

English

Introduction

The Druck DPI 142 precision, barometric pressure indicator uses a silicon resonant pressure transducer to produce pressure readings in units of pressure measurement and aeronautical units.

The instrument is contained in a moulded plastic case with integral rubber feet for workbench surface use. Function keys, on the front panel, allows the user to access an operating menu and set-up menu. Two more menus supervisor and calibration allow the user to change the PIN codes, communications settings, display language and for calibration of the pressure sensor. A four digit PIN code protects both these facilities. The electrical and pressure connections are located on the rear panel.

The instrument is supplied, as standard, with a RS232 data interface. Options available include an IEEE 488 interface, an optional analogue output, negative calibration, external sensor and panel mount kit.

Specification

Conformity

Safety ..... EN 61010

EMC emission ..... EN 61326-1

EMC immunity ..... EN 61326-1

Certification ..... CE marked

Pressure ranges (absolute)

barometric ..... 750 to 1150 mbar

..... 35 to 1310 mbar, 35 to 2620 mbar, 35 to 3500 mbar

resolution ..... 0.001 mbar

MWP ..... 4000 mbar

Precision

(includes non-linearity, hysteresis, repeatability and temperature effects between 10°C and 40°C

..... 0.01% full-scale

Stability ..... 0.01% full-scale/year

Environmental

Temperature

Operating ..... 5° to 50°C (41° to 122°F)

Storage ..... -20° to 60°C (-4° to 140°F)

Humidity ..... complies with Def. Stan. 66-31 8.6 cat 3

Vibration ..... complies with Def. Stan. 66-31 8.4 cat 4

Shock ..... mechanical shock conforms to EN 61010

Pressure connections (female): ..... G1/8 or 1/8 NPT

Weight (approximate): ..... 1 kg (2.2lbs)

Dimensions

Length ..... 195 mm (7.7”)

Width ..... 185 mm (7.2”)

Depth ..... 75 mm (3.0”)

Analogue Option Electrical Specification

Isolated Voltage Output:-
Output Impedance..... 5 Ohm
Maximum Load Capacitance.....10 nF
Isolated Current Output:-
Maximum Load Impedance..... 900 Ohm
Maximum Load Capacitance.....10 nF
Accuracy
(including pressure measurement uncertainty)
All voltage and current ranges ....±0.05 % FS (18° to 28°C, 12 months)
Update rate ..... 30 updates per second

Installation

Key to 1

1	power supply	4	RS232 connector
2	external sensor connector	5	G1/8 or 1/8 NPT pressure connector
3	IEEE 488	6	analogue output connector

Packaging List - DPI 142

i) DPI 142 Precision, Barometric Pressure Indicator.
ii) Power supply 191-363.
iii) User manual (this document).
iv) Pressure indicator calibration certificate.
vi) Cable, RS232.

Connections

Note: *Switch off the power supply before connecting or disconnecting the instrument. Isolate the pneumatic pressures and depressurise the pipes before connecting or disconnecting the instrument.*

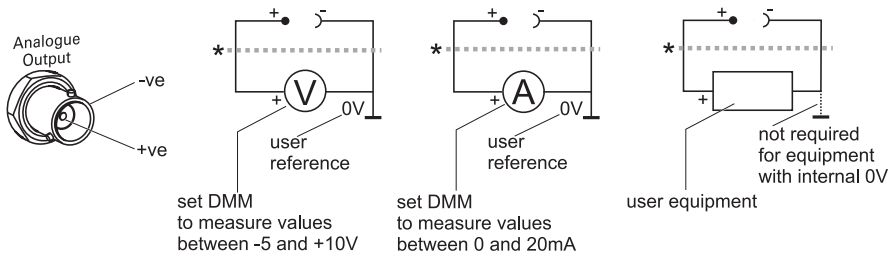
1. Use an appropriate sealing method for all pressure connections.

2. Before use, make sure the SELV power adaptor supplied with the instrument is correct for the power supply voltage. The Safety Extra Low Voltage (SELV) power adaptor complies with EN61010 (including safety requirements for laboratory instruments).

   Note: *The instrument can be powered from other AC or DC power supplies in the range 11 to 26 Volts. It is the user's responsibility to make sure the power supply is safe.*

3. Connect the power adaptor to the instrument and switch the power supply on.

Analogue Output Option



* If necessary, use ferrite ring and twist pair wiring to reduce electrical interference.

