HAVMETER

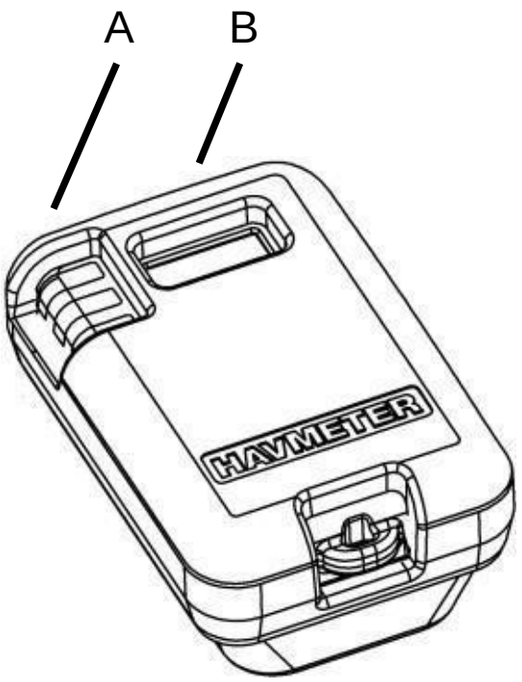
# CONTENT

# EQUIPMENT

## Standard HAVmeter

The HAVmeter is an easy to use portable device that monitors handarm vibration. It is used in conjunction with tool tags, which are permanently mounted on the vibrating equipment, to monitor vibration exposure. A Basestation is used to both charge and archive data from the HAVmeter.

Standard HAVmeters are manufactured in grey with an orange bumper.




A) Traffic lights indicating current exposure level

B) Screen displaying vibration exposure in points

## ATEX HAVmeter

The ATEX Certification Code is:  **II IG Ex ia IIC T4 Ga (-20°C to 50°C)**

The ATEX HAVmeter is designed and manufactured to the requirements for Intrinsically Safe Apparatus for potentially explosive atmospheres and are suitable for use as a Non-Mining product, Group II, category 1 for use in gas/vapour/mist atmospheres.

The ATEX HAVmeters are manufactured in black with a yellow bumper.

**Special Conditions for Safe Use:**

ATEX HAVmeters may not be charged on a Basestation within a potentially hazardous environment.

The ATEX HAVmeter may be damaged if the rechargeable cells are left in a discharged state for an extended period of time, therefore the cells must be recharged at least once every month.

ATEX HAVmeters must always be fitted with the bump sleeve before being taken or used within a hazardous area.

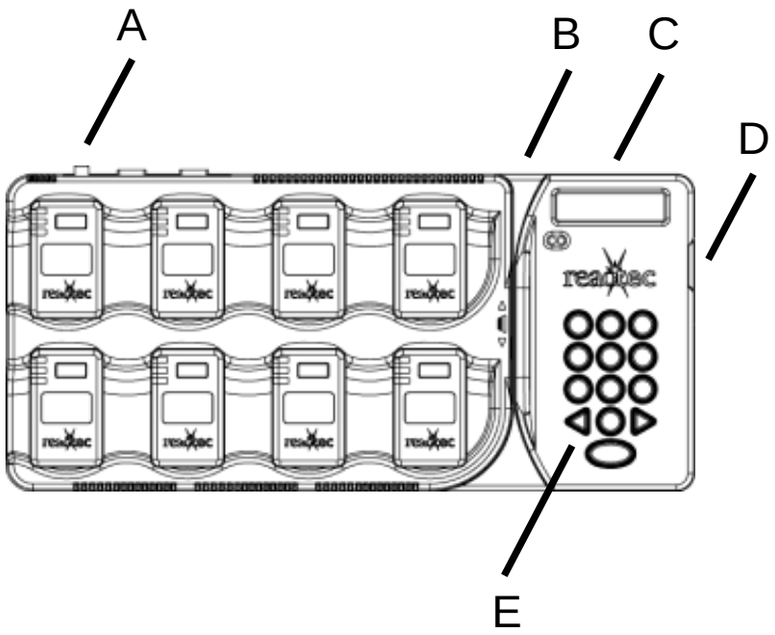
## BASEEFA RELATED DRAWING

NO CHANGES PERMITTED WITHOUT COMPATIBILITY CHECK

TO ATEX/IECEx CERTIFICATION

## Basestation

The Basestation provides data archiving and charging for up to 8 Standard or ATEX HAVmeters. HAVmeters are assigned to operators using personalised swipe cards or manually via the keypad. The Basestation is not suitable for use in potentially explosiveatmospheres.




