1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa09ATEX0185X**

4 Equipment or Protective System: **937X-FB-**-** Fieldbus Barrier System**

5 Manufacturer: **Measurement Technology Limited**

6 Address: **Luton, Bedfordshire.**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report Nos.
GB/BAS/ExTR09.0114/00 & GB/BAS/ExTR09.0115/00

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 **EN 60079-1:2007** **EN 60079-7:2007** **EN 60079-11:2007** **EN 60079-18:2004**
EN 60079-27:2006 **IEC 60079-31:2008**

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ⓔx II 2(1)GD Ex d e ib mb [ia Ga] IIC T4 Gb (-40°C to +75°C) Ex tb IIIC T80°C Db

Baseefa Customer Reference No. **0703**

Project File No. **08/0459**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Baseefa
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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0185X**

15 Description of Equipment or Protective System

The 937X-FB-**-** Fieldbus Barrier System comprises a Trunk Terminator Assembly, a 6 way or 12 way carrier assembly, one or two Barrier Modules, optionally a component certified Trunk Surge Module (part ref. 9376-SP), optionally a component certified Trunk Terminator (part ref. 9378-FT) and optionally up to twelve Spur Surge Modules (part ref. FS32) that are all housed inside an appropriately certified stainless steel dust tight enclosure.

The 6 way carrier assembly is normally associated with a single Barrier Module and the 12 way carrier is normally associated with two Barrier Modules.

The 937X-FB-**-** Fieldbus Barrier System is designed to be supplied from a power supply conforming to IEC 61158 and produce 6 or 12 Spur outputs that are each compliant with the FISCO Power Supply requirements. The Spur outputs are isolated from the input supply but are not isolated from each other. Electrical connections are made via screw terminals.

Terminal Parameters - SPUR+ve Output Terminal and Shield Terminal w.r.t Spur-ve (each channel)

U_o	= 17.5V
$I_{o\ peak}$	= 248mA
$I_{o\ continuous}$	= 113mA
P_o	= 982mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

16 Report Number

GB/BAS/ExTR09.0114/00 & GB/BAS/ExTR08.0115/00

17 Special Conditions for Safe Use

1 The equipment shall only be powered from supplies conforming to IEC 61158.

2 When a Trunk Surge Module is fitted, the power input circuit will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

3 When one or more Spur Surge Modules are fitted, the spur outputs will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
CI255TFR	1 & 2	1	01.10	3GFB Comms 3 Coil Co-Ax Trnfmr
CI9373-1	1 to 3	1	3.10	3GFB Stainless Steel Final Assembly
CI9373-3 *	1	1	03.10	937X Encl Cert Label

Number	Sheet	Issue	Date	Description
CI9377-1	1 to 6	1	3.10	3rd Generation Fieldbus Barrier Spur Control
CI9377-2	1 to 5	1	09/03/10	Barrier Spur Control PCB Assy
CI9377-3	1	1	1.10	Barrier Spur Control PCB Track Layout
CI9377-4	1 to 3	1	02.10	Barrier Spur Control PCB Assy
CI9377-5	1	1	3.10	3rd Generation Fieldbus Barrier PSU
CI9377-6	1 to 3	1	10/03/10	3GFB Barrier PSU PCB Parts List
CI9377-7	1	1	1.10	Barrier PSU PCB Track Layout
CI9377-8	1 & 2	1	3.10	Barrier PSU PCB Assy
CI9381-1/1	1	1	5.09	Certification Drawing For Carrier 6W Simplex
CI9381-2	1	1	3.10	Parts List For Carrier 6W Simplex
CI9381-3	1	1	11.09	Carrier 6W Simplex PCB Track Layout
CI9381-4	1	1	11.09	Carrier 6W Simplex PCB Component Layout
CI9383-1/1	1	1	5.09	Certification Drawing For Carrier 12W Simplex
CI9383-2	1	1	3.10	Parts List For Carrier 12W Simplex
CI9383-3	1	1	11.09	Carrier 12W Simplex PCB Track Layout
CI9383-4	1 & 2	1	11.09	Carrier 12W Simplex PCB Component Layout
CI9384-4	1 to 4	1	2.10	TTA Assembly

All drawings except the drawing marked * are held with IECEx BAS 09.0081U and are common to IECEX BAS 09.0082X and Baseefa09ATEX0184U.