Example ferrite ring:
RS Components part numbers
7427114
7427122
74270095

Panel mounting 2 and 2a

A panel mounted instrument must have the rubber feet removed for the side plates to be secured. The instrument fits into a panel cut-out the side and front plates secure the instrument to the panel. It is important that a panel mount installation provides enough circulation of air to cool the instrument.

Key to 2

1 side plate
2 front plate
3 screw 3.5mm

Procedure 2

To fit this option requires a panel cut-out of the dimensions shown in 2a.

1. Remove the rubber inserts in the feet of the instrument.
2. Unscrew and remove two 45mm screws (2) attaching two feet on one side of the instrument casing. Retain the two 45mm screws for the next step.
3. Fit the side plate (1) to the side of the instrument casing and secure with the two 45mm screws.
4. Repeat steps 2 and 3 for the other side plate.
5. Locate the assembled instrument behind the cut-out panel and align the four 3.5mm holes in the panel and the holes in the flanges of the side plates (1).
6. Locate the front plate (3) over the front of the protruding instrument and secure the front plate with the four screws (4).

Bench stand 2b

A bench stand lifts the front of the instrument providing a better angle of display and key-pad access for the user.

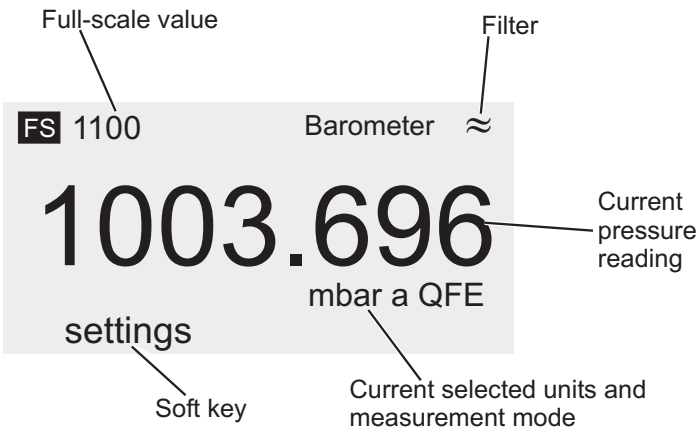
Key to 2b

1 stand
2 screw 45 mm
3 foot
4 clip (left and right)
5 insert, rubber

Operation

Key to 3

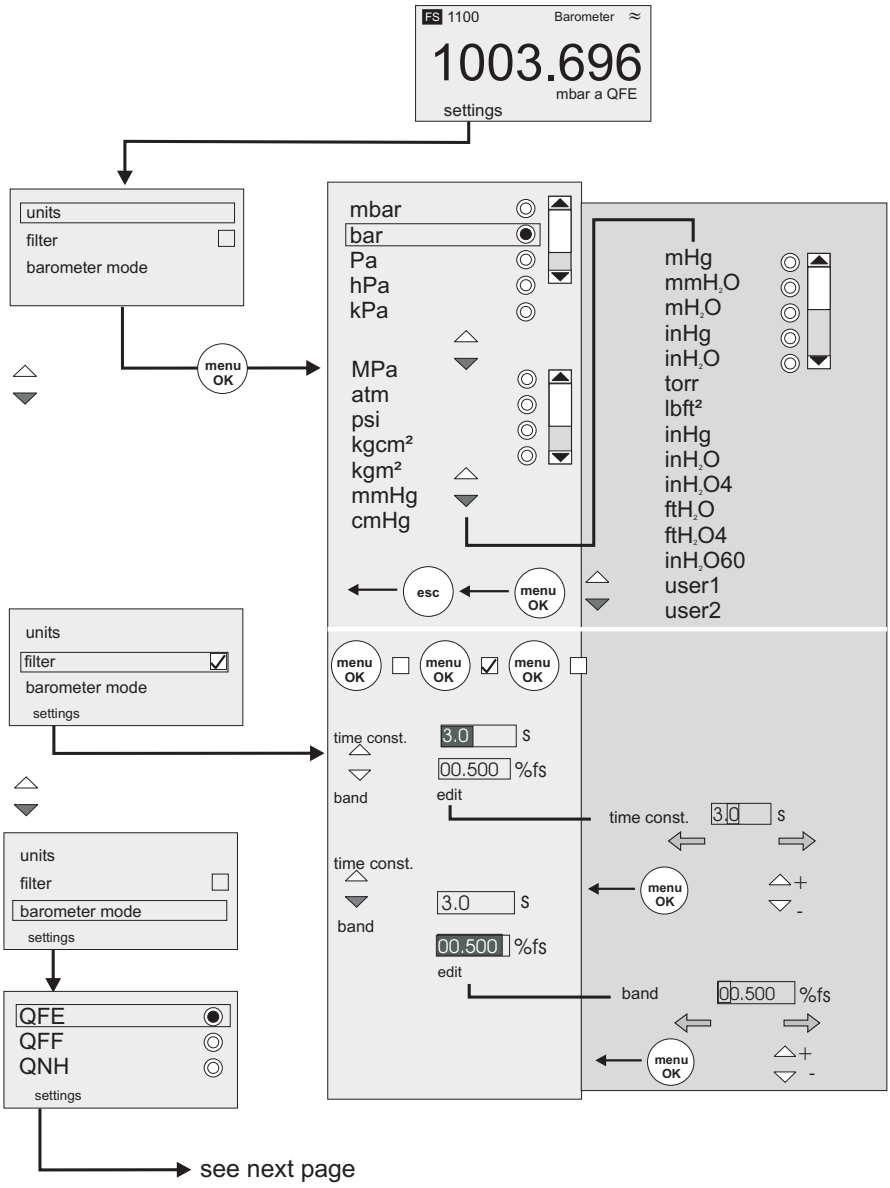
1 esc key
2 menu OK key
3 zero key
4 hold key
5 down or decrease key
6 soft key right
7 soft key left
8 display
9 up or increase key



