# OPERATING INSTRUCTIONS

## ADR Touch Digital Readout Unit

## 37-4950, 37-4990/09

| ELE International | Distributor: | ELE International |
|---|---|---|
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**Foreword**

These instructions refer to ADR Touch machines fitted with version 5th October 2011 and above firmware.

Please contact ELE for information on our firmware updating service.

# 1    Introduction

The ADR Touch Digital Readout Unit is a microprocessor controlled device with advanced facilities for data capture, calculation and presentation.

The unit has two measurement modes which are configured during the system set-up. For each mode the following are defined:

- The test type: compression, flexural

- The frame type for the mode, e.g. 2000kN.

- The measurement units, SI, Metric or Imperial/US units.

The ADR Touch retains the selected mode when it is turned off, and restores that mode when it is turned on again.

# 2    Front Panel Display and Controls

All the operations of the ADR are controlled from the front panel which consists of a touch screen interface.

## 2.1    Display

The high-resolution 5.7" LCD QVGA screen is easy to read and can be seen under all lighting conditions by adjusting the contrast and brightness.

2.2     Home Screen Icons

| | |
|---|---|
|  | Displays the test screen |
|  | Selects the sample and type |
|  | Views saved test data and enables USB connection to a Windows PC. |
|  | Views the general settings menu |
|  | Views the calibration menu (password protected) |

2.3     Qwerty Touch Keypad

A number of screens launch a QWERTY Touch Keypad that can then be used for data entry. Here it is possible to toggle between lower and upper case characters and/or numbers/special characters. The 'Enter' key is represented by the 'tick' icon. The display is of the form :-
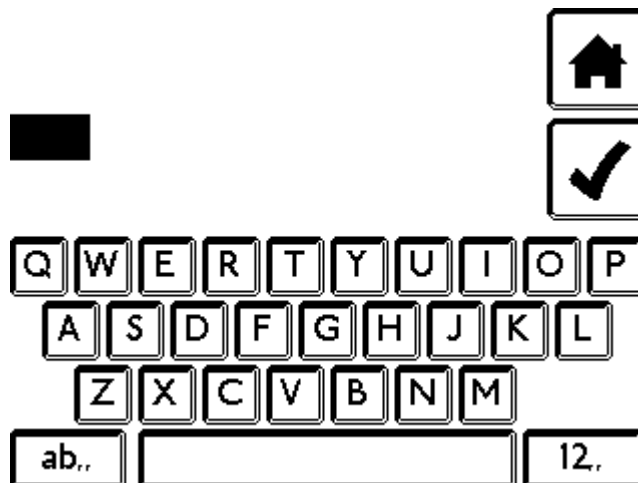
## 3        Electrical Connections

### Electrical Specification

The unit is protected with a time delay 2A fuse and is powered from a single phase AC voltage, 100 – 240 VAC 50/60Hz. A spare fuse is contained in the IEC switch/filter block.

### Safety

Whilst the test is in operation do not remove any covers or attempt to adjust any part of the machine.

### *Electrical Safety*

### Warning
**Danger: Electrocution hazard.**
Before removing any covers for performing maintenance repair and service, isolate from electrical supply by removing mains plug. Where mains supply is required during these activities, only competent persons should perform the work.

Check that the power supply is compatible with the requirements stated on the label and connect up in accordance with IEE regulations or to local requirements.

### *UK Connections*
This machine may be operated through a standard 13 amp socket outlet when fitted with an appropriate 3 pin plug fused in accordance with the label.

**Note:** connect cable to plug as follows:

| | | |
|---|---|---|
| Brown wire | L | Live or Power |
| Blue wire | N | Neutral |
| Green/Yellow wire | E | Earth or Ground |

### *North American Connections*
The machine can be operated from a 20 amp socket outlet when fitted with an appropriate 3 pin plug fused in accordance to the label.

**Note:** connect cable to plug as follows.

| | | |
|---|---|---|
| Black wire | L | Live or Power |
| White wire | N | Neutral |
| Green wire | E | Protective Earth or Ground |

### Portable Appliance Tests (PAT)

All ELE designed products are tested for electrical safety prior to sale.

An electrical safety test label is fitted, (usually adjacent to the AC power input socket).

Should no label be found, please contact ELE Service Department quoting the serial number of the equipment.

Organisations have an obligation to ensure equipment is maintained and is safe for use. Regular PAT testing is one means of ensuring equipment remains electrically safe.

**Important: do not connect PAT leads to sensitive components such as PCB's, control switches and the like**.

**DO NOT FLASH TEST ELECTRONIC EQUIPMENT.**

**If in doubt as to the most suitable connection point (which will usually be an earth stud or an external earth connection) contact the ELE Service Department for assistance.**

**Warning : If the equipment is used in a manner not specified in this manual, the protection provided to the user may be impaired.**

## 4 Turning the ADR Touch On

When the ADR Touch is turned on, the system performs a firmware self-check – this takes several seconds. If the ADR Touch has never been calibrated a message will appear to tell the user that there "is no configuration data saved". Please ensure that the machine is calibrated before use.

### 4.1 Home Screen

After the system checks have been completed, the screen display will be of the form–



Note that the ADR stores the system configuration internally so any changes that are made are not lost when the power is removed. On all screens you can press the Home Screen icon [home icon] to return to the home screen.

## 5      Adjusting the LCD Contrast

The contrast of the display can be changed by pressing the Settings icon, selecting User-defined Settings, then Adjust Display. See section 8.5.5 for the screen format.

## 6      Setting the ADR Touch's Configuration

Before a test can be run, press the Settings icon. In the settings menu select General Settings, then select User-defined Settings. In the User-defined settings menu, select Select Mode. In this screen select whether Compression or Flexural tests are required. If selecting Flexural, ensure that a flexural frame is attached and that the changeover valve is set to the correct position. See operating instructions for either the 37-6130 or 37-6140 for more information.
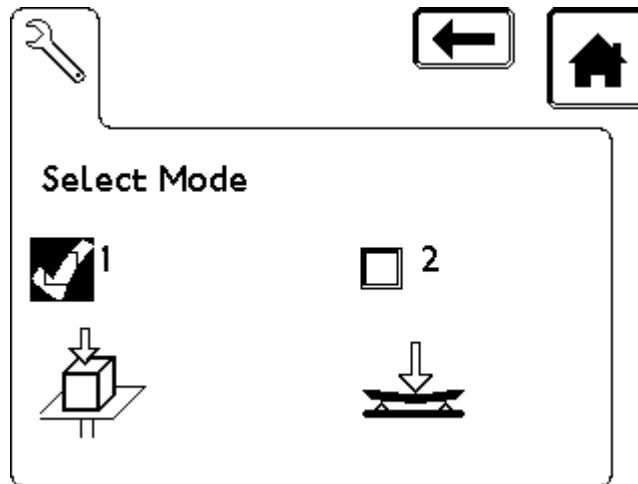
## 7     Selecting a sample

When the desired operating mode has been selected, the user must then select the required sample and type.

