HYDROTECHNIK
UK LIMITED

N_2 Service Pal

Portable digital Nitrogen accumulator charging & testing kit with datalogging

- Unique all-in-one testing, regulating, charging & recording device
- Easy to operate & very accurate
- Fine control of charging pressures
- 1-120 or 10-230 bar regulator options
- Target pressure/over pressure warnings
- Full data logging for traceability / reporting
- Temperature compensation alert & look up table
- Easy to use & safe tool free Minimess® connections

The ideal field service tool for accumulator service engineers. Minimess connections for quick, safe and reliable testing & charging of accumulator pressures. Quickly set target pressure for rapid charging. Digital LCD readout for accurate pressure & temperature values with easy to use datalogging for traceability

Hydraulics

Industrial machinery

Mining/ Quarrying machinery

Wind power

Discover more at **www.hydrotechnik.co.uk**

Accumulator gas charging equipment

N_2 Service Pal

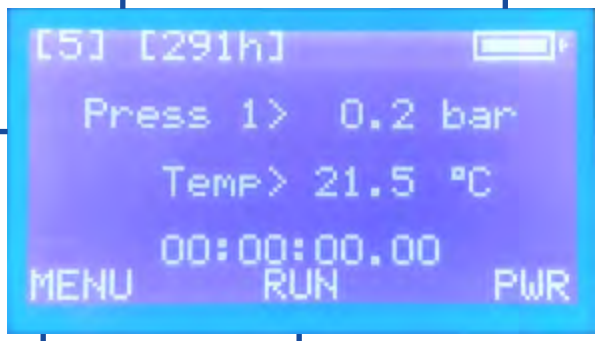
Hold hundreds of tests

Remaining memory status display.

Rechargeable battery indicator

Bright LCD Screen

Bright LCD screen with easy to read numerical data.



Easy data logging

Simple start/stop operation for datalogging of processes

Easy Navigation

Easy menu system for quick and easy access to settings and operations.

Storage space

Lid and base storage space for accumulator adaptors, battery charger, charging hoses and documents etc.

Fine control of charge pressure

Fine control adjustment valve for ultra control of critical charge pressure values

Tough IP67 case

Weatherproof case for harsh field environments

Discharge valve

Set & check target pressures before final release to the accumulator.

Safe, accurate accumulator charging...

Digital pressure and temperature sensors give highly accurate readings allowing Engineers to accurately pre-set target accumulator pressures before releasing gas to the accumulator. Regulator pressure ranges are either 1-120 Bar or 10 – 230 Bar. The internal pressure sensor is matched to the regulator to increase accuracy. A charge pressure LED shows when the target pressure has been achieved.

A built-in temperature sensor alerts Engineers to low or high temperatures when a compensation pressure will need to be applied due to temperature change, (a compensation chart is supplied with each kit).

Target pressures and accumulator fill pressures can all be recorded and logged on the internal memory. Serial or Job numbers can be added to each charging event to keep a record of work completed; these results can then be downloaded as .csv files for analysis later. Temperatures are also recorded.

Accumulator gas charging equipment

N_2 Service Pal

Feature rich

The N_2 Service Pal has all the features an engineer needs for safe testing and charging of Nitrogen Accumulators with data logging, target pressure alerts and temperature comparison warnings.

TAKE CONTROL

Choose 1 – 120 Bar or 10 -230 Bar regulator options for accurate control of target pressures.

PRESSURE RELEASE

Easy to use single action valve for charging target after setting pressure required.

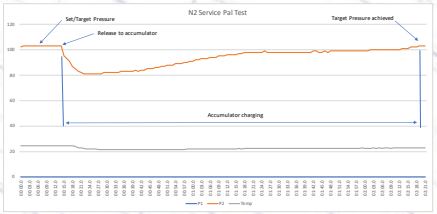
LIGHT THE WAY

High and low temperature warning Pressure target light – Green = achieved, red = under/over pressure.

FINE CONTROL

Fine control valve for accurate setting of target pressures.