A) Power Connector

B) Card Swipe Slot

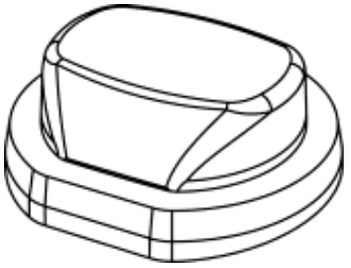
C) Screen

D) Memory Card Slot

E) Key Pad

## Standard Tool Tags

Tool Tags are permanently mounted on all monitored vibrating equipment and contain tool specific data which is read wirelessly by the HAVmeter. Tool Tags are manufactured in Green, Orange and Red.



## ATEX Tool Tags

The ATEX certification code is: II IG Ex ia IIC T4 Ga (-20°C to 50°C)

ATEX Tool Tags have been designed for use on tools approved for potentially explosive atmospheres and may only be attached to non-mining products, Group II, category 1 for use in gas/vapour/mist atmospheres.

ATEX Tool Tags are manufactured in black with the Ex marking ‘Part of Baseefa 10ATEX0224X and IECEx BAS 10.0108X and unique serial number printed on the side flange.

**Special Conditions for Safe Use:**

Only ATEX Tool Tags should be used in hazardous areas.

# INSTRUCTIONS FOR SAFE PUTTING INTO SERVICE

The Basestation can be powered by a 240V mains supply or for vehicle installations from a 12VDC supply. HAVmeters use a small amount of power even when not in use; it is recommended that the Basestation is always powered to maintain the charge of the HAVmeter.

It is recommended that the Basestation is wall-mounted. Ensure that there is at least 150mm clearance above the Basestation. If the Basestation is placed horizontally, ensure the area is clear and that there is at least 300mm clearance above the Basestation. Do not place the Basestation on an unstable surface or near a heat source, such as a radiator or in direct sunlight. Do not block, cover or insert objects through, the openings on the Basestation.

**Important:**

The Basestation and SmartCharger shall only be located in non hazardous environments.

## Mains Power Installation

A 240V mains power supply is provided with the Basestation. Plug the power supply into the Basestation and lock the screw connector in place. Plug the mains cable into a 240V socket and switch on.

## Vehicle Installation

It is recommended that a second battery (minimum of 100 Ah) is installed to power the Basestation. The Basestation is powered directly from the vehicles 12V supply and Reactec offer a series of van cables for this purpose. A 5A fuse should always be fitted to protect the Basestation. Plug the supply cable into the Basestation and lock the screw connector in place.

**Important:**

Mount the HAVmeters securely on the base station for charging. HAVmeters should be charged for 12 hours before being used for the first time.

## Security Settings

The Basestation by default requires a 6 digit passcode to change settings or access certain features.

**Important:**

The default security passcode is six zeros (000000).

## Setting the Time

- Tab right twice on the main menu using the arrow keys, then ‘Settings?’ is displayed on the screen, press OK.
- Enter the passcode, press OK.
- ‘Set Time?’ is displayed on the screen, press OK.
- Using the key pad enter the time (24hr format): HH:MM, then press OK.

## Setting the Date

- Tab right twice on the main menu using the arrow keys, then ‘Settings?’ is displayed on the screen, press OK.
- Enter the passcode, press OK.
- Tab right again and ‘Set Date?’ is displayed, press OK.
- Using the key pad enter the date: DD/MM/YY, then press OK.

## Changing the Passcode

- Tab right twice on the main menu using the arrow keys, then ‘Settings?’ is displayed on the screen, press OK.
- Enter the current passcode, press OK.
- Tab right twice and ‘Change Passcode?’ is displayed, press OK.
- Enter a new 6 digit passcode.
- Enter the new passcode again to confirm.

**Important:**

Remember to take a note of the new passcode.