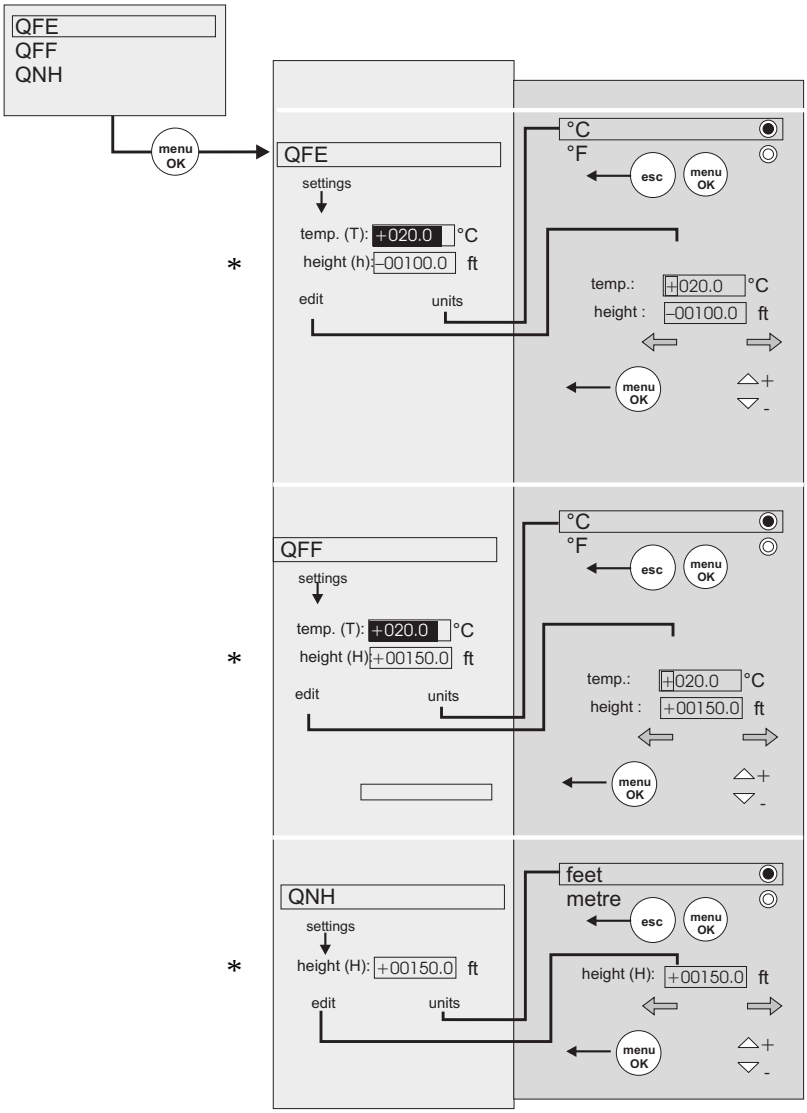
Front panel keys

Key	Function and Comments
esc	Steps back one selection without changing setting.
menu OK	Steps back one selection sets and saves value. Selects and enters menu.
△ ▽	Moves cursor up and down screen. Increases and decreases value of selected digit.
hold	Freezes displayed value, the instrument continues measuring but does not display measured value until key pressed again.
zero	Changes displayed value to 0.000 stores difference (offset) in volatile memory.