The drawing marked * is held with IECEx BAS 09.0082X.

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa09ATEX0185X/1**
4	Equipment or Protective System:	**937X-FB-**-** Fieldbus Barrier System**
5	Manufacturer:	**Measurement Technology Limited**
6	Address:	**Luton, Bedfordshire, LU2 8DL**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa09ATEX0185X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0703**

Project File No. **10/0335**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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DIRECTOR
On behalf of
Baseefa

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e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0185X/1**

15 **Description of the variation to the Equipment or Protective System**

Variation 1.1

To permit the introduction of 4 way and 8 way variants.

Variation 1.2

To permit minor mechanical and electrical changes.

Variation 1.3

To permit the introduction of variants with GRP enclosures. These variants have a reduced certified temperature range of -40°C to +65°C.

16 **Report Number**

GB/BAS/ExTR10.0105/00

17 **Special Conditions for Safe Use**

None additional to those listed previously

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documeuts**

Number	Sheet	Issue	Date	Description
CI9373-1 *1	1 & 2	2	7.10	3GFB Stainless Steel Final Assembly
CI9373-2 *3	1 to 3	2	7.10	3GFB GRP Enclosure Final Assembly
CI9373-3 *2	1	2	06.10	937X Encl Cert Label
CI9377-2 *1	1 to 5	2	20/04/10	Barrier Spur Control Parts List
CI9377-4 *1	1 to 3	2	04:10	Barrier Spur Control PCB Assy
CI9377-6 *1	1 to 3	2	20/04/10	3GFB Barrier PCB Parts List
CI9377-7 *1	1	2	27.4.10	Barrier PSU PCB Track Layout
CI9377-8 *1	1 & 2	2	4.10	Barrier PSU PCB Assy
CI9377-9 *2	1	2	4.10	FB Barrier Case Markings
CI9381-3 *1	1	2	4.10	Carrier 6W Simplex PCB Track Layout
CI9381-4 *1	1	2	4.10	Carrier 6W Simplex PCB Component Layout
CI9383-3 *1	1	2	4.10	Carrier 12W Simplex PCB Track Layout
CI9383-4 *1	1 & 2	2	4.10	Carrier 12W Simplex PCB Component Layout
CI9384-1 *1	1	1	4.10	TTA Wiring Diagram
CI9384-4 *1	1 to 3	2	4.10	TTA Assembly
CI9385-1/1 *1	I	1	4.10	Certification Drawing For Carrier 4W Simplex

Number	Sheet	Issue	Date	Description
CI9385-2 *1	1	1	4.10	Parts List For Carrier 4W
CI9385-3 *1	1	1	4.10	Carrier 4W PCB Track Layout
CI9385-4 *1	1	1	4.10	Carrier 4W PCB Component Layout
CI9386-1/1 *1	1	1	4.10	Certification Drawing For Carrier 8W Simplex
CI9386-2 *1	1	1	4.10	Parts List For Carrier 8W
CI9386-3 *1	1	1	4.10	Carrier 8W PCB Track Layout
CI9386-4 *1	1 & 2	1	4.10	Carrier 8W PCB Component Layout

Note *1 - These drawings are held with IECEx BAS 09.0081U issue 1 and are common to IECEx BAS 09.0082X issue 1 and Baseefa09ATEX0184U/1

Note *2 - This drawing is held with IECEx BAS 09.0082X issue 1.

Note *3 - This drawing is held with Baseefa09ATEX0184U/1.

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa09ATEX0185X/2**
4	Equipment or Protective System:	**937X-FB-**-** Fieldbus Barrier System**
5	Manufacturer:	**Measurement Technology Limited**
6	Address:	**Luton, Bedfordshire, LU2 8DL**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa09ATEX0185X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0703**

Project File No. **11/0596**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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DIRECTOR
On behalf of
Baseefa

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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 # Schedule

14 ## Certificate Number Baseefa09ATEX0185X/2

15 Description of the variation to the Equipment or Protective System

Variation 2.1

To permit changes to the permitted gland sizes for variants with GRP enclosures.