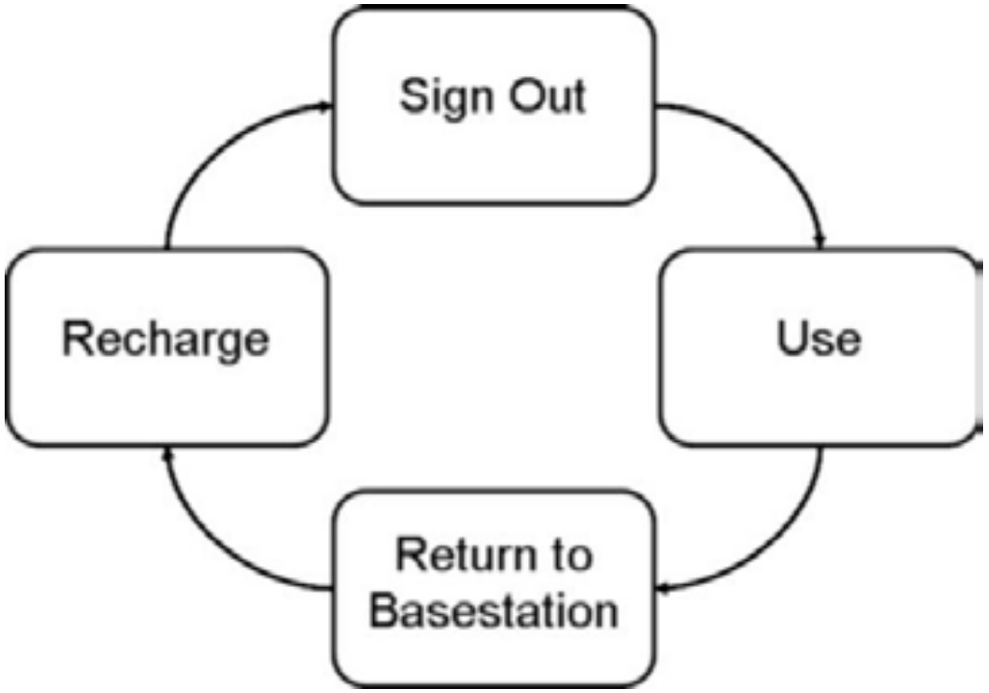
## Advanced Security Settings

The requirement to enter the security passcode for certain features can be disabled. These features are manual sign out of HAVmeters (see p13) and copying of a complete data history to the external memory card (see p16).

- Tab right twice on the main menu using the arrow keys, then ‘Settings?’ is displayed on the screen, press OK.
- Enter the passcode, press OK.
- Tab right 4 times until ‘Set Security?’ is displayed, press OK.
- Choose between ‘Sign Out Unit?’ or ‘Copy Backup?’ then press OK.
- Select either: ‘Passcode?’ or ‘None?’ to enable or disable the passcode.

# INSTRUCTIONS FOR SAFE USE

Using the HAVmeter couldn't be simpler. Sign out a HAVmeter at the start of shift. Attach the HAVmeter to each tool used, by placing it on the magnetic Tool Tag. The HAVmeter will record exposure as the tool is operated. At shift end return the HAVmeter to a Basestation, where it automatically downloads tool usage data and begins recharging.



## HAVmeter Sign Out

There are two ways to sign out a HAVmeter: automatic sign out using an operator’s card or manual sign out using the key pad.

## Automatic Sign Out

Swipe an operator’s card through the slot in the Basestation. The allocated HAVmeter will flash all three lights; remove this HAVmeter from the Basestation and assign to the operator for the duration of the shift.

## Manual Sign Out

An alternative to the swipe card is to enter a Personal Identification Number (PIN) via the Basestation key pad.

- Tab right once on the main menu using the arrow keys, then ‘Sign Out Unit?’ is displayed on the screen, press OK.
- If prompted enter the passcode and press OK. This can be disabled in the security settings (see p10).
- Using the key pad enter an operator’s PIN number and hit OK again, the allocated HAVmeter will flash all three lights. Additional zeros may be required, e.g. instead of 9246 enter 000009246.

**Important:**

If the lights stop flashing before the HAVmeter is removed from the Basestation repeat the sign out process.

