Includes warnings and installation drawings for using the Hand Held Calibrator in Hazardous areas as defined by Factory Mutual:

Class I, Division 1, Groups A, B, C and D Intrinsically Safe location Groups

Class I, Division 2, Groups A, B, C and D Non Incendive Hazardous location Groups

Includes warnings and installation drawings for using the Hand Held Calibrator in Hazardous areas as defined by CSA:

Class 1, Division 1, Groups A,B,C,D

Includes warnings and installation drawings for using the Hand Held Calibrator in Hazardous areas as defined by ATEX:

II 1 G FM12ATEX0035X

Ex ia II C T4 Ga -20°C<Ta<+50°C

ENTITY PARAMETERS

$U_i=33\text{Vdc}$ $I_i=300\text{mA}$ $C_i=0$ $L_i=0$ $P_i=1.5\text{W}$

$U_o=5.735\text{Vdc}$ $I_o=586\mu\text{A}$ $C_o=46\mu\text{f}$ $L_0=1\text{H}$

$P_o=840\mu\text{W}$

Additional Warnings for Intrinsically Safe approved versions

- When marked as approved the ATE-2/PTE-2 calibrator is agency approved for use in areas when potentially flammable or explosive gas or vapor may occur. These areas are referred to as hazardous (classified) location in the United States, as Hazardous Locations in Canada, as Potentially Explosive Atmospheres in Europe and as Explosive Gas Atmospheres in other parts of the world. The HHC’s voltage and current input jacks have entity parameters and as such can be utilized in a hazardous location to connect to other apparatus as long as said apparatus meets the requirements of the entity parameters.

- Before entering a hazardous area, close and secure with the lock screw both the battery door and USB/SD card door prior to use in a hazardous area.

- Replace batteries only in a non-hazardous area.

- Use only Duracell Model MN1500 AA alkaline batteries primary cell batteries.

- The apparatus contains exposed metal parts that have a capacitance of 14pf, do not use in unsuitable application.

- The battery access cover is not to be removed while in a hazardous area.

- The USB/SD access door is not to be removed while in a hazardous area.

- The USB connection-data transmission and power input- are restricted to be used in a non-hazardous area only.

- The non-hazardous area USB apparatus –computer port, wall supply, etc., connected to the USB port of the HHC, must be assessed and conform to section 6.2.5 of EN60079-11. This precaution is to protect the integrity of the safety components within the HHC, which insures its intrinsic safety rating while in the hazardous location.

- For use with non-assessed USB equipment accessory part number 101C225-01 is to be inserted between the HHC USB port and the non-assessed apparatus. not power the calibrator by USB cable in a hazardous area, this action will render the calibrator not intrinsically safe.

- Intrinsically safe installation diagrams, entity parameters and warnings are included in drawing 825A028 included in this manual.
Battery Installation
Use only Duracell Model MN1500 AA alkaline batteries, primary cell batteries, quantity four.

1. To gain access to the battery compartment, loosen the strap assembly by detaching the Velcro connection and moving the strap to the side to allow access to the Philips head screw on the battery cover door.
2. Open the battery compartment by loosening the Philips head screw located in the battery compartment door immediately above the product label.
3. Using thumb and forefinger gently lift battery door up and toward the top of the calibrator to remove door.
4. Install four new AA Alkaline batteries. Observe polarity markings to install batteries correctly. Never mix old and new batteries.
5. Reinstall battery door. Be sure that lower latch tab is engaged beneath clasp hook to ensure proper watertight sealing of battery compartment.
6. Tighten Philips head screw in top of cover.

Replace strap by tightening strap and secure with Velcro.

The Panasonic lithium ion battery used to maintain power to the real time clock is not user serviceable. Return the calibrator to Ashcroft factory or an authorized service agent for replacement.
This drawing includes confidential information which is the property of ASHCROFT INC. This copy is licensed for the specific purpose, with the understanding that it will not be reproduced or used for any other purpose or disclosed to others, and it will be returned on demand.