At the Home Screen press the samples [icon] icon. The screen will be of the form of:
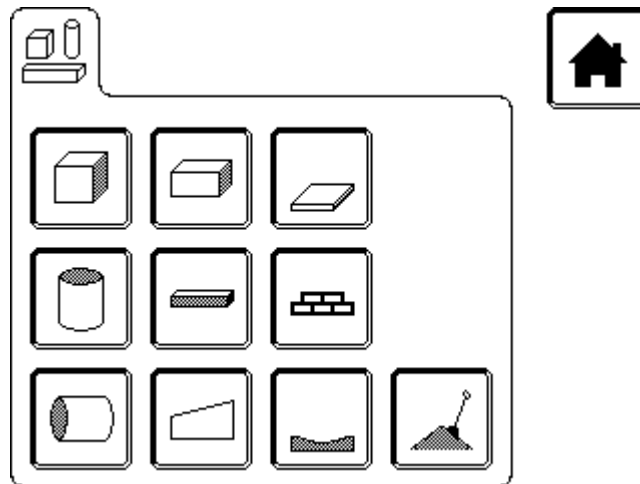


## 7.1     Sample Icon Definitions

| | |
|---|---|
|  | Concrete/Mortar Cubes |
|  | Concrete Blocks |
|  | Concrete Flags |
|  | Concrete Cylinders |
|  | Concrete Beams |
|  | Bricks |
|  | Split Tensile Cylinder |

| | |
|---|---|
|  | Concrete Kerbs |
|  | Concrete Channels |
|  | Aggregate Tests – ACV, FTV |

Upon selecting a sample you are automatically directed to a sample size selection screen. The user can then select one of the default sample sizes. Once selected the screen will be of the form:
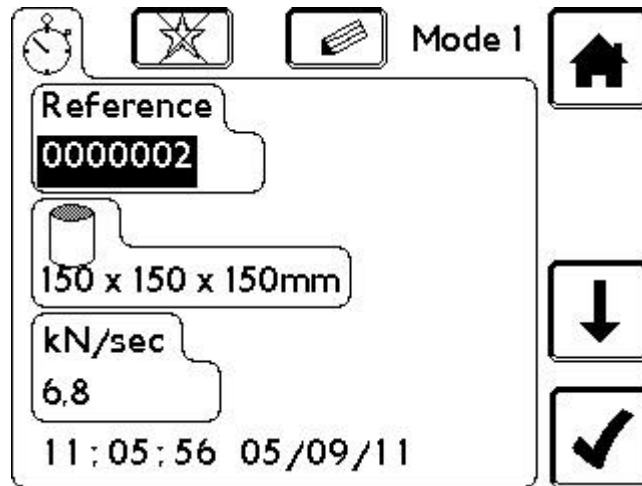


7.2    Editing the Sample Reference

While the default reference is highlighted, the user can edit this by pressing the Edit

icon , this will launch the QWERTY Touch Keypad. The user can enter a

unique reference of up to 8 characters. Pressing the Confirm  icon will assign the reference to the sample.

### 7.3    Editing the Sample Size

It is possible to edit the default sample size to user-specified dimensions by pressing the Down Arrow icon to highlight the current dimensions and press the Edit icon. The screen will be of the form:
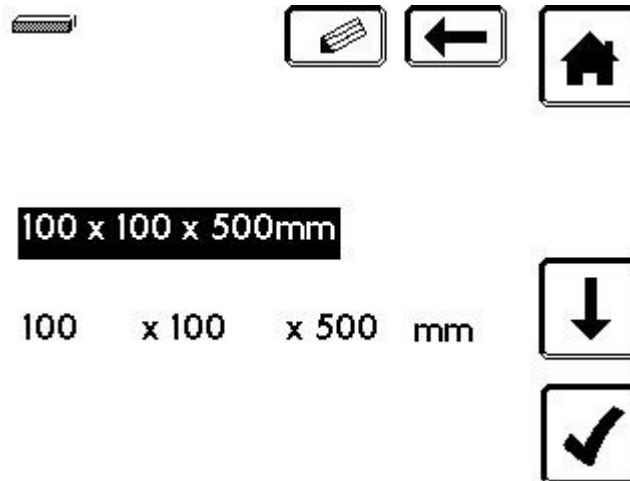


Here, the top line is the descriptor of the sample.

**WARNING** use relevant dimensions as the descriptor. The bottom line displays actual sample dimensions and should be relevant to the detail put in the descriptor. PLEASE NOTE this will automatically change the stress calculation parameters to suit the users custom sample size.

### 7.4    Edit the Pace Rate

When in the Sample Editing Screen, (see previous page) it is possible to edit the pace rate used as a guide for the test. Default pace rates are as per testing standards. Please note, by editing the pace rate, this will affect the pace rate error bar when performing a test.

### 7.5    Edit the Separation

Some samples also include a separation and test type. These can be edited by highlighting separation icon, pressing the magnifier and then entering the value and selecting relevant type separation.
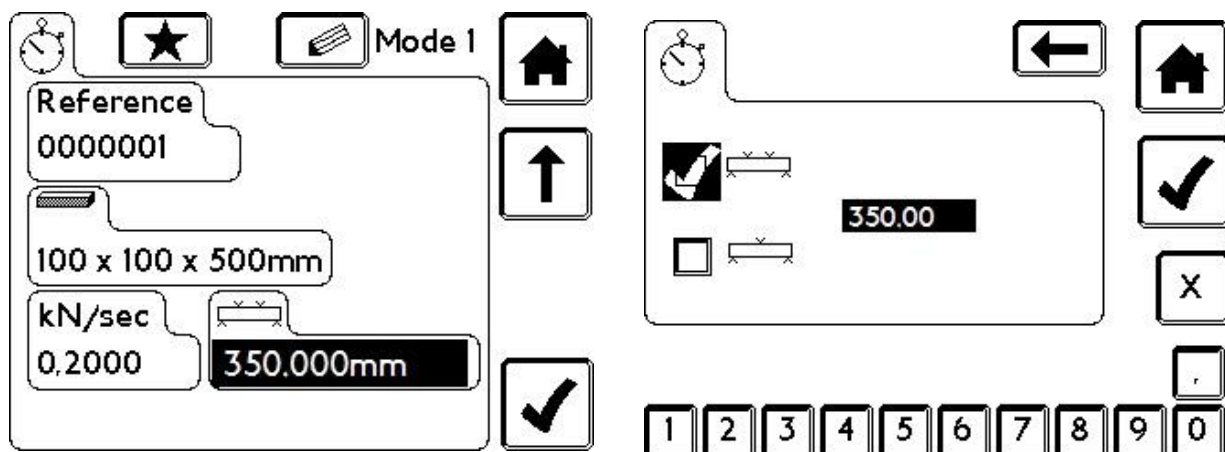
7.6    Setting a Sample Favourite:

When in the Sample Editing Screen, it is possible to set any of the sample types and

sizes as a favourite by pressing the Star [✶] icon. When selected, an icon for this
preferred test will appear on the Home Screen:

150x150x15_

ELE
International

This is intended as a quick setup shortcut for the user. Up to 6 favourites can be
selected by the user.

**8    Running the Test**

Once all sample selection tasks have been completed, pressing the Confirm icon on
the Sample Editing Screen will direct the user to the Test Screen. This will be of the
form:-

2000 kN    0,3kN    0,0    🏠

Mode 1

150S

13.5000
kN/sec
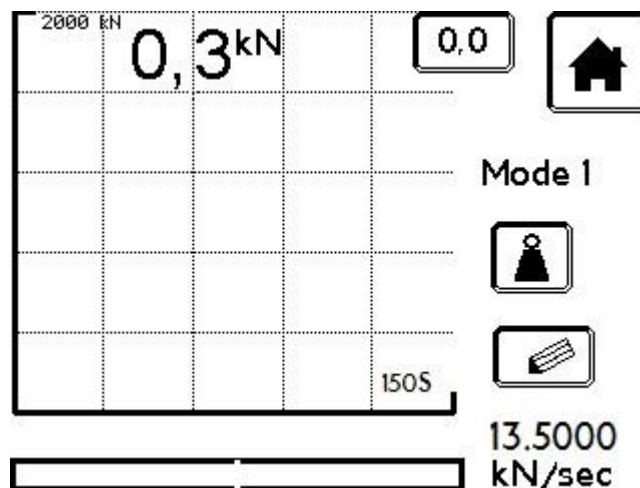
8.1    Starting Pacing

Once the ADR has been set up, it is ready to test a sample. While the ram is rising
and just before the sample makes contact with the platen, press the Zero icon to tare
any residual load. When the load passes the pacing threshold, the pace bar at the
bottom of the screen becomes active.
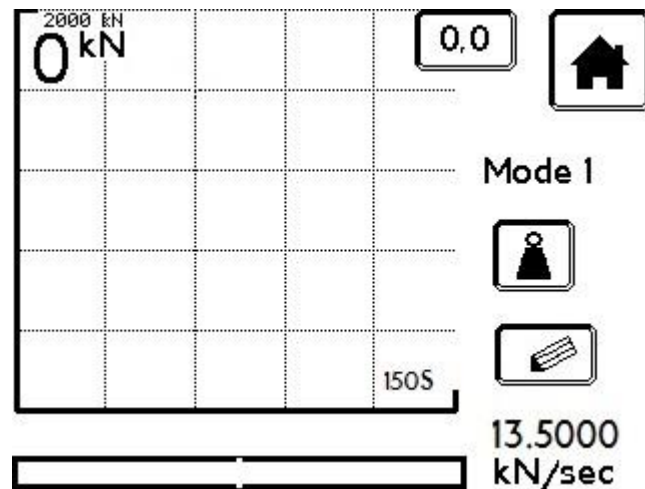
The Pace Error Bar display shows the difference between the required rate and the rate achieved by the operator. The default range of the error bar is normally ±5% of the set rate.