DATA DOWNLOAD



Export test files via USB in .csv file format to easily chart the recorded data.

ALL IN VIEW

Easy to read bright LCD display for live pressure & temperature readings.

STORE IT

Room to store Accumulator and bottle adaptors, battery charger etc.

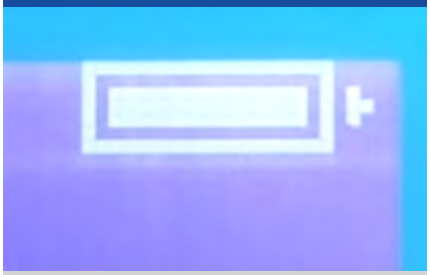
STORE IT AGAIN

Space for connection hoses, Temperature compensation lookup table.

NO RETURNS

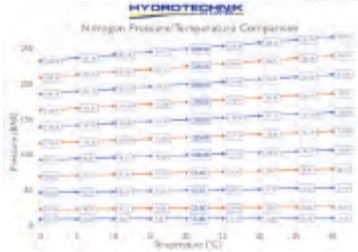
Minimess hoses for safe and tool free testing or charging with anti leak ends.

SUPER CHARGED



Get over 24 hours of continual use from a single charge.

LOOK UP!



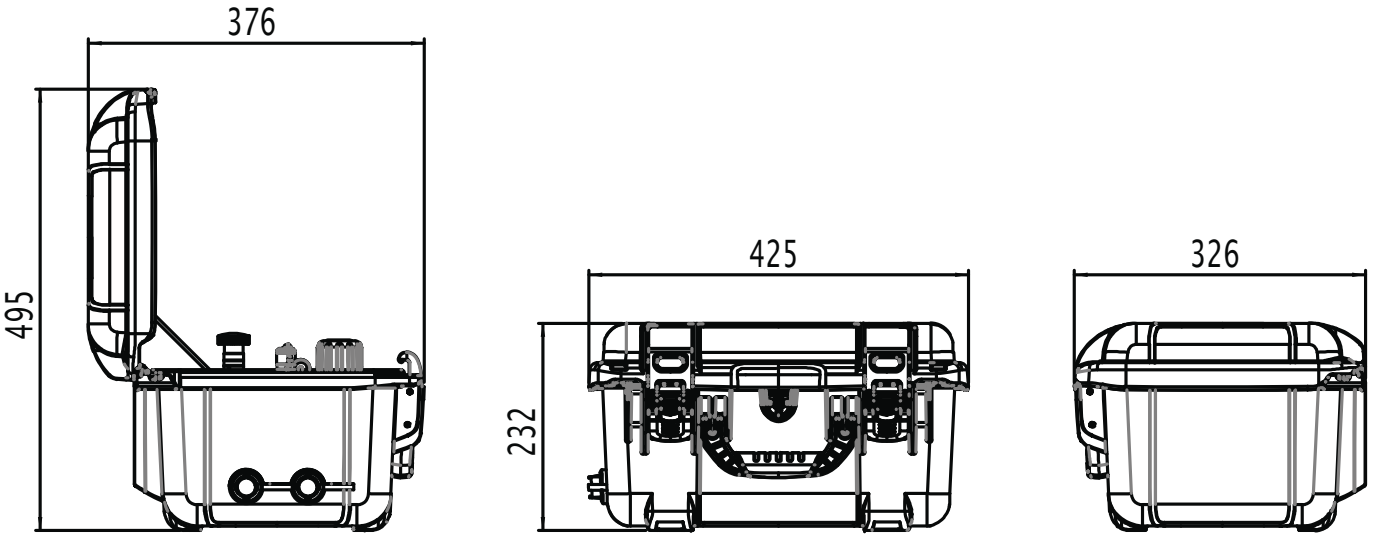
Temperature compensation look up table when charging at different temperatures.