Barometer

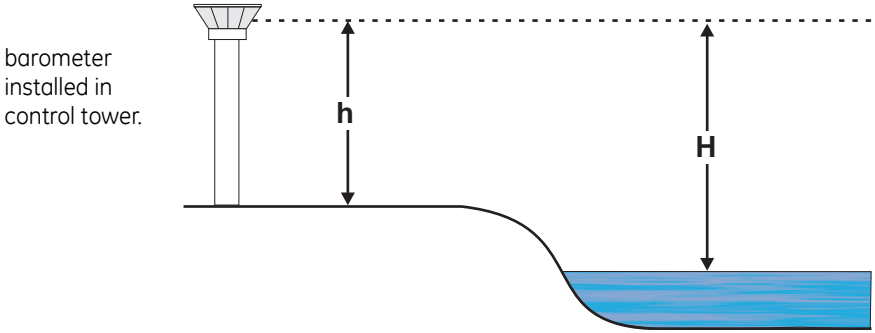

FS 1100
Barometer
1003.696
mbar a QFE
settings
units
filter
barometer mode
menu OK
mbar
bar
Pa
hPa
kPa
MPa
atm
psi
kgcm²
kgm²
mmHg
cmHg
mHg
mmH2O
mH2O
inHg
inH2O
torr
lbft²
inHg
inH2O
inH2O4
ftH2O
ftH2O4
inH2O60
user1
user2
esc
menu OK
units
filter
barometer mode
settings
time const.
3.0
s
band
00.500
%fs
edit
time const.
3.0
s
band
00.500
%fs
edit
units
filter
barometer mode
settings
QFE
QFF
QNH
settings
see next page

Barometer settings



* *See next page - "Height reference" .*

Height reference



h height from the barometer installation to the reference point (for example: the runway).

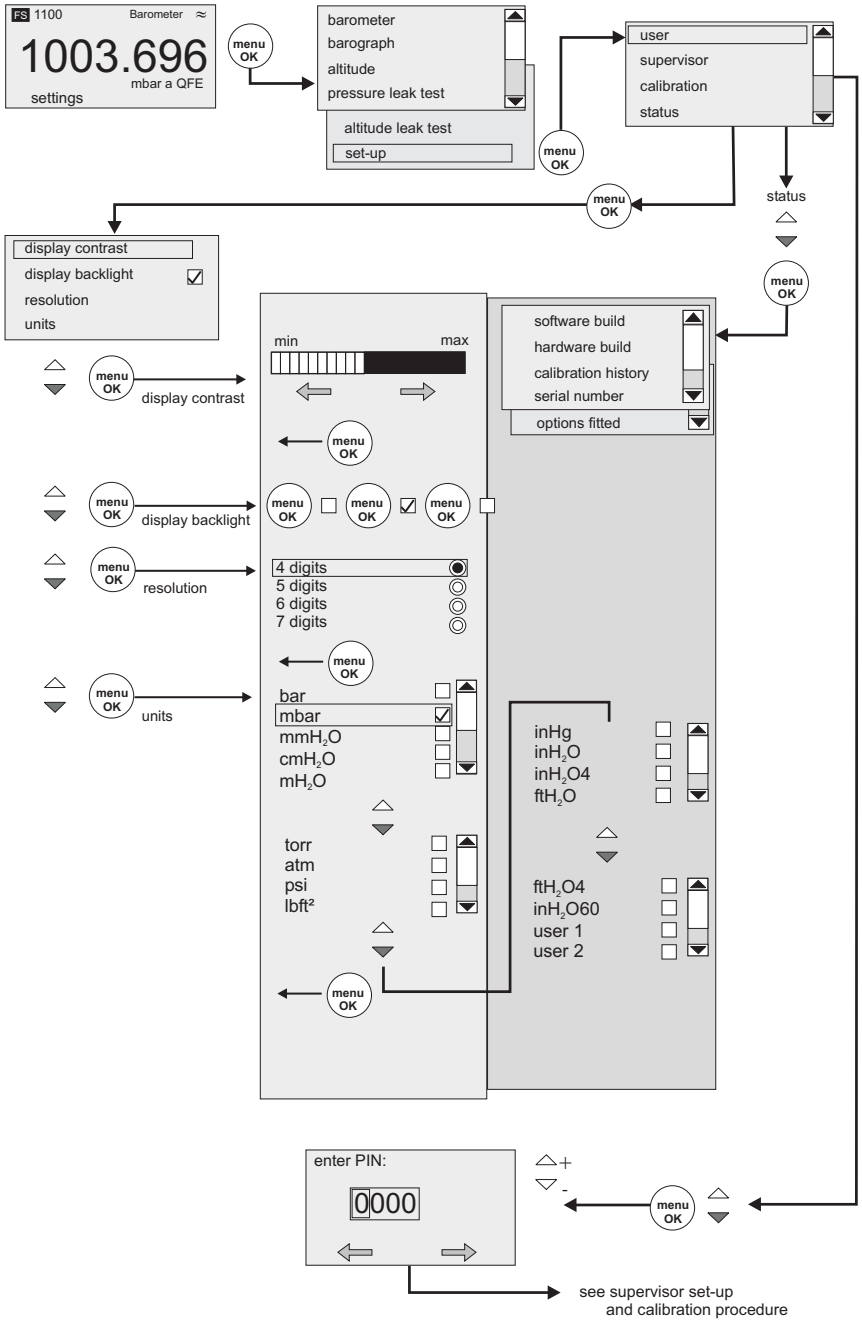
Note: *h is negative if the reference point is below the barometer installation.*