The pace rate can be changed at any time by pressing the Magnifier icon on the Test screen.

8.2     Pace Error Bar Display

When the ADR is loading the sample, the error display takes the form of a bar running from the central line to either the plus or minus signs. The length and direction of the bar is proportional to the pace error. The default range of the error bar is normally ±5% of the set rate. This can be altered in Settings. See SECTION (INSERT).

8.3     Weights

The ADR automatically calculates the density of the sample if the weight in air and

weight in water of the sample are entered here by pressing the Weight [icon] icon.. Each time the water or air weight is changed, it is recalculated and will be displayed in the Test Result screen.

8.4     Density

As described above, the ADR Touch automatically calculates the sample density from its air and water weights.

8.5     Overload Conditions

If the load reaches the frame limit before the sample fails, the warning message "*OVERLOAD*" will be displayed on the screen. The test data is still recorded.

8.6     Sample Failure

While the sample is being loaded, the ADR Touch continually compares the current load on the sample with the peak load seen by the sample. When the current load is below the peak load by the percentage set when setting up the ADR Touch (the default setting is 15%), the ADR senses this as a failure. The initial screen at this point just displays the peak load and stress.
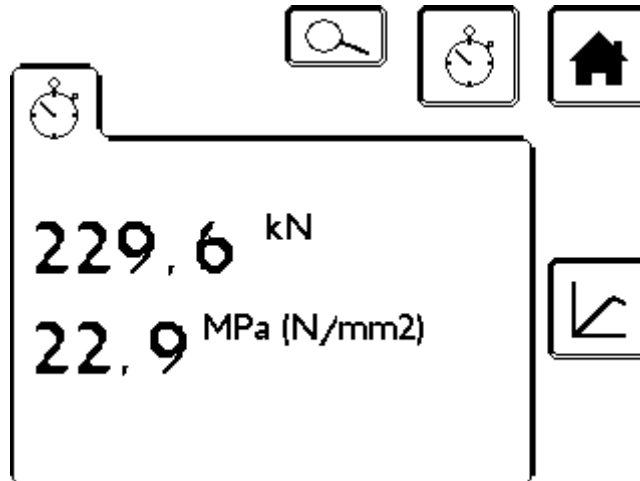
To prepare the ADR for the next sample, press the [stopwatch icon] icon to return to the Test Screen. Otherwise the test result could be examined further by touching the Magnifier icon [magnifier icon], where the screen will then switch to show the sample failure details and will be of the form –



```
Machine
Serial No
Operating Mode      1 : COMPRESSION
Date                30/09/11
Time                09:04
Sample Group        TESTS
Sample Ref          0000005
Sample Type         Cube
Sample Units        S.I.
Maximum Load        229.690 kN
Pace Rate           3 kN/sec
Stress              22.969 MPa (N/mm2)
Sample Height       100.000 mm
Sample Width        100.000 mm
Sample Depth        100.000 mm
```
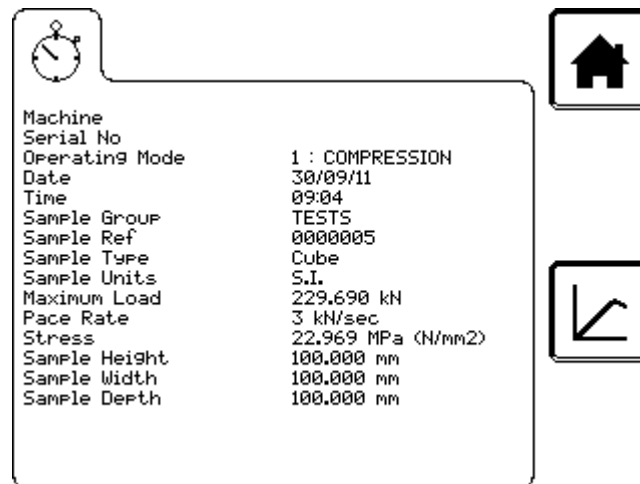
At this point there is the option to get a print out of the test results (see below) or to return to the pace graph.

Otherwise press the Home Screen icon [home icon] to return to the home screen to prepare for another test.

**Note:** the stress value is not calculated for all sample types. See Appendix 3 for the stress calculations performed by the ADR.

8.7     Printing the Test Results

The test results can be printed during the Sample Failed screen display by pressing the ⊞ icon.

**Note :Please ensure that a suitable printer is connected to the serial port. The printer icon is only active if the system detects the presence of the printer.** If the Automatic Print Sample setting is enabled prints will occur without manual intervention on every test run.

In order to enable this option to print each test result automatically, see section 9.5.2. See Appendix 4 for printout formats.

**9      User-defined Functions**

The **User Functions** ⬚ provide direct access to the options which can be changed without having to enter a security code. The functions are –

General Settings

- Set Frame Type

- Set Date and Time

- Set Language

- Set Units

- Display Version

Verify Mode

Sample Failure Settings

- Failure Level

- Failure Threshold

- Minimum Pacing Level

- Tare Limit

- Zero Suppress

Folder for Tests

User-defined Settings

- Select Mode

- Test Data Settings

- Pace Bar Width

- Comms Port Settings

- Adjust Display

The **User Functions** are accessed by pressing the ⚲ icon. The form of the screen will be of the form:-

🔧                                    🏠

```
┌──────────────────────────────┐
│      General Settings         │
├──────────────────────────────┤
│        Verify Mode            │
├──────────────────────────────┤
│    Sample Failure Settings    │
├──────────────────────────────┤
│      Folder for Tests         │
├──────────────────────────────┤
│    User-defined Settings      │
└──────────────────────────────┘
```
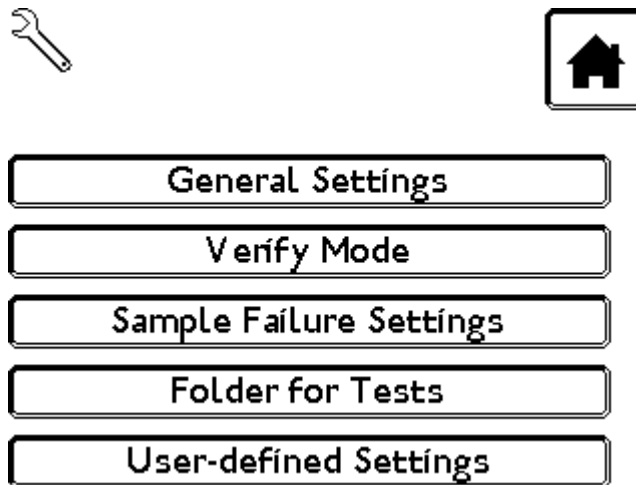
To return to the Home screen press the 🏠 icon.

9.1     General Settings

This screen allows access to a number of the general parameters that may be set on the machine.