N_2 Service Pal

Technical Specifications

Specifications	Detail
Dimensions	(w)425 mm x (d)326 mm x (h)232 mm
Weight	9.5 kg
Finish	Black HPX resin
Nominal Battery Voltage	7.5 VDC
Charge Voltage	12 VDC
Capacity	2250 mAh
Charge time	2 hours (80%) 3 hours (100%)
Run time	Up to 24 hours
Connections	1620 Minimess® test points, 2.5m long microbore hoses
Regulators	1 - 120 bar or 10 - 230 bar
Operating temperature	0°C to +60°C
Environment	Lid closed – IP67 Lid open – IP54
Maximum inlet pressure	300 bar
Certification	Factory calibration certificate CE declaration
Verification frequency	12 months recommended

Drawing



1 Central Park, Lenton Lane, Nottingham, NG7 2NR
t: 0115 9003 550 e: sales@hydrotechnik.co.uk
www.hydrotechnik.co.uk

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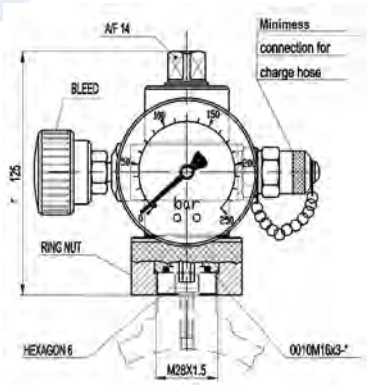
Accumulator gas charging equipment

N_2 Service Pal

Accumulator charging / testing devices & adaptors for connection to different accumulator valve connections.

Devices and adaptors allowing connection to valve types as pictured (see ordering table below to specify in your N_2 Service Pal kit)

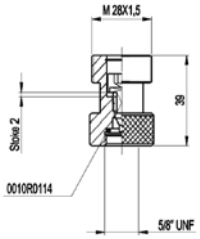
PCFPU Charging Device (M28x1.5 Female)



Important note: Accumulator connection to be specifie (refer to ordering codes)

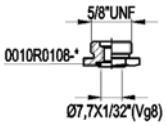
M28x1.5 master valve adaptors

HT2431 (M28x1.5 male to 5/8"-18 UNF female)

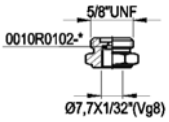


Additional valve adaptors (requires HT2431 Adaptor)

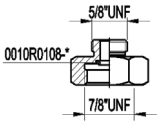
HT2510 (VG8 Schrader style short thread)



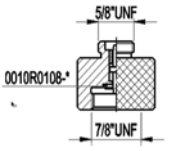
HT2513 (VG8 Schrader style long thread)



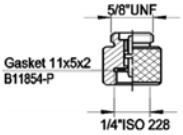
HT2511 (7/8"-14 UNF Female short thread)



HT2514 (7/8"-14 UNF Female long thread & pin)



HT2512 (1/4" BSP Female Parker style with pin)



- Minimess® charging hose for 1620 series accumulator valves supplied as standard
- Minimess® charging hose for 1615 series accumulator valves supplied on request (see ordering table below)

Features

- Test or charge using tool-free Hydrotechnik Minimess® connections up to 630 bar
- Simple hand tightening hose connection on to accumulator charging device
- Connection options for most popular accumulator charging valves

Ordering Codes

ORDERING CODE				
N2-SP	**- 120 or 230**	**- X, A, B, C, D, E, F, G, H or U**	**- B, W, M, A or N**	**- 2.5, 5 or 10**
(Pre-charging & testing kit)	Pressure Regulator operating range	Connection to Accumulator	Connection to Nitrogen Bottle	Charging Hose Length (length in meters)
	120 = 1...120 bar **230** = 10...230 bar	**X** = Minimess 1620 (Standard) **A** = Minimess 1615 **B** - M28x1.5 **C** - 5/8"-18 UNF **D** = 5/16"-32 UNEF / VG8 female (short) **E** = 5/16"-32 UNEF / VG8 female (long) **F** = 7/8"-14 UNF female (short) **G** = 7/8"-14 UNF female (long with pin) **H** = 1/4" BSP female (with pin) **U** = Universal (all of the above)	**B** - G5/8" BSP male (standard) **W** - W24,32x1/14" female **M** - W21,7x1/14" female **A** - CGA580 male **N** - W30x2 Nevoc female Other country Nitrogen bottle adaptors on request	**2.5** = 2.5m long (standard) **5** = 5m long **10** = 10m long Any length available on request

Ordering example: N2-SP-230-X-B-2.5

N_2 Service Pal instructions (a)

How to measure existing pressures of accumulators with Minimess® test points fitted.