TP 7
RTD PROBE
SIMPLE APPARATUS
SEE NOTE 10

TP 8
RTD PROBE
SIMPLE APPARATUS
SEE NOTE 10

TP 9
RTD PROBE
SIMPLE APPARATUS
SEE NOTES 7, 8, 9

UNIVERSAL RTD INTERFACE
SIMPLE APPARATUS
SEE NOTE 10

USER RTD PROBE
SIMPLE APPARATUS
SEE NOTE 10

 INSTALLATION DIAGRAM, HAND HELD CALIBRATOR, FM 6
CL. 1, DIV. 1, Groups A, B, C, D,
CURRENT MEASUREMENT,
SUPPLY-RETURN HOOK-UP

NOTES:
1. ENTITY CONCEPT DEFINITION:
   THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE
   APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN
   SUCH COMBINATION. THE OPERATING REQUIREMENT IS THAT THE
   VOLTAGE AND CURRENT WHICH INTRINSICALLY SAFE APPARATUS CAN RECEIVE
   AND IS REMAIN INTRINSICALLY SAFE, CONSIDERING SIT'S MUST BE EQUAL TO
   OR GREATER THAN THE VOLTAGE (U) & CURRENT (I) LEVELS,
   WHICH CAN BE DETERMINED BY THE ASSOCIATED APPARATUS,
   CONSIDERING SIT'S AND INDUCTANCE (L) OF THE
   INTRINSICALLY SAFE APPARATUS, IN SERIES INTERCONNECTION.
   MUST BE EQUAL TO OR LESS THAN THE Capacitance & Inductance
   WHICH CAN SAFE CONNECTED TO ASSOCIATED APPARATUS.

2. KEEP THE HAND HELD CALIBRATOR IN THE FIELD HAND IN ACCORDANCE
   WITH THE TRANSMITTER MANUFACTURER'S INSTRUCTIONS AND THE
   TRANSMITTER MANUFACTURER'S INSTALLATION DIAGRAM, AS REFERENCED
   ON THE TRANSMITTER'S LABEL.

3. INTRINSIC SAFETY IS CONTINGENT UPON THE HAND HELD CALIBRATOR'S
   USB/COMMUNICATIONS PORT COVER AND THE BATTERY
   COMPARTMENT COVERING PROPERTY WAS USED ON THE
   CALIBRATOR REFERENCED IN THE OPERATING MANUAL.

4. THE US OF THE MODEL PFS-2 & PFE-2 WHEN ADDED TO THE
   UO OF THE ASSOCIATED APPARATUS MUST NOT EXCEED THE UO
   OF THE TRANSMITTER.

5. THE US OF THE MODEL PFS-2 & PFE-2 WHEN ADDED TO THE
   UO OF THE ASSOCIATED APPARATUS MUST NOT EXCEED THE UO
   OF THE TRANSMITTER.

6. NO REVISION TO OCCUR WITHOUT PRIOR FACTORY MUTUAL
   RESEARCH AUTHORITY CONSENT.

7. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA-RP7.4
   INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS
   CLASSIFIED LOCATIONS AND THE NATIONAL ELECTRICAL CODE (NFPA 70). 

8. A SIMPLE APPARATUS IS A DEVICE WHICH WILL NOT GENERATE OR
   STORE MORE THAN 1/2 W, 0.1A, 24VDC OR STR.

9. CURRENT MEASUREMENT, SUPPLY-RETURN HOOK-UP

10. THE UNIVERSE OF INTERFACE FUNCTION AS A SIMPLE APPARATUS.
     FOR USE ONLY WITH USERS RTD PROBE. SEE NOTES 7, 8, 9
6. No revisions to occur without prior Factory Mutual Research
   authorization.

1. Entity concept definition:

   2. Use of the hand held calibrator in the field shall be in accordance
      with the manufacturer's instructions and the transmission
      manufacturer's installation diagram, as referenced on the
      transmitter's label.

   3. Intrinsically safe apparatus, including interconnecting wiring,
      which can be safely connected to the associated apparatus,
      which may be delivered by the associated apparatus
      considering faults and applicable actions. In addition, the
      maximum unipolar capacitance (C1) and inductance (L1) of the
      intrinsically safe apparatus shall be in accordance with the
      criteria for interconnection. MUST BE EQUAL TO OR LESS THAN THE CAPACITANCE & INDUCTANCE
      WHEN CAPACITORS ARE CONNECTED TO THE ASSOCIATED APPARATUS.

   4. The use of the model PTE-2 & ATE-2 when added to the
      use of the associated apparatus must not disturb the UI
      of the transmitter.

   5. The use of the model PTE-2 & ATE-2 when added to the
      use of the associated apparatus must not exceed the UI
      of the transmitter.