🔧                           ⬅   🏠

```
┌──────────────────────────────┐
│       Set Frame Type          │
├──────────────────────────────┤
│      Set Date & Time          │
├──────────────────────────────┤
│       Set Language            │
├──────────────────────────────┤
│        Set Units              │
├──────────────────────────────┤
│      Display Version          │
└──────────────────────────────┘
```
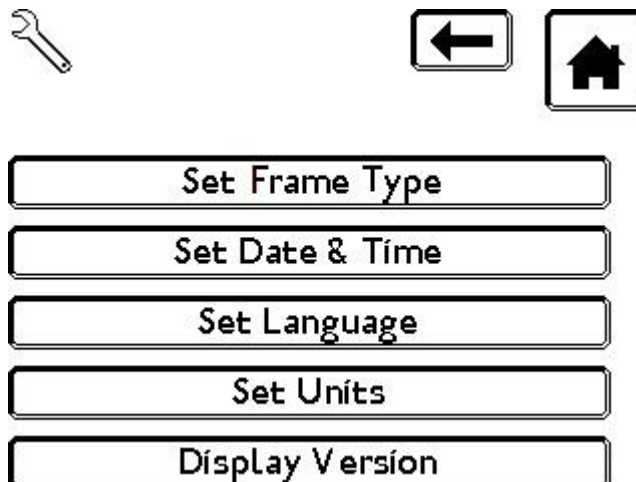
9.1.1   Set Frame Type

In the settings menu, press General Settings, then Set Frame Type.

This screen allows the setting of UK (ADR) or US (AccuTek) compression frames.

### 9.1.2 Set Date and Time

In the settings menu, press General Settings, then Set Date and Time. The screen will be of the form –
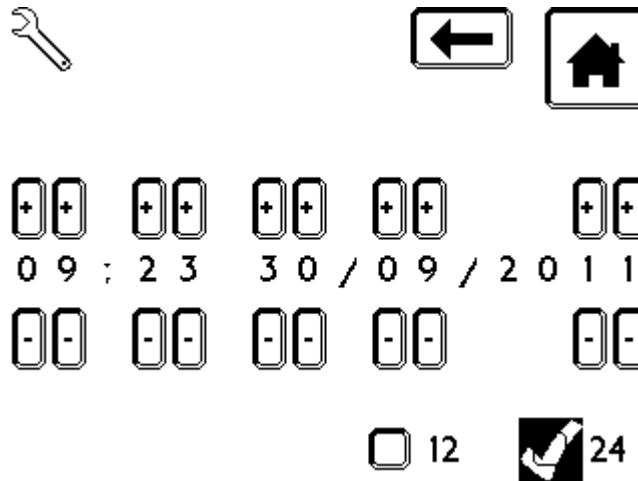


Here you can adjust the hour, minute, day, month and year by pressing the + or – icons. Once the time and date have been set, either return to the General Settings Menu or Home by pressing the Home Icon. See below for setting the day and month order in the overall date.

### 9.1.3 Set Language

In the settings menu, press General Settings, then Set Language. The screen will be of the form:
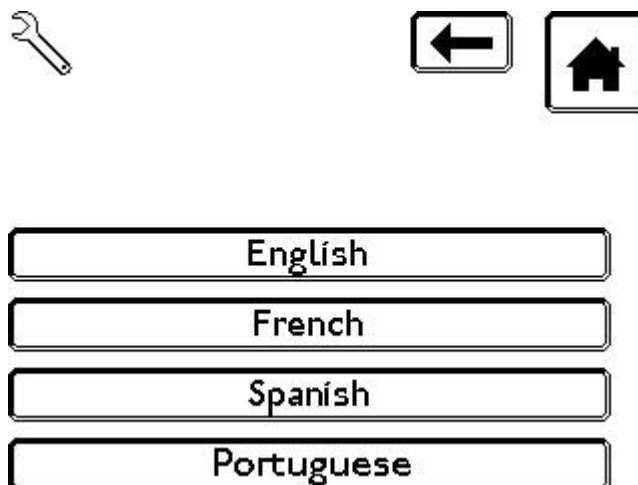


Select the language required. Either return to the General Settings Menu or Home by pressing the Home Icon.

The English language also has the option of UK or US. This is used to modify the date option to either DD/MM/YYYY (UK) or MM/DD/YYYY (US).

### 9.1.4 Set Units

The display units screen defines the units in which the load is displayed, and which units are used for pace rate, sample dimensions, sample weight and sample density. The following table shows the available selection.

| Units | Load | Pace | Dimensions | Weight | Density | Stress |
|:---:|:---:|:---:|:---:|:---:|:---:|:---:|
| SI | KN | kN/sec | mm | g | kg/m³ | $N/mm^2$ |
| US/Imperial | lbf | lbf/sec | ins | lb | lb/ft³ | $lbs/in^2$ |
| Metric | kgf | kgf/sec | cm | g | g/cm³ | $kgs/cm^2$ |

### 9.1.5 Display Version

This screen displays the Firmware version number. It also displays the Hardware version number and the Boot code version number.

## 9.2 Verify Mode

This screen is used at any time following calibration to verify the load measurement.

## 9.3 Sample Failure Settings

### 9.3.1 Failure Level

The ADR Touch detects a sample failure by measuring the peak load sustained by the sample and waiting until the load has fallen by a defined percentage of this peak load. Use the numeric touchpad to change the default value.

### 9.3.2 Failure Detection

Failure Threshold parameter defines the load at which the ADR Touch starts looking for a failure. The machine ignores any failures below this level. The threshold should be increased if the sample under test can exhibit a false failure early on in the loading cycle, as can happen when testing bricks capped with plywood.

### 9.3.3 Minimum Pacing Level

This parameter defines the minimum load at which the pace rate indicator will be applied.

### 9.3.4 Tare Limit

The tare limit is the load range within which any residual load can be tared out before a sample is tested.

### 9.3.5 Zero Suppress

The ADR-Auto displays a load value of zero until the load exceeds the value in the Zero Suppression Range entry. Use the numeric keypad to change the default value. Set the value to zero if this facility is not required.

9.4    Folder for Tests

This screen is used to define the folder name that will be used to record the test results. The name should be a maximum of 8 characters long. Touch 'confirm' (tick key) to enter the folder name. The default folder name is TESTS.
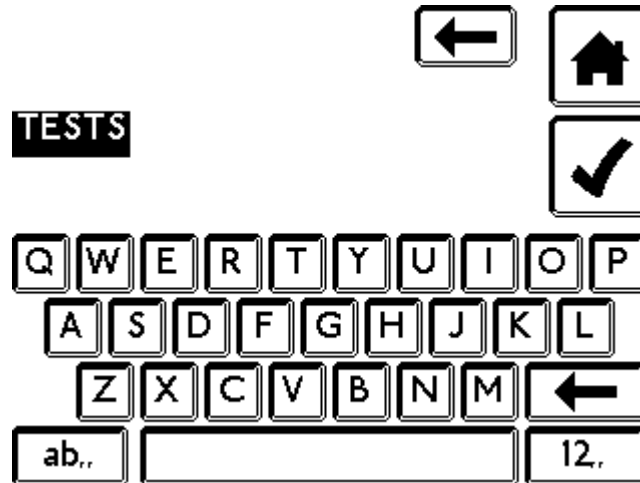


9.5    User-defined Settings

This screen allows a number of user defined settings to be accessed.
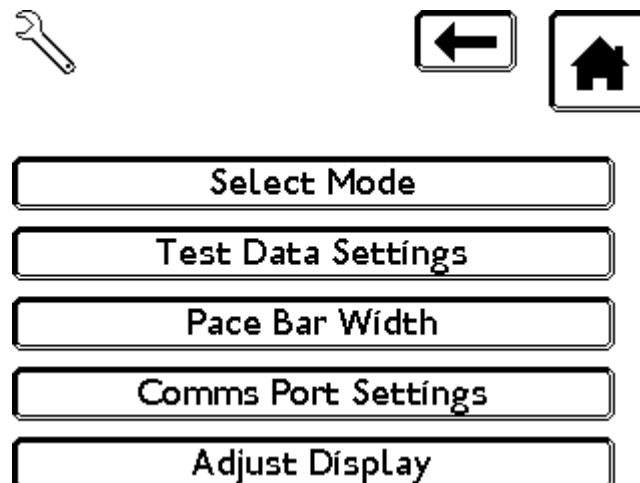
### 9.5.1 Select Mode