H height of the barometer installation above or below standard sea level datum - mean sea level.

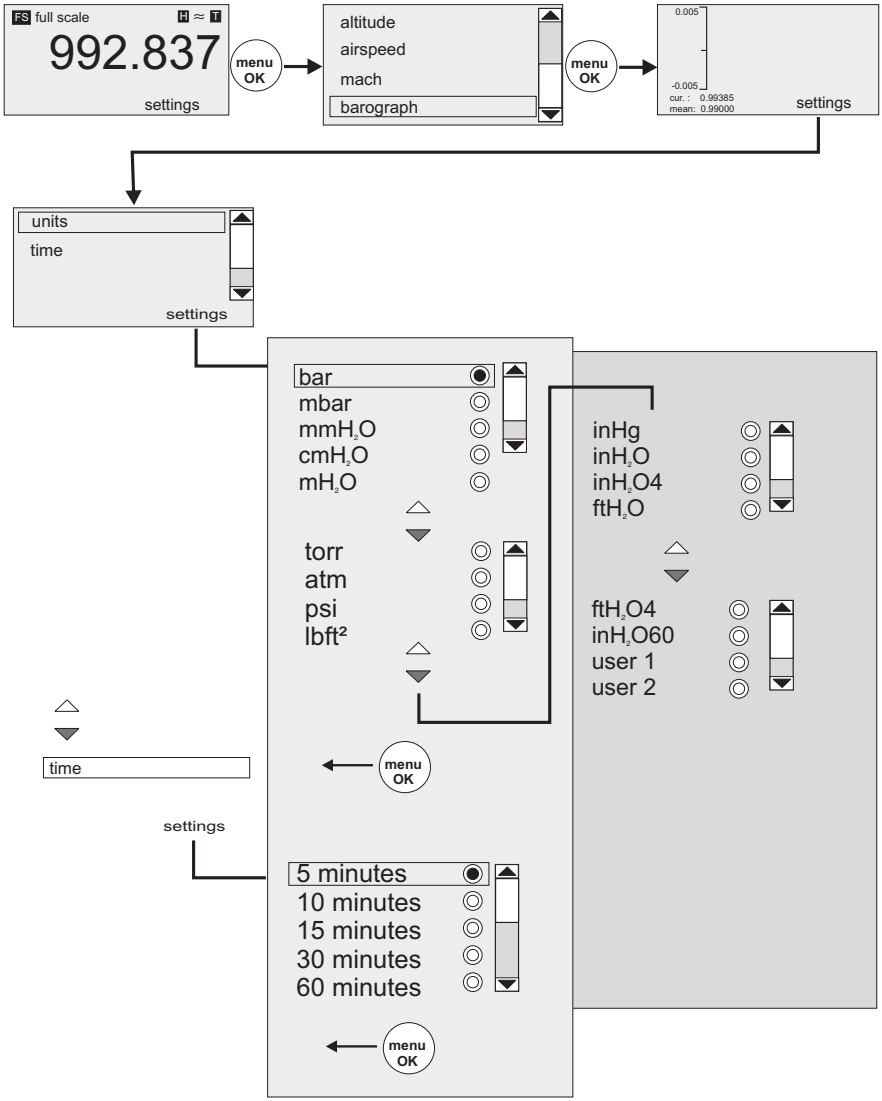
Note: *H is negative if the barometer installation is below the standard sea level datum.*