   6. No revision or modification from the drawing by the manufacturer.

   7. Installation should be in accordance with ANSI/IEEE-2.8
      "INSTALLATION AND TESTING OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED)
      LOCATIONS" and the national electrical code (ANSI/NFPA 70).

   8. A simple apparatus is a device which will not generate nor
      store more than 0.2 V, 0.1 A, 20 W or 2.2 J.

   9. The maximum cable length is determined by the simple apparatus
      and those with higher than 25,000 ft.

   10. The universal RTD interface can be used with any simple
        apparatus for use only with users RTD probe. See notes 7, 8 & 9.

Notes:

- 1. Entity concept definition
- 2. Use of the hand held calibrator in the field shall be in accordance
- 3. Intrinsically safe apparatus, including interconnecting wiring,
- 4. The use of the model PTE-2 & ATE-2 when added to the
- 5. The use of the model PTE-2 & ATE-2 when added to the
- 6. No revision or modification from the drawing by the manufacturer.
- 7. Installation should be in accordance with ANSI/IEEE-2.8
- 8. A simple apparatus is a device which will not generate nor
- 9. The maximum cable length is determined by the simple apparatus
- 10. The universal RTD interface can be used with any simple

Entity Parameters (Divisions/Zones):

- Li/Ui/ma = 3.33sec
- Ua/uo = 5.738sec
- Li/max = 300mA as
- Io/sc = 586mA cc
- P/P = 1.5W
- Pa/Pa = 840W
- G/C = 0
- C/C = 46.4n
- U/U = 0
- Lu/Lu = 1H

Simple Apparatus

User RTD Probe

RTD Probe

Simple Apparatus

See notes 7, 8, 9

Universal RTD Interface

Simple Apparatus

See note 10
This drawing includes confidential information which is the property of ASHCROFT INC. This copy is licensed for the specific purpose, with the understanding that it will not be reproduced or used for any other purpose or disclosed to others, and it will be returned on demand.

**1. ENTITY CONCEPT DEFINITION:**

This concept allows disconnection of Intrinsically Safe Apparatus to associated apparatus not specifically examined in use combination. The object of the concept is to reduce the voltage, current, and incident energy which can be delivered by the associated apparatus, such combination. The criteria for interconnection is that the entity concept allows intrinsically safe apparatus in closing interconnecting wiring must be equal to or less than the capacitance and inductance which cause safely disconnect to associated apparatus.

**2. USE OF THE HAND HELD CALIBRATOR IN THE FIELD SHALL BE IN ACCORDANCE WITH THE TRANSMITTER MANUFACTURERS INSTRUCTIONS AND THE TRANSMITTER MANUFACTURERS INSTALLATION DIAGRAM, AS REFERENCED ON THE TRANSMITTERS LABEL.**

**3. INTRINSIC SAFETY IS CONSIDERED UPON THE HAND HELD CALIBRATORS USED I COMMUNICATION PORT COVER AND THE BATTERY COMPARTMENT CONSIDERING PROPERLY INSTALLED IN THE CALIBRATOR AS REFERRED TO IN THE OPERATING MANUAL.**

**4. THE WO OF THE MODEL PTE2 & ATE2 WHEN ADDED TO THE PA OF THE ASSOCIATED APPARATUS MUST NOT EXCEED THE WA OF THE TRANSMITTER.**

**5. THE WO OF THE MODEL PTE2 & ATE2 WHEN ADDED TO THE PA OF THE ASSOCIATED APPARATUS MUST NOT EXCEED THE PA OF THE TRANSMITTER.**

**6. NO REVISIONS TO OCCUR WITHOUT FM FACTORY MUTUAL RESEARCH AUTHORIZATION.**

**7. INSTALLATION SHOULD BE IN ACCORDANCE WITH ANSI/ISA R92.6 INSTALLATION OF INTRINSICALLY SAFE SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCA TIONS AND THE NATIONAL ELECTRICAL CODE, ANSI/NEPA 70.**

**8. A SIMPLE APPARATUS IS A DEVICE WHICH WILL NEITHER GENERATE NOR STORE MORE THAN 1.5 J, 3.14 J, 15 W-SECONDS, FOR EXAMPLE, SWITCHES, THERMOCOUPLES, I.E.D., OR I.G.D.**