If applicable this screen allows the user to select between one of two modes that have previously been configured for the machine, see Section 6 above for details.
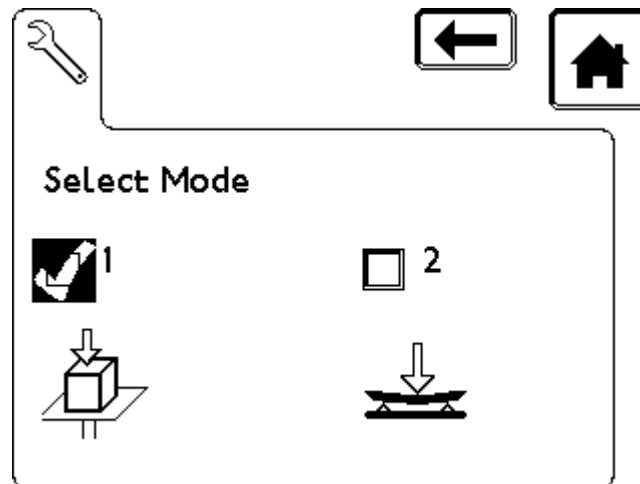


A warning message will be displayed giving advice that the rams should be in their initial position before operating the changeover valve. Failure to do this may mean the changeover valve does not seal completely.

### 9.5.2 Test Data Settings

By selecting this option, the screen will be of the form:-
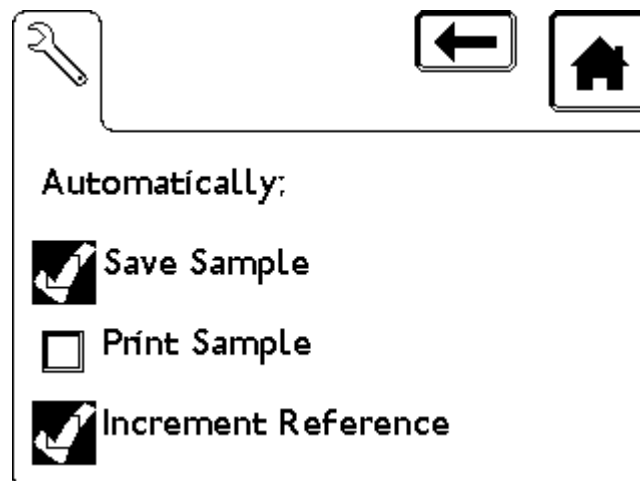


In this screen you can set the system to save all sample test details, print all test reports (after each test) and apply an increment to the selected test reference. Pressing the box will apply a tick.

### 9.5.3 Pace Bar Width

When a load is being applied, the ADR displays the pace error as a percentage of the required rate. The percentage error range displayed on the pace error bar is controlled by this parameter. Use the numeric keypad to change the default value.
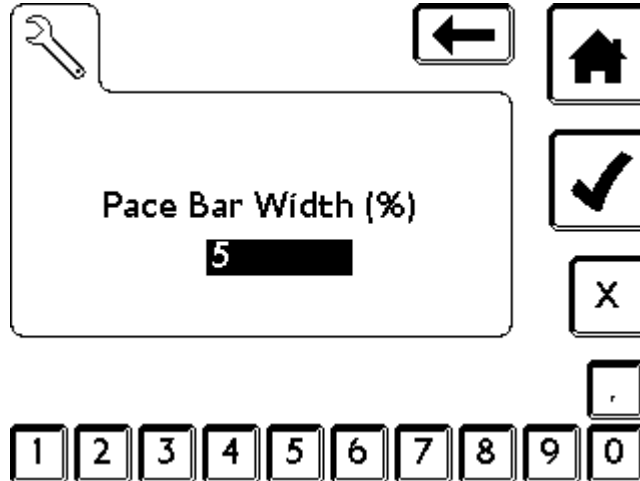


### 9.5.4 Comms Port Settings for the Printer

Here the baud rate can be set from 2400 to 19200. Default for the printer is 9600.
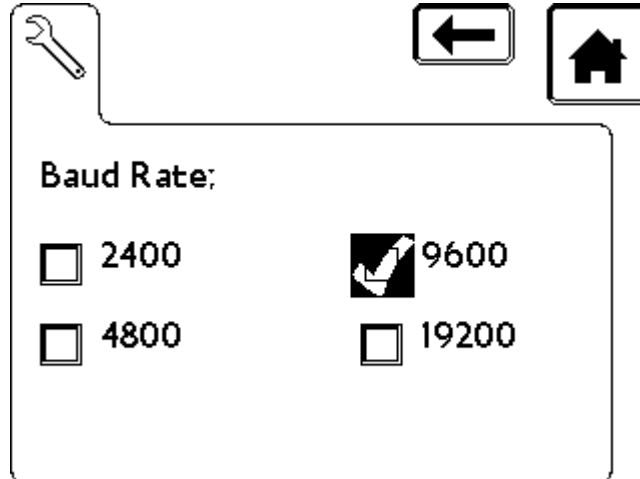
## 10 Viewing Recorded Test Results

The ADR can store thousands of individual test results. Test results are stored on a memory card. The folder name (Sample Group) for the test results is defined in User Settings, Folder for Tests screen, section 8.4.

Given the large amount of test results that can be saved it is preferable if they are managed from the unit's USB link. This is enabled by pressing the USB symbol (see below) when the unit is connected to a suitable PC. The tests are stored in the folders in a .csv file that is made up of one whole day's test results. It is recommended that periodically these data files be removed for backup or deleted.

The detailed results from tests can be recalled via the Saved Data Menu . The screen for a test results folder called 'FREJUS' appears as below.
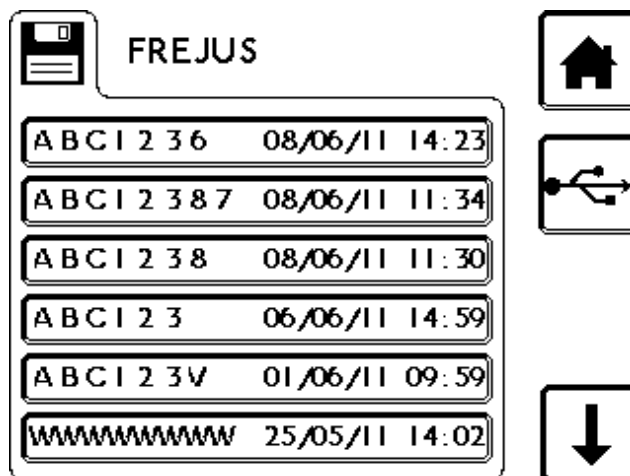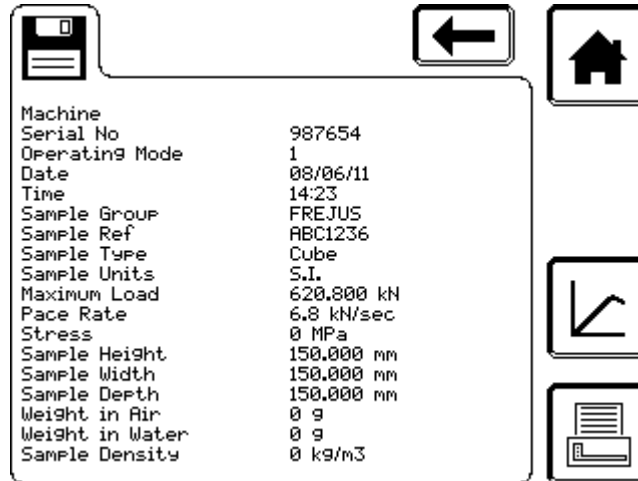


Pressing the USB icon activates the USB link. The unit should appear as a simple memory device with no special device driver files being needed. The screen should appear as shown. **Note: No monitoring of the sample's load occurs whilst in this mode.**
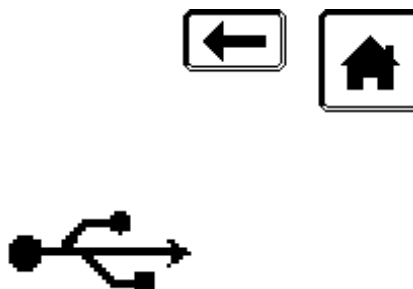


The .csv files that containing test results are formatted for SI units. See Appendix 5 for the detailed format.