User Set-up

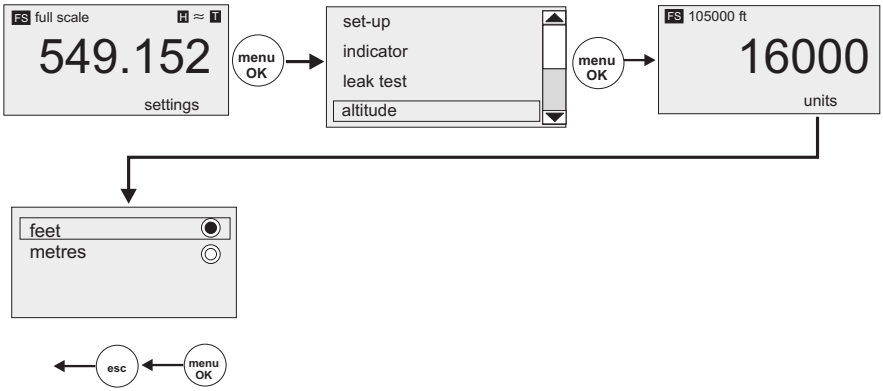
English



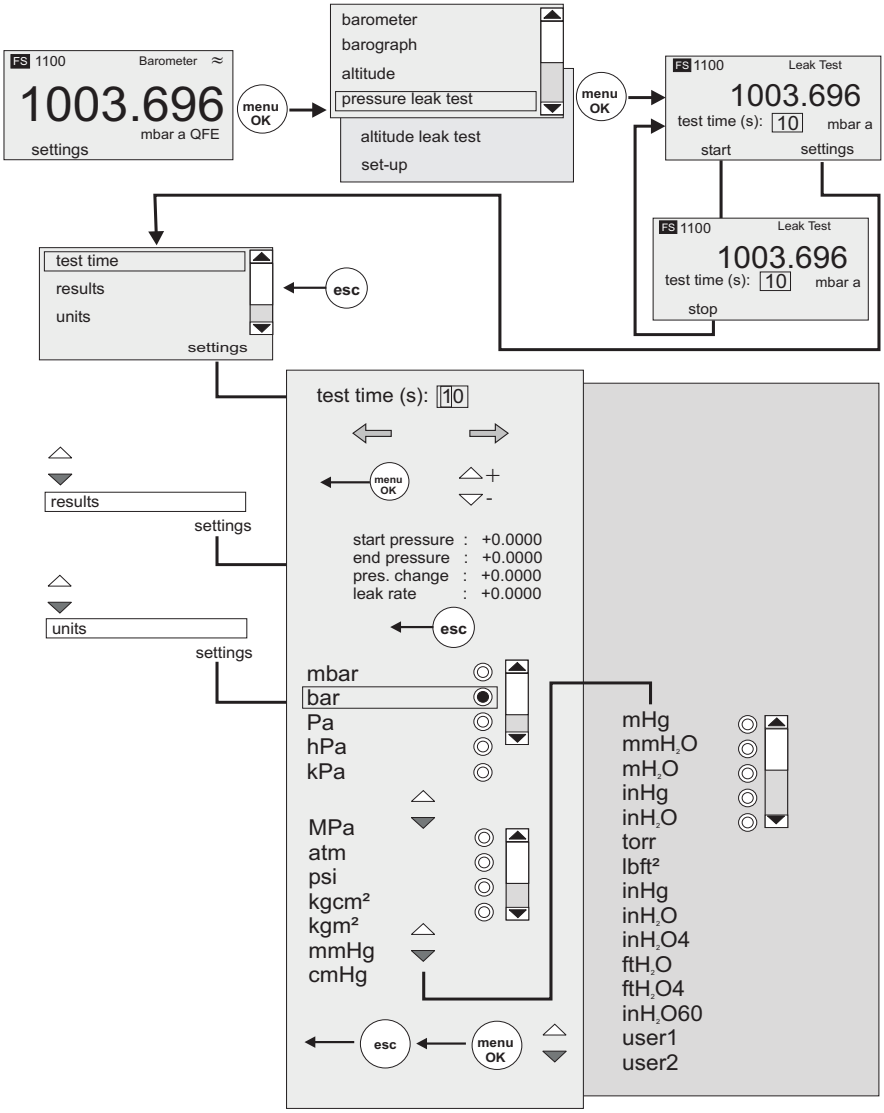
Barograph


FS full scale
H ≈ T
992.837
settings
menu OK
altitude
airspeed
mach
barograph
menu OK
0.005
-0.005
cur. : 0.99385
mean: 0.99000
settings
units
time
settings
bar
mbar
mmH2O
cmH2O
mH2O
torr
atm
psi
lbft²
inHg
inH2O
inH2O4
ftH2O
ftH2O4
inH2O60
user 1
user 2
menu OK
time
settings
5 minutes
10 minutes
15 minutes
30 minutes
60 minutes
menu OK