16 Report Number

11(C)0596

17 Special Conditions for Safe Use

None additional to those listed previously

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
CI9373-2	1 to 3	3	8.11	3GFB GRP Enclosure Final Assembly

EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa09ATEX0185X – Issue 3**

4 Equipment or Protective System: **937X-FB-**-** Fieldbus Barrier System**

5 Manufacturer: **Measurement Technology Limited**

6 Address: **Butterfield, Luton, LU2 8DL**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No's. **GB/BAS/ExTR10.0274/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 EN 60079-1:2007 EN 60079-7:2007 EN 60079-11:2007 EN 60079-18:2009 EN 60079-27:2008 EN60079-31:2009

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2(1)GD Ex d e ib mb [ia Ga] IIC T4 Gb (See schedule) Ex tb IIIC T80°C Db

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0703**

Project File No. **10/0618**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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On behalf of
Baseefa

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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0185X – Issue 3**

15 Description of Equipment or Protective System

The 937X-FB-**-** Fieldbus Barrier System comprises a Trunk Terminator Assembly, a 6 way or 12 way carrier assembly, one or two Barrier Modules, optionally a component certified Trunk Surge Module (part ref. 9376-SP), optionally a component certified Trunk Terminator (part ref. 9378-FT) and optionally up to twelve Spur Surge Modules (part ref. FS32) that are all housed inside an appropriately certified stainless steel or GRP dust tight enclosure.

The 6 way carrier assembly is normally associated with a single Barrier Module and the 12 way carrier is normally associated with two Barrier Modules.

The 937X-FB-**-** Fieldbus Barrier System is designed to be supplied from a power supply conforming to IEC 61158 and produce 6 or 12 Spur outputs that are each compliant with the FISCO Power Supply requirements. The Spur outputs are isolated from the input supply but are not isolated from each other. Electrical connections are made via screw terminals.

Stainless Steel enclosure variants have a certification temperature range of -40°C to +70°C.

GRP enclosure variants have a certification temperature range of -40°C to +65°C.

Terminal Parameters - SPUR+ve Output Terminal and Shield Terminal w.r.t Spur-ve (each channel)

9371 & 9373 Units - Simplex Models

U_o	= 17.5V
$I_{o\ peak}$	= 249.5mA
$I_{o\ continuous}$	= 113mA
P_o	= 982mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(μF)	(mH)		(μH/ohm)
IIC	0.339	0.57		32.5
IIB	1.97	2.28		130
IIA	8.2	4.57		260

The above load parameters apply where:

1. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.

or 2. The inductance and capacitance are distributed as in a cable.

or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and lumped capacitance, up to 50% of each of the L and C values is allowed.

9372 - Redundant Models

U_o	= 16.4V
$I_{o\ peak}$	= 246mA
$I_{o\ continuous}$	= 215mA
P_o	= 912mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(μF)	(mH)		(μH/ohm)
IIC	0.424	0.59		35.2
IIB	2.51	2.35		140
IIA	10.0	4.70		281

The above load parameters apply where:

2. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.

or 2. The inductance and capacitance are distributed as in a cable.

or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and lumped capacitance, up to 50% of each of the L and C values is allowed.

16 Report Number

GB/BAS/ExTR10.0275/00

17 Specific Conditions of Use

1. The equipment shall only be powered from supplies conforming to IEC 61158.

2. When a Trunk Surge Module is fitted, the power input circuit will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