Once a HAVmeter unit is signed out there should be three zeros on the screen (alternating with the operator’s initials, if automatic sign out was used) and the green light should flash.

## Using the HAVmeter

The operator must attach the HAVmeter to all hand held vibrating machinery used to record vibration exposure. The HAVmeter is attached to each tool using the magnetic Tool Tag. The operator’s current exposure is displayed, in points, on the screen.

Whilst the operator remains under the Exposure Action Value (EAV) the green light flashes. If the operator exceeds the EAV, as specified on their card, the amber light begins flashing. If the operator exceeds the Exposure Limit Value (ELV), as specified on their card, the red light begins flashing.

The EAV is typically when operators should endeavor to reduce any further exposure for that shift. When the ELV is reached the operator should cease use of hand held vibrating machinery for the remainder of their shift.

## Return to Basestation

At the end of the shift return the HAVmeter to a Basestation, this need not be the same Basestation it was signed out from.

## Recharging

The HAVmeter has an internal rechargeable lithium battery, which wirelessly recharges whilst on a Basestation. The time to fully charge a HAVmeter from a fully discharged state is 22 hours. The time to charge after a typical 8 hours of use is 10 hours.

## Transferring Data to PC

- Remove the SD memory card from theBasestation.
- Copy the file ‘DATAFILE.DAT’, from the memory card to the PC.
- Delete the memory card file and replace card in the Basestation.
- Import the file using the PC basedsoftware.

Data can be imported to the PC to suit the company’s internal health and safety reporting schedule. The external memory card has sufficient capacity for up to 10 years of data.

## Basestation Record Recovery

In the event that data has been lost a complete copy of the Basestation’s internal memory can be made and copied to the external memory card.

- Tab right three times on the main menu using the arrow keys,then ‘Administration?’ is displayed, press OK.
- Tab right once and ‘Copy Backup?’ is displayed, press OK.
- If prompted enter the pass code and press OK. This can be disabled in the security settings (see p10).

# INSTRUCTIONS FOR SAFE MAINTENANCE

The HAVmeter and associated equipment requires minimal periodic maintenance.

The Tool Tags and Basestations contain powerful magnets. Periodically these should be wiped down with a dry clean cloth to remove metallic swarf, dust and dirt.

The recess on the underside of the HAVmeter and ATEX HAVmeter should always remain free of grit and dirt. Any dirt or grit should be immediately removed with a clean damp cloth.

**Special Conditions for Safe Use:**

ATEX HAVmeters may not be charged on a Basestation within a potentially hazardous environment.

The ATEX HAVmeter may be damaged if the rechargeable cells are left in a discharged state for an extended period of time, therefore the cells must be recharged at least once every month.

ATEX HAVmeters must always be fitted with the bump sleeve before beingtaken or used within a hazardous area.

## INSTRUCTIONS FOR SAFE ASSEMBLY & DISMANTLING

Neither the HAVmeter nor associated equipment should be dismantled or modified in any manner.

## INSTRUCTIONS FOR SAFE ADJUSTMENT

With the exception of the time and date on the Basestation, there is no requirement for adjustment of the HAVmeter or associated equipment.

# TECHNICAL SPECIFICATIONS

## HAVmeter

**Dimensions:** 76mm * 51mm * 30mm

**Weight:** 92g

**IP Rating:** IP65

**Operating Temperature Range:** -20°C to +50°C

**Storage Temperature Range:** -20°C to +50°C

**Memory:** Up to 400 tool connections

**Communications:** Close range inductive data communication (13.56MHz)

**Battery:** Internal rechargeable battery

**Charge Time:** Up to 10 hours

**Battery Life:** Up to 14 hours

## ATEX HAVmeter Specifics

**ATEX Certification Code:**  **II IG Ex ia IIC T4 Ga (-20°C to 50°C)**
**ATEX Ref:** Baseefa10ATEX0224X

**IECEx Certification Code:** Ex ia IIC T4 Ga (-20°C to 50°C)

**IECEx Ref:** IECEx BAS 10.0108X

**Temperature Classification:** T4

**Suitability:** Non-mining product, Group II, category 1 for use in gas/vapour/mist atmospheres.

**Special conditions for safe use:** The HAVmeter may not be charged on a Basestation within a potentially hazardous environment. The HAVmeter must always be fitted with the bump sleeve before being taken or used within a hazardous area. The HAVmeter may be damaged if the rechargeable cells are left in a discharged state for an extended period of time, therefore the cells must be recharged at least once every month.