**9. THE MAXIMUM CABLE LENGTH BONNET THE SIMPLE APPARATUS AND THE HAND HELD CALIBRATORS IS 30FT.**

**10. INSTALLATION DIAGRAM, HAND HELD CALIBRATOR, FM IS CL.1, DIV. 1, GROUPS A,B,C,D, CURRENT MEASUREMENT, CUSTOMER “TEST POINT” HOOK-UP**

**NOTES:**

- TP 7
- TP 8
- TP 9
- RTD PROBE
- HAND HELD CALIBRATOR (HHC)
- 250V RMS
- CONTROL ROOM
- mA
- mA
- mA
- mA
- mA
1. ENTITY CONCEPT DEFINITION:

The ENTITY concept allows interconnection of intrinsically safe apparatus, including interconnecting wiring, which can be safely connected to associated apparatus, considering faults and applicable factors. In addition, the criteria for interconnection is that the entity concept allows interconnection of intrinsically safe apparatus, including interconnecting wiring, must be equal to or less than the capacitance & inductance which can be safely connected to associated apparatus.

2. USE OF THE HAND HELD CALIBRATOR:

The use of the Hand Held Calibrator (HHC) must be in accordance with the transmitter manufacturer's installation diagram and reference the transmitter's label. The Hand Held Calibrator (HHC) uses communications port cover and the battery compartment cover must be installed on the calibrator reference to the operating manual.

3. INTRINSIC SAFETY IS CONCERNED UPON THE HAND HELD CALIBRATOR:

The use of the Hand Held Calibrator (HHC) must be in accordance with the transmitter manufacturer's installation diagram and reference the transmitter's label. The Hand Held Calibrator (HHC) uses communications port cover and the battery compartment cover must be installed on the calibrator reference to the operating manual.

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The use of the Hand Held Calibrator (HHC) must be in accordance with the transmitter manufacturer's installation diagram and reference the transmitter's label. The Hand Held Calibrator (HHC) uses communications port cover and the battery compartment cover must be installed on the calibrator reference to the operating manual.

5. NO REVISIONS TO OCCUR WITHOUT PRIOR FACTORY MUTUAL RESEARCH Authorization.

No revisions to occur without prior Factory Mutual Research Authorization.

6. NO REVISIONS TO OCCUR WITHOUT PRIOR FACTORY MUTUAL RESEARCH Authorization.

No revisions to occur without prior Factory Mutual Research Authorization.

7. INSTALLATION SHOULD BE IN ACCORDANCE WITH AMERISA RP 12.6:

Installation of intrinsically safe systems for hazardous (classified) locations and the National Electrical Code (NEC/ NFPA 70).

A SAME APPARATUS IS A DEVICE WHICH WILL NEVER GENERATE ANY STORE MORE THAN 1.2 V, 3.1A, 22W OR 26W.

Example: Switches, thermocouples, ±0.5%, ±0.5%, ±5%. The maximum cable length between the simple apparatus and test and field calibrator devices is 10 ft.

10. THE UNIVERSAL RTD INTERCONNECTION (S) APPARATUS:

For use only with standard RTD probe. See Notes 7, 8, & 9.

IMPORTANT:

Dimensions within oval and notes identified with " * " require mandatory inspection.

DIMENSIONAL TOLERANCES:

UNLESS OTHERWISE Specified ALL DIMENSIONS ARE IN INCHES

TOLERANCES ARE:

3 place decimal ± 0.007
2 place decimal ± 0.015
1 place decimal ± 0.030
0.007
0.015
0.030

CAUTION: DRAWN DRAWN TO SCALE

Sheet 4 of 6
1. ENTITY CONCEPT DEFINITION:

The entity concept allows in connection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination. The combination or interconnection is withstand voltage & current which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal to or greater than the voltage (V) and current (I) levels, which cause shutdown by the associated apparatus. Considering faults and applicable factors. In addition, the maximum unprotected capacitance (C) and inductance (L) of the intrinsically safe apparatus (including interconnecting wiring), must be equal to or less than the capacitance & inductance which cause safe-to-connected to associated apparatus.

2. USE OF THE HAND HELD CALIBRATOR IN THE FIELD SHALL BE IN ACCORDANCE WITH THE TRANSMITTER MANUFACTURER'S INSTRUCTIONS AND THE TRANSMITTER MANUFACTURER'S INSTALLATION DIAGRAM, AS REFERENCED ON THE TRANSMITTER'S LABEL.