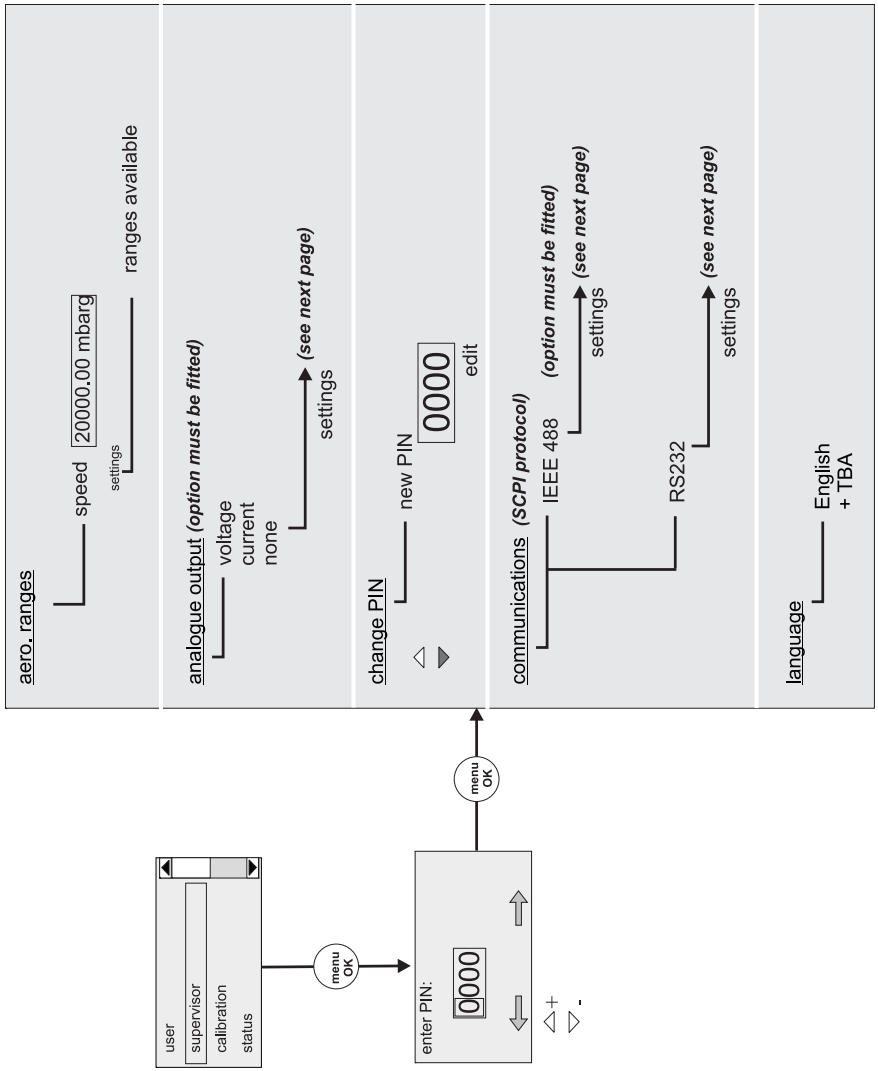
Altitude


FS full scale
H ≈ T
549.152
settings
menu OK
set-up
indicator
leak test
altitude
menu OK
FS 105000 ft
16000
units
feet
metres
esc
menu OK