**Weight:** 105g

**IP Rating:** IP65

## Basestation

**Dimensions:** 382mm * 173mm * 33mm

**Weight:** 1025g

**IP Rating:** IP20

**Operating Temperature Range:** 0°C to +40°C

**Storage Temperature Range:** 0°C to +40°C

**Memory:** 10 years

**Communications:** Close range inductive data communication (13.56MHz)

**Battery:** Internal lithium battery CR1220

**Power:** 12VDC

## Standard Tool Tag

**Dimensions:** 37mm * 33mm * 14mm

**Weight:** 23g

**IP Rating:** IP65

**Operating Temperature Range:** -20°C to +50°C

## ATEX Tool Tag Specifics

**ATEX Certification Code:**  **II IG Ex ia IIC T4 Ga (-20°C to 50°C)**
**ATEX Ref:** Baseefa10ATEX0224X

**IECEx Certification Code:** Ex ia IIC T4 Ga (-20°C to 50°C)

**IECEx Ref:** IECEx BAS 10.0108X

**Suitability:** Non-mining product, Group II, category 1 for use in gas/vapour/mist atmospheres.

**IP Rating:** IP65

# TECHNICAL ASSISTANCE

Should you experience any problems with the HAVmeter system please contact us:

Reactec Ltd

Vantage Point,

3 Cultins Road,

Edinburgh

EH11 4DF

www.reactec.com

**Tel:** +44 (0) 131 221 0922

**Fax:** +44 (0) 131 229 9051

**Email:** support@reactec.com

# ENVIRONMENT & RECYCLING

Reactec Ltd is registered with the WeeeCare Compliance Scheme. The WEEE directive is aimed at encouraging reuse and recycling, and minimising the negative environmental aspects of electronic equipment disposal including all types of batteries.

For free collection of your electronic HAVmeter equipment please call:

**Tel:** +44 (0) 844 800 2004

**WeeeCare Account Number:** 141241

For more information please refer to the full instruction manual or visit: www.weeecare.com

# WARRANTY

## Warrantor

The Limited Warranty is granted by and this Limitation of Liability is stipulated by Reactec Ltd, Vantage Point, 3 Cultins Road, Edinburgh EH11 4DF, UK.

## What This Warranty Covers

1) Reactec Ltd warrants to you that the Hardware will be free from defects in workmanship and materials under normal use (‘Defects’) for a period of one (1) year from the date that the Hardware was first purchased by you (‘Warranty Period’). During the Warranty Period the Hardware will be repaired or replaced at Reactec’s discretion (‘Limited Warranty’) without charge to you for either parts or labour. This Limited Warranty covers the replacement of the Hardware only. If the Hardware is repaired after the Warranty Period has expired the Warranty Period for the repair will expire six (6) months after the date of repair.

## What This Warranty Does Not Cover

2) The Limited Warranty does not apply to normal wear and tear, does not apply when the Hardware is opened or repaired by someone not authorized by Reactec and does not cover repair or replacement of any Hardware or part thereof damaged by: misuse, moisture, liquids, proximity or exposure to heat and accident, abuse, noncompliance with the instructions supplied with the Hardware, neglect or misapplication. The Limited Warranty does not cover physical damage to the surface of the Hardware. This Limited Warranty does not cover any software that may accompany or be installed on the Hardware. Defective LCD screens/displays on the Hardware (where applicable) are excluded from the Warranty except in the event that the screen/display becomes unreadable, provided that the relevant Hardware has only been subjected to fair wear and tear and the defect in the screen/display does not arise from misuse or negligent use.

## How to Make a Warranty Claim

3) In order to make a claim of a Defect, you must contact Reactec by email during the Warranty Period via www.reactec.com to explain the Defect and to obtain an RMA number (Return Materials Authorization) if necessary. You

must return the Hardware during the Warranty Period, along with an explanation of the Defect, to the address provided to you by Reactec. If a defect arises and a valid claim under this Limited Warranty is received by Reactec after the first one hundred and eighty (180) days of the Warranty Period, Reactec is entitled to charge you for any reasonable shipping and handling costs made in connection with the repair or replacement of the Hardware. You must comply with any other return procedures stipulated by Reactec, if any.