3. When one or more Spur Surge Modules are fitted, the spur outputs will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
CI9373-1	1 to 3	4	1.12	3GFB Stainless Steel Final Assembly
CI9373-2	1 to 3	4	1.12	3GFB GRP Enclosure Final Assembly
CI9373-3	1	3	10.11	937X Encl Cert Label
CI9377-1	1 to 6	2	5.11	3rd Generation Fieldbus Barrier Spur Control
CI9377-2	1 to 3	3	15/11/11	R-Barrier Spur Control Parts List
CI9377-3	1	2	9.11	Barrier Spur Control PCB Track Layout
CI9377-4	1 to 3	3	5.11	Barrier Spur Control PCB Assy
CI9377-5	1 to 3	2	2.12	3rd Generation Fieldbus Barrier PSU
CI9377-5	1 to 3	3	2.12	3rd Generation Fieldbus Barrier PSU
CI9377-6	1 to 3	3	13/02/12	3GFB Barrier PCB Parts List
CI9377-6	1 to 3	5	13.2.12	3GFB Barrier PCB Parts List
CI9381-1	1	2	3.11	Certification Drawing for Carrier 6W Simplex.
CI9381-2	1	2	10.11	Parts List for Carrier 6W Simplex
CI9381-3	1	3	3.11	Carrier 6W Simplex PCB Track Layout
CI9381-4	1	3	3.11	Carrier 6W Simplex PCB Component Layout
CI9382-1	1	3	11.11	Carrier 6W Redundant Final Assy.
CI9382-2	1	2	11.11	Parts List for Carrier 6Way Redundant
CI9382-3	1 & 2	2	11.11	Carrier 6 Spur Redundant PCB Track Layout
CI9382-4	1 & 2	2	11.11	Carrier 6-SP Red'nt PCB Component Layout
CI9383-1	1	2	3.11	Certification Drawing for Carrier 12W Simplex.
CI9383-2	1	2	10.11	Parts List for Carrier 6+6 Simplex
CI9383-3	1	3	3.11	Carrier 12W Simplex PCB Track Layout
CI9383-4	1 & 2	3	3.11	Carrier 12W Simplex PCB Component Layout

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
CI255TFR	1 & 2	1	01.10	3GFB Comms 3 Coil Co-Ax Trnfmr
CI9377-7	1	2	27.4.10	Barrier PSU PCB Track Layout
CI9377-8	1 & 2	2	4.10	Barrier PSU PCB Assy
CI9384-1	1	1	4.10	TTA Wiring Diagram
CI9384-4	1 to 3	2	4.10	TTA Assembly
CI9385-1/1	1	1	4.10	Certification Drawing For Carrier 4W Simplex
CI9385-2	1	1	4.10	Parts List For Carrier 4W
CI9385-3	1	1	4.10	Carrier 4W PCB Track Layout
CI9385-4	1	1	4.10	Carrier 4W PCB Component Layout
CI9386-1/1	1	1	4.10	Certification Drawing For Carrier 8W Simplex
CI9386-2	1	1	4.10	Parts List For Carrier 8W
CI9386-3	1	1	4.10	Carrier 8W PCB Track Layout

Number	Sheet	Issue	Date	Description
CI9386-4	1 & 2	1	4.10	Carrier 8W PCB Component Layout

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0185X	9 April 2010	The release of prime certificate. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR09.0114/00 & GB/BAS/ExTR09.0015/00.
Baseefa09ATEX0185X/1	9 July 2010	To permit the addition of a GRP enclosure. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR10.0105/00.
Baseefa09ATEX0185X/2	17 October 2011	To permit changes to the permitted gland sizes. The associated test and assessment is documented in Test Report No. 11(C)0596.
Baseefa09ATEX0185X issue 3	29 February 2012	To permit the introduction of the 9372 range of units, to permit electrical and mechanical changes including the introduction of revised terminal parameters, and to confirm that the current design has been assessed for compliance with the requirements of EN 60079-18:2009 edition 3 and EN 60079-27:2008 edition 2 including the revision of the component marking in accordance with these standards.
For drawings applicable to each issue, see original of that issue.		

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa09ATEX0185X – Issue 4**

4 Equipment or Protective System: **937X-FB-**-** Fieldbus Barrier System**

5 Manufacturer: **Measurement Technology Limited**

6 Address: **Butterfield, Luton, LU2 8DL**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No's. **GB/BAS/ExTR13.0110/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 EN 60079-1:2007 EN 60079-7:2007 EN 60079-11:2007 EN 60079-18:2009 EN 60079-27:2008

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ⓔx II 2(1)GD Ex d e ib mb [ia Ga] IIC T4 Gb (See schedule) Ex tb IIIC T80°C Db

Baseefa Customer Reference No. **0703**

Project File No. **13/0091**

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pp Alan Ogden.