Pressure Leak Test



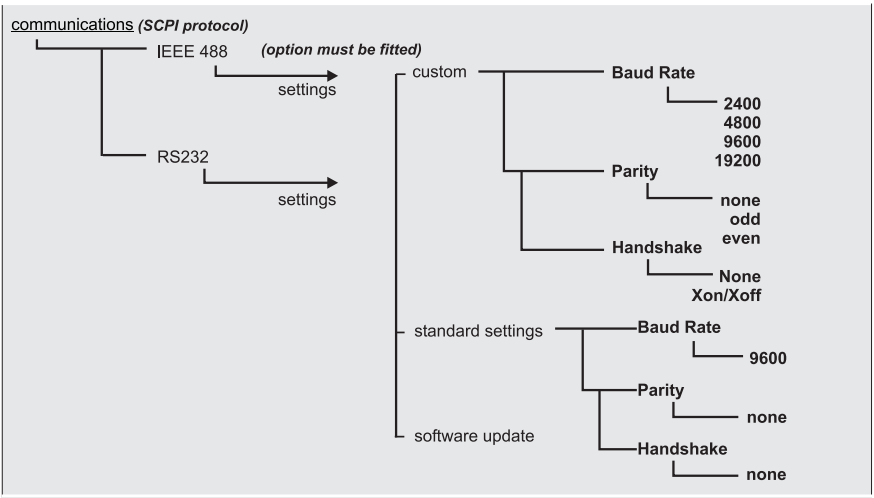
Supervisor Set-up



English

Supervisor Set-up (continued)

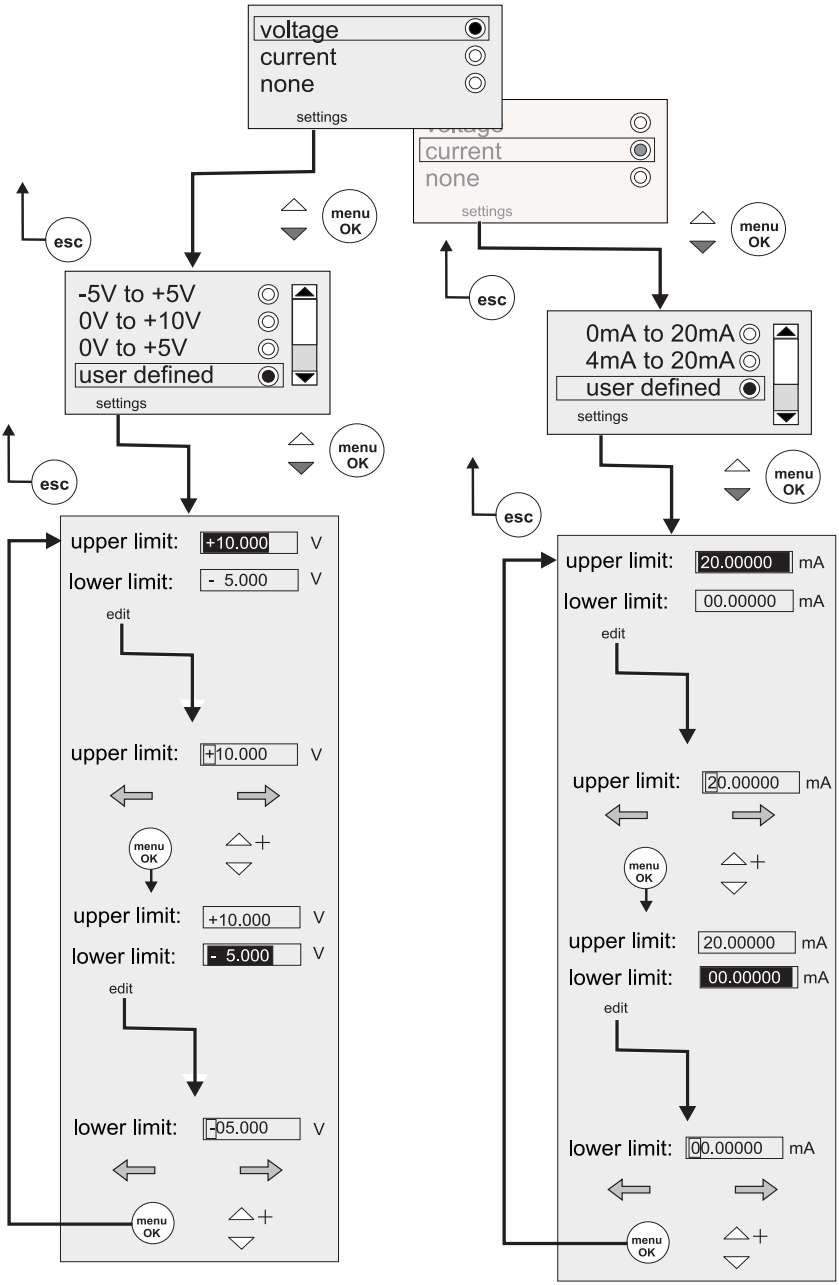
Communications Option



English

Supervisor Set-up (continued)

Analogue Output Option



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