It is possible to call up the list of saved results and view them by using the up/down arrow keys to scroll through the list of data files. Touch the specific file of interest and the data will be of the form below.

```
Machine
Serial No          987654
Operating Mode     1
Date               08/06/11
Time               14:23
Sample Group       FREJUS
Sample Ref         ABC1236
Sample Type        Cube
Sample Units       S.I.
Maximum Load       620.800 kN
Pace Rate          6.8 kN/sec
Stress             0 MPa
Sample Height      150.000 mm
Sample Width       150.000 mm
Sample Depth       150.000 mm
Weight in Air      0 g
Weight in Water    0 g
Sample Density     0 kg/m3
```

## 10.1 Test Data

The test data memory is held on a microSD memory card which is accessible via the USB link.

## 10.2 Configuration Data and RTC

The Configuration Data and the Real Time clock are maintained by a built in Lithium Cell battery. With the unit powered off this should have sufficient capacity to maintain this data for at least 10 years.

## 10.3 Calibration Data

All calibration data is held in non-volatile memory, and cannot be lost under normal conditions. All changes are stored on exiting the calibration screens.

## 11      Rear Panel Connections

11.1    AC Power Input
The AC power input consists of a combined fused IEC inlet socket and switch. The fuse is rated at 2 amp, 250 volts AC, time delay. A spare fuse is located in the fuse clip housing.

11.2    Serial Port

The ADR has an RS232 serial port. The output is via a standard 9 way 'D' plug.

| Pin | Signal |
| --- | --- |
|  | - |
| 2 | Received Data (RxD) |
| 3 | Transmitted Data (TxD) |
| 4 | Data Terminal Ready (DTR) |
| 5 | Signal Ground |
| 6 | - |
| 7 | Ready To Send (RTS) |
| 8 | Clear To Send (CTS) |
| 9 | - |

11.3    Control/verify Input

The ADR is fitted with a standard BNC socket.

| Pin | Signal |
| --- | --- |
| Centre Pin | Signal Input |
| Screen | 0V |

11.4    Transducer Connectors

The transducers are connected via a 5-way locking DIN connector.

| Pin | Signal |
| --- | --- |
| 1 | Supply to transducer (8-32VDC) |
| 2 | 0V |
| 3 | Not connected |
| 4 | Transducer signal |
| 5 | Not connected |

**Note:** Screen to be connected to connector shell.

## Appendix 1: Sample Types and Sizes

*Cubes*

| SI Standard Size (mm³) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| 40.0 x 40.0 x 40.0 | 2.4 | |
| 50.0 x 50.0 x 50.0 | 1.5 | 1.35 |
| 70.7 x 70.7 x 70.7 | 6.0 | |
| 100 x 100 x 100 | 6.0 | |
| 150 x 150 x 150 | 13.5 | |
| 200 x 200 x 200 | 24.0 | |

| US/Imperial Standard Size (ins³) | Loading Rate (lbf/sec) | ASTM Loading Rate |
|---|---|---|
| 1.5 x 1.5 x 1.5 | 540 | |
| 2.0 x 2.0 x 2.0 | 200 | 300 |
| 3.0 x 3.0 x 3.0 | 1349 | |
| 4.0 x 4.0 x 4.0 | 1349 | |
| 6.0 x 6.0 x 6.0 | 3035 | |
| 8.0 x 8.0 x 8.0 | 5395 | |

| Metric Standard Size (cm³) | Loading Rate (kgf/sec) | ASTM Loading Rate |
|---|---|---|
| 4.00 x 4.00 x 4.00 | 240 | |
| 5.00 x 5.00 x 5.00 | 90 | 137.66 |
| 7.07 x 7.07 x 7.07 | 612 | |
| 10.0 x 10.0 x 10.0 | 612 | |
| 15.0 x 15.0 x 15.0 | 1377 | |
| 20.0 x 20.0 x 20.0 | 2447 | |

*Cylinders*

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| 100 x 50 | 0.5 | 0.5 |
| 150 x 75 | 1.3 | 1.1 |
| 200 x 100 | 2.4 | 2.0 |
| 300 x 150 | 5.3 | 4.4 |
| 320 x 160 | 6.0 | 5.0 |

| US/Imperial Standard Size (ins) | Loading Rate (lbf/sec) | ASTM Loading Rate |
|---|---|---|
| 4 x 2 | 110 | 110.0 |
| 6 x 3 | 292 | 247.4 |
| 8 x 4 | 540 | 439.8 |
| 12 x 6 | 1190 | 989.6 |

| Metric Standard Size (cm) | Loading Rate (kgf/sec) | ASTM Loading Rate |
|---|---|---|
| 10 x 5 | 50 | 50.1 |
| 15 x 7.5 | 130 | 112.6 |
| 20 x 10 | 240 | 200.2 |
| 30 x 15 | 530 | 450.5 |
| 32 x 16 | 600 | 512.6 |

*Cylinders – Tensile*

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| 100 x 100 | 0.47 | 0.044 |
| 200 x 100 | 0.94 | 0.088 |
| 150 x 150 | 1.05 | 0.066 |
| 300 x 150 | 2.1 | 0.131 |

| US/Imperial Standard Size (ins) | Loading Rate (lbf/sec) | ASTM Loading Rate |
|---|---|---|
| 4 x 4 | 105 | 10.0 |
| 8 x 4 | 210 | 20.0 |
| 6 x 6 | 235 | 15.0 |
| 12 x 6 | 470 | 30.0 |

| Metric Standard Size (cm) | Loading Rate (kgf/sec) | ASTM Loading Rate |
|---|---|---|
| 10 x 10 | 47 | |
| 20 x 10 | 94 | 8.92 |
| 15 x 15 | 105 | 6.69 |
| 30 x 15 | 210 | 13.38 |

*Beams*

| SI Standard Size | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| 40 x 40.0 x 160 | 0.05 | |
| 100 x 100 x 500 | 0.2 | |
| 150 x 150 x 750 | 0.45 | |
| 300 x 300 x 1500 | 1.8 | |

| US/Imperial Standard Size | Loading Rate (lbf/sec) | ASTM Loading Rate |
|---|---|---|
| 6 x 6 x 18 | 28.8 | |
| 6 x 6 x 21 | 28.8 | |
| 6 x 6 x 24 | 28.8 | |
| 6 x 6 x 30 | 28.8 | |
| 6 x 6 x 36 | 28.8 | |

| Metric Standard Size | Loading Rate (kgf/sec) | ASTM Loading Rate |
|---|---|---|
| 4.01 x 4.0 x 16 | 5 | |
| 10 x 10 x 50 | 20 | |
| 15 x 15 x 75 | 5 | |

### Bricks

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| 215 x 102.5 x 65 | 14.8 | |
| 200 x 100 x 75 | 13.7 | |
| 200 x 100 x 100 | 5.0 | |

### Blocks

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| 440 x 215 x 75 | 2.75 (lo), 5.5 (hi) | |
| 440 x 215 x 100 | 3.7 (lo), 7.3 (hi) | |
| 440 x 215 x 140 | 5.13 (lo), 10.2 (hi) | |
| 440 x 215 x 150 | 5.5 (lo), 110 (hi) | |
| 440 x 215 x 190 | 6.96 (lo), 13.93 (hi) | |
| 440 x 215 x 200 | 7.3 (lo), 14.6 (hi) | |
| 440 x 215 x 215 | 7.88 (lo), 15.76 (hi) | |