A: Isolate the Accumulator from the system and reduce the liquid under pressure to zero
B: Remove the protective and sealing caps from the accumulator Minimess test & charging point
C: Set the Main Discharge valve "7" to open, make sure both bleed valves "11" & "4" are closed
D: Switch on the N_2 Service Pal. Connect the microbore charging hose to the outlet test point "5"
E: Start recording "3" if you wish to record the current accumulator pressure.
F: Connect the other end to the Accumulator. The pressure will be displayed as "Pressure" On the LCD screen "2".
G: In the case of the accumulator being over-charged, reduce pressure via Bleed Valve"4"
H: When finished, disconnect the microbore charging hose from the accumulator end first i.e. before disconnecting from outlet "5"

1: Gas Bottle pressure gauge
2: LCD Display showing
3: Start recording a test
4: Outlet Bleed Valve
5: Nitrogen Gas Outlet port
6: High Pressure Control valve
7: Discharge Pressure to Accumulator valve
8: Nitrogen Gas Inlet port
9: Pressure Set/ Achieved Alert
10: Temperature Alert
11: Inlet Bleed Valve

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N_2 Service Pal instructions (b)

How to increase or reset pre-charge pressures of accumulators with Minimess® test points fitted

A: Switch on the N_2 Service Pal.
B: Make sure the Main Discharge Valve “7” is closed.
C: Make sure the Nitrogen gas bottle is shut off.
D: Unwind the pressure regulator “6”
E: Connect a microbore charging hose between the gas bottle and inlet connection “8”.
F: Make sure inlet and outlet bleed valves “4” & “11” are closed.
G: Open the Nitrogen gas bottle to release pressure into the N_2 Service Pal. The available pressure in the bottle will be shown on the analogue gauge “1”. Make sure that this pressure is higher than the target pressure for the accumulator.
H: Press RUN on the keypad "3" to start logging if you wish to keep a record of the charging event.
I: To set the target pressure: Slowly adjust the regulator “6” to set the target accumulator pressure (displayed on the screen) and once set, press pressure set button “9”. LED will turn green.
J: If target pressure is accidentally set too high: back off the pressure regulator “6” a little, open the Discharge valve “7” (this releases some pressure to the outlet) then open the fine bleed valve "4" to reduce the pressure (back off the regulator "6" so the pressure can reduce further if necessary). Close the fine bleed valve "4" and increase pressure using the regulator "6" if necessary. Close the discharge Valve "7" once target pressure achieved.
K: Open and then close the fine bleed valve "4" then press pressure set button "9". LED will turn green.
L: Connect a microbore charging hose firstly to outlet connection “5” and then to the accumulator charging valve (it is very important that you connect in this order).
M: Make sure the target pressure is correct and open the discharge valve “7” to charge the Accumulator, the LED “9” will turn red and then green when target pressure is achieved.
N: When target pressure has been reached (please allow time for final pressure to settle), close the discharge valve “7” then firstly disconnect the microbore charging hose from the accumulator and then disconnect Outlet “5”. It is important that you do it in this order.
O: Turn off the gas at the bottle, open inlet bleed valve “11”, then remove the microbore charging hose from the gas bottle and inlet “8”
P: Any residual pressure in the N_2 Service Pal can be bled via “11” & “4” bleed valves.
Q: Press "STOP" on the keypad "3" to end recording and follow on screen instructions to save the test.

1: Gas Bottle pressure gauge
2: LCD Display showing
3: Start recording a test
4: Outlet Bleed Valve
5: Nitrogen Gas Outlet port
6: High Pressure Control valve
7: Discharge Pressure to Accumulator valve
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