3. INTRINSIC SAFETY IS CONTINGENT UPON THE HAND HELD CALIBRATORS USB/COMMUNICATIONS PORT COVER AND THE BATTERY COMPARTMENT COVER BEING PROPERLY INSTALLED ON THE CALIBRATOR AS REFERENCED IN THE OPERATING MANUAL.


6. NO VERSION TO OCCUR WITHOUT PRIOR FACTORY MUTUAL RESEARCH AUTHORIZATION.

10. THE UNIVERSAL RTD INTERFACE PERIPHERAL IS A SIMPLE APPARATUS WHICH CAN BE SAFELY CONNECTED TO ASSOCIATED APPARATUS.

NOTE 10:

- This drawing includes confidential information which is the property of ASHCROFT INC. This copy is loaned for the specific purpose, with understanding that it will not be reproduced or used for any other purpose or disclosed to others, and it will be returned on demand.

- IMPORTANT: DIMENSIONS WITHIN OVAL AND NOTES IDENTIFIED WITH "*" REQUIRE MANDATORY INSPECTION.

- INSTALLATION DIAGRAM, HAND HELD CALIBRATOR, FM IS 4 WIRE (ISOLATED) SYSTEM HOOK-UP.
INDEX OF PRESSURE MODULES APPROVED BY FACTORY MUTUAL RESEARCH

Pressure ranges include Vacuum, Compound, Differential, Absolute, and Gauge pressures ranging from .25"H2O to 10,000 PSI, and their equivalents in other engineering units.

**WARNING:** USE ONLY DURACELL MODEL MN1500 AA ALKALINE PRIMARY CELL BATTERIES;
WARNING: BATTERIES ARE TO BE REPLACED ONLY IN A NON-HAZARDOUS LOCATION;
WARNING: THE BATTERY ACCESS COVER IS NOT TO BE REMOVED, WHILE IN A HAZARDOUS LOCATION;
WARNING: USE ONLY PANASONIC BR1225 LITHIUM COIN BATTERIES FOR REAL TIME CLOCK BACKUP;
WARNING: REFER TO OPERATING MANUAL FOR PROPER LITHIUM BATTERY INSTALLATION INSTRUCTIONS.
WARNING: THE USB/SD ACCESS COVER IS NOT TO BE REMOVED, WHILE IN A HAZARDOUS LOCATION;
WARNING: THE USB CONNECTION—DATA TRANSMISSION AND POWER INPUT—are restricted to be used in a non-hazardous area only.

For use with non-assessed equipment—ASHCROFT ACCESSORY P/N 101C225—01, USB PROTECTION DEVICE, IS INTENDED TO PROTECT THE HH C IN A NON-HAZARDOUS AREA. WHEN USED WITH NON-ASSESSED EQUIPMENT, TO ENSURE THE PROTECTION THE DEVICE (ASHCROFT P/N 101C225—01) IS TO BE INSERTED BETWEEN THE HH C USB PORT AND A NON-ASSESSED APPARATUS.

THE MAX. INPUT VOLTAGE TO BE 5.25 VDC

USB PORT ENTITY PARAMETERS (DIVISIONS/AREAS)

\[ V_o / V_{oc} = 5.735 \text{VDC} \quad \text{Pa}/\text{Pa} = 179 \text{mV} \]

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**DIMENSIONS WITHIN OVAL AND NOTES IDENTIFIED WITH ** * ** REQUIRE MANDATORY INSPECTION.**

**IMPORTANT:** DIMENSIONS WITHIN OVAL AND NOTES IDENTIFIED WITH ** * ** REQUIRE MANDATORY INSPECTION.

**DIMENSIONAL TOLERANCES UNLESS OTHERWISE INDICATED: ALL DIMENSIONS ARE IN INCHES.**

**TOLERANCES ARE:**

- 3 place decimal .000 ± .007
- 2 place decimal .0 .015
- 1 place decimal .0 .030

**ANGLE:** ± 1 deg

**CHAMFER:** ± 5 deg

**INSTALLATION DIAGRAM, HAND HELD CALIBRATOR, FM IS CL.1, DIV.1, Groups A,B,C,D**

**SCALE 1:1**

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Alfred Polonsky  8/14/13