### Concrete Flags

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| Type A   600 x 450 x 50 | 0.07 | |
| Type A   600 x 450 x 63 | 0.07 | |
| Type B   600 x 600 x 50 | 0.10 | |
| Type B   600 x 600 x 63 | 0.10 | |
| Type C   600 x 750 x 50 | 0.12 | |
| Type C   600 x 750 x 63 | 0.12 | |
| Type D   600 x 900 x 50 | 0.15 | |
| Type D   600 x 900 x 63 | 0.15 | |
| Type E   450 x 450 x 50 | 0.07 | |
| Type E   450 x 450 x 70 | 0.07 | |
| Type F   400 x 400 x 50 | 0.07 | |
| Type F   400 x 400 x 65 | 0.07 | |
| Type G   300 x 300 x 50 | 0.05 | |
| Type G   300 x 300 x 60 | 0.05 | |

### Concrete Kerbs

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| Bullnosed (BN) 125 x 150 | 0.03 | |
| Splayed (SP) 125 x 255 | 0.04 | |
| Half Battered (HB1) 150 x 305 | 0.05 | |
| Half Battered (HB2) 125 x 255 | 0.04 | |
| Half Battered (HB3) 125 x 150 | 0.03 | |
| Transition Right (TR) 125 x 255 | 0.04 | |
| Transition Left (TL) 125 x 255 | 0.04 | |
| Dropper Right (DR1) 125 x 255 | 0.04 | |
| Dropper Right (DR2) 125 x 255 | 0.04 | |
| Dropper Left (DL1) 125 x 255 | 0.04 | |
| Dropper Left (DL2) 125 x 255 | 0.04 | |

### Concrete Channels and Edgings

| SI Standard Size (mm) | Loading Rate (kN/sec) | ASTM Loading Rate |
|---|---|---|
| Square Channel (CS1) 125 x 255 | 0.04 | |
| Square Channel (CS2) 125 x 150 | 0.03 | |
| Dished Channel (CD) 125 x 255 | 0.04 | |
| Round Top Edging (ER) 50 x 150 | 0.03 | |
| Round Top Edging (ER) 50 x 200 | 0.03 | |
| Round Top Edging (ER) 50 x 250 | 0.04 | |
| Flat Top Edging (EF) 50 x 150 | 0.03 | |
| Flat Top Edging (EF) 50 x 200 | 0.03 | |
| Flat Top Edging (EF) 50 x 250 | 0.04 | |
| Bullnosed Edging (EBN) 50 x 150 | 0.03 | |
| Bullnosed Edging (EBN) 50 x 200 | 0.03 | |
| Bullnosed Edging (EBN) 50 x 250 | 0.04 | |

## Appendix 2 – Pace Rate Limits

Depending on the load frame currently in use the ADR limits the range of pace rates that can be entered. These are shown in the following table.

| Load Frame | Range (kN/sec) | Range (lbf/sec) | Range (kgf/sec) |
|------------|----------------|-----------------|-----------------|
| 25 kN      | 0.02 – 0.06    | 4.5 – 13.5      | 2 – 6           |
| 100 kN     | 0.02 – 5.0     | 4.5 – 1124      | 4 – 500         |
| 250 kN     | 0.04 – 5.0     | 9 – 1124        | 4 – 500         |
| 1500 kN    | 0.05 – 30      | 10 – 6700       | 5 – 3000        |
| 2000 kN    | 0.05 – 30      | 10 – 6700       | 5 – 3000        |
| 3000 kN    | 0.05 – 30      | 10 – 6700       | 5 – 3000        |

**Appendix 3 – Stress Calculations**

The ADR calculates stress as follows –

Cube, Cylinder/Core, Cylinder/Tensile, Brick, Block:

Stress = Peak Load/Sample Area.

Beam – The stress for all sample types except the 40 x 40.1 x 160 beam is calculated using the following formula –

Stress = (Peak Load x Roller Separation)/ (Width x Depth x Depth)

The calculation for the 40 x 40.1 x 160 beam is

Stress = (1.5 x Peak Load x Roller Separation)/(Depth x Depth x Depth)

Stress is not calculated for Flags, Kerbs and Channels.

**Appendix 4: Printout Formats**

The following shows a typical printout for a cube.

*Cube*

| Machine Serial Number | ELE Test Machine |
|---|---|
| Operating Mode | 1:Compression |
| Date | 14/01/2011 |
| Time | 10:25 |
| Sample Group | Tests |
| Sample Ref | SAMPLE 1 |
| Sample Type | Cube |
| Sample Units | S.I. |
| Maximum Load | 954.511 kN |
| Pace Rate | 6.800 kN/sec |
| Stress | 42.411 N/mm² |
| Sample Height | 150.000 mm |
| Sample Width | 150.000 mm |
| Sample Depth | 150.000 mm |

The exact format of the printout will depend on the sample under test.

**Appendix 5: Test Data Format**

The contents of the ADR's sample data memory can be downloaded using the USB serial communications interface. The .csv data is stored in files named with the following date format DD_MM_YY.csv, where DD is the day, MM is the month and YY is the year of storage. All the test results for each day are stored in one file.

Data is stored in SI units and row 1 details the type of data in the column below it. The language of this output is English.

| Column Number | Description |
|---|---|
| 1 | Date : DD/MM/YYYY |
| 2 | Time : HH:MM |
| 3 | Reference |
| 4 | Mode : 1 or 2 |
| 5 | Flex mode : 0 or 1 |
| 6 | Serial Number |
| 7 | Group folder name |
| 8 | Units : set to 1 |
| 9 | Peak load in kN |
| 10 | Peak stress in kN |
| 11 | Pace rate in kn/s |
| 12 | Shape : shape code 0-9 |
| 13 | Dimension 1 : mm |
| 14 | Dimension 2 : mm |
| 15 | Dimension 3 : mm |
| 16 | Weight in air : g |
| 17 | Weight in water : g |
| 18 | Density : |
| 19 | Separation : mm |
| 20 | Frame rating : kN |
| 21 | Time to max load with selected pace rate : seconds |
| 22 | Hardware version |
| 23 | Firmware Version |

The data in column 34 onwards contains the load data equivalent value. This data has the time resolution in seconds of Time to max load (value in column 21) divided by 876. The conversion of the load value to kN takes the form :

Load (kN) = data value * frame rating (kN) / 25600

**Appendix 6: System Specification**

| Voltage | 100-220VAC +10% 50/60Hz |
|---|---|
| Current | Fused at 2AT |
| Degree of protection | IP54 |
| Ambient temperature | $0\,^{o}C.....40\,^{o}C$ |
| Transport and storage | $-40\,^{o}C.....70\,^{o}C$ |
| Humidity | 10%...90% (with no condensation) |

**Appendix 7: Mounting Options**

The unit may be free standing on a suitable flat surface, or comes attached via various adaptor plates to the compression frame. Fixing is via the four M3 mounts through the rubber feet. Other swivel plate adaptors mount the unit via the four M6 base fixings on 125mm spacing.

**Appendix 8: Maintenance and Service**

A build up of dust on the unit may be removed by using a clean damp cloth.

Apart from replacing the fuse in the mains switch/filter block (see above for fuse specification), there are no user serviceable parts within the unit. Only trained service personnel should work on the ADR Touch since hazardous voltages are present within the unit.

# EC DECLARATION OF CONFORMITY

**ELE International**

This Original Declaration of Conformity is suitable to Decision No 768/2008/EC of the European Parliament and the Council of 9 July 2008 on a common framework for the marketing of products and contains the elements specified in the relevant modules set out in Annex II of that Decision for the applicable Directives.