## Your Legal Rights

4) Some countries may not allow the exclusion or limitation of damages. If any part of this Limited Warranty is held to be invalid or unenforceable, the remainder of the Limited Warranty shall nonetheless remain in full force and effect.

5) This Limited Warranty is the only express warranty made to you and is provided in lieu of any other express warranties or similar obligations (if any) created by any advertising, documentation, packaging, or other communications.

6) Except for the Limited Warranty and to the maximum extent permitted by applicable law, Reactec and its suppliers provide the Hardware “AS IS AND WITH ALL FAULTS”, and hereby disclaim all other warranties and conditions, whether express, implied or statutory, including, but not limited to, any (if any) implied warranties, duties or conditions of satisfactory quality, of fitness for a particular purpose, of reliability or availability, of accuracy or completeness of responses, of results, of workmanlike effort, of lack of viruses, and of reasonable care and skill, all with regard to the Hardware, and the provision of or failure to provide support or other services, information, software, and related content through the Hardware or otherwise arising out of the use of the Hardware. Also, there is no warranty or condition of quiet enjoyment, quiet possession, or non-infringement with regard to the Hardware. This exclusion does not apply to (i) any implied condition as to title and (ii) any implied warranty as to conformity with description.

7) This Limited Warranty does not affect any legal rights under applicable national legislation governing the sale of consumer goods.

8) This Limited Warranty cannot be transferred to any other person.

## Limitation of Liability

9) Neither Reactec nor its suppliers shall be liable to you or to any third party for any damages either direct, indirect, incidental, consequential or otherwise (including in each case, but not limited to, damages for the inability to usethe equipment or access data, loss of data, loss of business, loss of profits, business interruption or the like) arising out of the use of or inability to use the Hardware even if Reactec has been advised of the possibility of such damages.

10) Notwithstanding any damages that you might incur for any reason whatsoever (including, without limitation, all damages referenced herein and all direct or general damages in contract or anything else), the entire liability of Reactec and any of its suppliers shall be limited to the amount actually paid by you for the Hardware.

11) Reactec shall not be liable for (i) any fraud on the part of its employees and/or agents; or (ii) any fraudulent misrepresentation on the part of its employees and/or agents.

12) Notwithstanding the above, neither party's liability for death or personal injury resulting from its own negligence shall be limited.

290-004-13

# EU Declaration of Conformity

**Manufacturer**:
**Name :** Reactec Ltd

**Address :** Vantage Point
3 Cultins Road
Edinburgh
EH11 4DF

**We, Reactec Ltd, declare under our sole responsibility that :** Standard HAVmeter (HM100-0000-10) and Standard Tool Tags (HM100-0006-00, HM100-0007-00, HM100-0008-00)

**Are In Accordance with the following Directives:**

2014/53/EU - Radio equipment
2011/65/EU - Restriction of the use of certain hazardous substances in electrical and electronic equipment

**The following standards have been applied:**

2014/53/EU Article 3.1a (Safety and Health): EN61010-1:2010
2014/53/EU Article 3.1b (EMC): EN 301 489-1 V1.9.2 and EN 301 489-3 V2.1.0
2014/53/EU Article 3.2 (RF Spectrum): EN 302 291-2 v 1.1.1
2011/65/EU (RoHS): EN 50581:2012

**Additional Standards:**

EN 60529/IEC 529 Ingress Protection to IP65

**EMC / RF Spectrum Notified Body:**
York EMC Services, Notified Body number 2636 (previously 1892).
Test Report numbers B612TR1 (Radio) and B611TR1 (EMC)

290-004-13

**Signed for and on behalf of:  Reactec Ltd**

**Place: Edinburgh, UK**

Signature:

Name : Jacqui McLaughlin
Position : CEO

290-004-13

# EU Declaration of Conformity

**Manufacturer**:
**Name :** Reactec Ltd

**Address :** Vantage Point
3 Cultins Road
Edinburgh
EH11 4DF

**We, Reactec Ltd, declare under our sole responsibility that :** Base Station (HM100-0001-00)

**Is In Accordance with the following Directives:**

2014/53/EU - Radio equipment
2011/65/EU - Restriction of the use of certain hazardous substances in electrical and electronic equipment

**The following standards have been applied:**

2014/53/EU Article 3.1a (Safety and Health): EN 60950-1:2006/A2:2013
2014/53/EU Article 3.1b (EMC): EN 301-489-1 V1.9.2 and EN 301 489-3 V2.1.0
2014/53/EU Article 3.2 (RF Spectrum): EN 302 291-2 v 1.1.1
2011/65/EU (RoHS): EN 50581:2012

**EMC / RF Spectrum Notified Body:**
York EMC Services, Notified Body number 2636 (previously 1892)
Test Report number B730TR1

**Signed for and on behalf of: Reactec Ltd**

**Place: Edinburgh, UK**

Signature:

Name : Jacqui McLaughlin
Position : CEO

290-004-13

# EU Declaration of Conformity

**Manufacturer**:
**Name :** Reactec Ltd

**Address :** Vantage Point
3 Cultins Road
Edinburgh
EH11 4DF

**We, Reactec Ltd, declare under our sole responsibility that :** ATEX HAVmeter (HM100-0011-06) and ATEX Tool Tag (HM100-0012-00)

**Is In Accordance with the following Directives:**

2014/34/EU - Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)
2014/53/EU - Radio equipment
2011/65/EU - Restriction of the use of certain hazardous substances in electrical and electronic equipment

**The following standards have been applied:**

2014/34/EU (ATEX): EN 60079-0:2012/A11:2013 and EN 60079-11:2012
2014/53/EU Article 3.1a (Safety and Health): EN 61010-1:2010
2014/53/EU Article 3.1b (EMC): EN 301 489-1 V1.9.2 and EN 301 489-3 V2.1.0
2014/53/EU Article 3.2 (RF Spectrum): EN 302 291-2 v 1.1.1
2011/65/EU (RoHS): EN 50581:2012

**Additional Standards:**

Ingress Protection : BS EN 60529:1992 to IP65

**ATEX Product Markings:**

 II 1G Ex ia IIC T4 Ga

**ATEX Notified Body:**
SGS Baseefa Ltd, Notified Body number 1180. EC Type Examination Certificate number Baseefa10ATEX0224X. The examination and test results are recorded in report number GB/BAS/ExTR10/0240/00, GB/BAS/ExTR11.0053/00, GB/BAS/ExTR13.0312/00, GB/BAS/ExTR14.0094/00 and GB/BAS/ExTR14.0360/00. SGS Baseefa Ltd is also responsible for oversight of the QA regime.

**EMC / RF Spectrum Notified Body:**
York EMC Services, Notified Body number 2636 (previously 1892).
Test Report numbers B612TR1 (Radio) and B611TR1 (EMC)

**ATEX HAVmeter Special Conditions of Use:**

1. The HAVmeter, Hand Arm Vibration Monitor must only be recharged and data downloaded from the internal memory within a safe area. The functions of recharging of the secondary cell, down loading of stored data, and resetting the internal memory, are all achieved by the inductive transfer of energy and data through the case wall, with no direct external electrical connections.

2. The HAVmeter must always be fitted with the bump sleeve before being taken or used within a hazardous area.

3. The HAVmeter may be damaged if the rechargeable cells are left in a discharged state for an extended period of time, therefore the cells must be recharged at least once every month.

**ATEX Tool Tags Special Conditions of Use:**

1. The ATEX Tool Tags shall only to fixed to ATEX/IECEx approved equipment.
2. The ATEX Tool Tag is approved for the standard tool tag range.

290-004-13

**Signed for and on behalf of: Reactec Ltd**

**Place: Edinburgh, UK**

Signature:

Name : Jacqui McLaughlin
Position : CEO

**Declaration is valid on the date of supply of product**

**Supply Date : ……**

290-004-13

# BASEEFA RELATED DRAWING

NO CHANGES PERMITTED WITHOUT COMPATIBILITY CHECK

TO ATEX/IECEx CERTIFICATION