This declaration relates exclusively to the equipment in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

## Applied Council Directives(s)

The fulfilment of all relevant provisions specified in Council Directive(s)

| | |
|---|---|
| 2014/30/EU | Electromagnetic Compatibility (EMC) |
| 2014/35/EU | Low Voltage Directive (LVD) |
| 2011/65/EU | RoHS2 Directive and Commission Delegated Directive (EU)2015/863 |

have been demonstrated

We, the Manufacturer:

**ELE International,** Chartmoor Road, Chartwell Business Park, Leighton Buzzard
Bedfordshire LU7 4WG, UK

declare under our sole responsibility that the following equipment

**Product :**     **ADR Touch 1912B0001 revision 4**
**Catalogue Number :**     **37-4950/09**
**Description :**     **Display unit for concrete compression machines**

The object of the declaration described above, is in conformity with the relevant Union Harmonisation Decision and the provisions of the following standard(s) or other normative document(s) when installed in conformance with the installation instructions contained in the product documentation

**EMC**

| | | |
|---|---|---|
| Emissions: | EN61326-1:2013 | Group 1, Class A |
| Immunity: | EN61326-1:2013 | Industrial Location Immunity |

Clauses pertinent to the Low Voltage Directive of

| | |
|---|---|
| EN61010-1:2010 | Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1 General requirements. |
| RoHS2: | EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances. |

The technical file's authorised compiler (named below) is at the address above.
We, the undersigned, hereby declare that the product(s) specified above conform to the listed directive(s) and Standard(s).

Date of issue :     26/05/2016

Signed :

Name:     Tony Power

Position:     Managing Director

BS EN ISO9001: 2008 approved
Certificate number 860461

9901X0262 Issue 5

# DIRECTIVE ON WASTE ELECTRICAL & ELECTRONIC EQUIPMENT (WEEE)

Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August of 2005. In conformity with European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of life equipment to the Producer for disposal at no charge to the user.

*Note: For return for recycling, please contact the equipment producer or supplier for instructions on how to return end-of-life equipment for proper disposal.*

**Important document. Retain with product records.**

## GERMAN

Elektrogeräte, die mit diesem Symbol gekennzeichnet sind, dürfen in Europa nach dem 12. August 2005 nicht mehr über die öffentliche Abfallentsorgung entsorgt werden. In Übereinstimmung mit lokalen und nationalen europäischen Bestimmungen (EU-Richtlinie 2002/96/EC), müssen Benutzer von Elektrogeräten in Europa ab diesem Zeitpunkt alte bzw. zu verschrottende Geräte zur Entsorgung kostenfrei an den Hersteller zurückgeben.

*Hinweis: Bitte wenden Sie sich an den Hersteller bzw. an den Händler, von dem Sie das Gerät bezogen haben, um Informationen zur Rückgabe des Altgeräts zur ordnungsgemäßen Entsorgung zu erhalten.*

**Wichtige Informationen. Bitte zusammen mit den Produktinformationen aufbewahren.**

## FRENCH

A partir du 12 août 2005, il est interdit de mettre au rebut le matériel électrique marqué de ce symbole par les voies habituelles de déchetterie publique. Conformément à la réglementation européenne (directive UE 2002/96/EC), les utilisateurs de matériel électrique en Europe doivent désormais retourner le matériel usé ou périmé au fabricant pour élimination, sans frais pour l'utilisateur.

*Remarque : Veuillez vous adresser au fabricant ou au fournisseur du matériel pour les instructions de retour du matériel usé ou périmé aux fins d'élimination conforme.*

**Ce document est important. Conservez-le dans le dossier du produit.**

## ITALIAN

Le apparecchiature elettriche con apposto questo simbolo non possono essere smaltite nelle discariche pubbliche europee successivamente al 12 agosto 2005. In conformità alle normative europee locali e nazionali (Direttiva UE 2002/96/EC), gli utilizzatori europei di apparecchiature elettriche devono restituire al produttore le apparecchiature vecchie o a fine vita per lo smaltimento senza alcun costo a carico dell'utilizzatore.

*Nota: Per conoscere le modalità di restituzione delle apparecchiature a fine vita da riciclare, contattare il produttore o il fornitore dell'apparecchiatura per un corretto smaltimento.*

**Documento importante. Conservare con la documentazione del prodotto.**

## DANISH

Elektriske apparater, der er mærket med dette symbol, må ikke bortskaffes i europæiske offentlige affaldssystemer efter den 12. august 2005. I henhold til europæiske lokale og nationale regler (EU-direktiv 2002/96/EF) skal europæiske brugere af elektriske apparater nu returnere gamle eller udtjente apparater til producenten med henblik på bortskaffelse uden omkostninger for brugeren.

*Bemærk: I forbindelse med returnering til genbrug skal du kontakte producenten eller leverandøren af apparatet for at få instruktioner om, hvordan udtjente apparater bortskaffes korrekt.*

**Vigtigt dokument. Opbevares sammen med produktdokumenterne.**

## SWEDISH

Elektronikutrustning som är märkt med denna symbol kanske inte kan lämnas in på europeiska offentliga sopstationer efter 2005-08-12. Enligt europeiska lokala och nationella föreskrifter (EU-direktiv 2002/96/EC) måste användare av elektronikutrustning i Europa nu återlämna gammal eller utrangerad utrustning till tillverkaren för kassering utan kostnad för användaren.

*Obs! Om du ska återlämna utrustning för återvinning ska du kontakta tillverkaren av utrustningen eller återförsäljaren för att få anvisningar om hur du återlämnar kasserad utrustning för att den ska bortskaffas på rätt sätt.*

**Viktigt dokument. Spara tillsammans med dina produktbeskrivningar.**

## SPANISH

A partir del 12 de agosto de 2005, los equipos eléctricos que lleven este símbolo no deberán ser desechados en los puntos limpios europeos. De conformidad con las normativas europeas locales y nacionales (Directiva de la UE 2002/96/EC), a partir de esa fecha, los usuarios europeos de equipos eléctricos deberán devolver los equipos usados u obsoletos al fabricante de los mismos para su reciclado, sin coste alguno para el usuario.

*Nota: Sírvase ponerse en contacto con el fabricante o proveedor de los equipos para solicitar instrucciones sobre cómo devolver los equipos obsoletos para su correcto reciclado.*

**Documento importante. Guardar junto con los registros de los equipos.**

## DUTCH

Elektrische apparatuur die is voorzien van dit symbool mag na 12 augustus 2005 niet meer worden afgevoerd naar Europese openbare afvalsystemen. Conform Europese lokale en nationale wetgegeving (EU-richtlijn 2002/96/EC) dienen gebruikers van elektrische apparaten voortaan hun oude of afgedankte apparatuur kosteloos voor recycling of vernietiging naar de producent terug te brengen.

*Nota: Als u apparatuur voor recycling terugbrengt, moet u contact opnemen met de producent of leverancier voor instructies voor het terugbrengen van de afgedankte apparatuur voor een juiste verwerking.*

**Belangrijk document. Bewaar het bij de productpapieren.**

## POLISH

Sprzęt elektryczny oznaczony takim symbolem nie może być likwidowany w europejskich systemach utylizacji po dniu 12 sierpnia 2005. Zgodnie z europejskimi, lokalnymi i państwowymi przepisami prawa (Dyrektywa Unii Europejskiej 2002/96/EC), użytkownicy sprzętu elektrycznego w Europie muszą obecnie przekazywać Producentowi stary sprzęt lub sprzęt po okresie użytkowania do bezpłatnej utylizacji.

*Uwaga: Aby przekazać sprzęt do recyklingu, należy zwrócić się do producenta lub dostawcy sprzętu w celu uzyskania instrukcji dotyczących procedur przekazywania do utylizacji sprzętu po okresie użytkowania.*

**Ważny dokument. Zachować z dokumentacją produktu.**

## PORTUGESE

Qualquer equipamento eléctrico que ostente este símbolo não poderá ser eliminado através dos sistemas públicos europeus de tratamento de resíduos sólidos a partir de 12 de Agosto de 2005. De acordo com as normas locais e europeias (Directiva Europeia 2002/96/EC), os utilizadores europeus de equipamentos eléctricos deverão agora devolver os seus equipamentos velhos ou em fim de vida ao produtor para o respectivo tratamento sem quaisquer custos para o utilizador.

*Nota: No que toca à devolução para reciclagem, por favor, contacte o produtor ou fornecedor do equipamento para instruções de devolução de equipamento em fim de vida para a sua correcta eliminação.*

**Documento importante. Mantenha junto dos registos do produto.**