R S SINCLAIR
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0185 – Issue 4**

15 Description of Equipment or Protective System

The 937X-FB-**-** Fieldbus Barrier System comprises a Trunk Terminator Assembly, a 6 way or 12 way carrier assembly, one or two Barrier Modules, optionally a component certified Trunk Surge Module (part ref. 9376-SP), optionally a component certified Trunk Terminator (part ref. 9378-FT) and optionally up to twelve Spur Surge Modules (part ref. FS32) that are all housed inside an appropriately certified stainless steel or GRP dust tight enclosure.

The 6 way carrier assembly is normally associated with a single Barrier Module and the 12 way carrier is normally associated with two Barrier Modules.

The 937X-FB-**-** Fieldbus Barrier System is designed to be supplied from a power supply conforming to IEC 61158 and produce 6 or 12 Spur outputs that are each compliant with the FISCO Power Supply requirements. The Spur outputs are isolated from the input supply but are not isolated from each other. Electrical connections are made via screw terminals.

Stainless Steel enclosure variants have a certification temperature range of -40°C to +70°C.

GRP enclosure variants have a certification temperature range of -40°C to +65°C.

Terminal Parameters - SPUR+ve Output Terminal and Shield Terminal w.r.t Spur-ve (each channel)

9371 & 9373 Units - Simplex Models

U_o	= 17.5V
$I_{o\ peak}$	= 249.5mA
$I_{o\ continuous}$	= 113mA
P_o	= 982mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(µF)	(mH)		(µH/ohm)
IIC	0.339	0.57		32.5
IIB	1.97	2.28		130
IIA	8.2	4.57		260

The above load parameters apply where:

1. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.

or 2. The inductance and capacitance are distributed as in a cable.

or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and lumped capacitance, up to 50% of each of the L and C values is allowed.

9372 - Redundant Models

U_o	= 16.4V
$I_{o\ peak}$	= 246mA
$I_{o\ continuous}$	= 215mA
P_o	= 912mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(μF)	(mH)		(μH/ohm)
IIC	0.424	0.59		35.2
IIB	2.51	2.35		140
IIA	10.0	4.70		281

The above load parameters apply where:

2. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.

or 2. The inductance and capacitance are distributed as in a cable.

or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and lumped capacitance, up to 50% of each of the L and C values is allowed.

16 Report Number

GB/BAS/ExTR13.0110/00

17 Specific Conditions of Use

1. The equipment shall only be powered from supplies conforming to IEC 61158.

2. When a Trunk Surge Module is fitted, the power input circuit will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

3. When one or more Spur Surge Modules are fitted, the spur outputs will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
CI9373-1 *1	1 to 3	5	6.13	3GFB Stainless Steel Final Assembly
CI9373-3 *2	1	4	6.13	937X Encl Cert Label

Note *1 - This drawing is held with IECEx BAS09.09.0081U issue 3, and is common with IECEx BAS 09.0082X issue 3, Baseefa09ATEX0184U issue 3 and Baseefa09ATEX0185X issue 4.
Note *2 - This drawing is held with IECEx BAS09.09.0082X issue 3, and is common with Baseefa09ATEX0185X issue 4.

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
CI255TFR *1	1 & 2	1	01.10	3GFB Comms 3 Coil Co-Ax Trnfmr
CI9373-2 *3	1 to 3	4	1.12	3GFB GRP Enclosure Final Assembly
CI9377-1 *3	1 to 6	2	5.11	3rd Generation Fieldbus Barrier Spur Control
CI9377-2 *3	1 to 3	3	15/11/11	R-Barrier Spur Control Parts List
CI9377-3 *3	1	2	9.11	Barrier Spur Control PCB Track Layout
CI9377-4 *3	1 to 3	3	5.11	Barrier Spur Control PCB Assy
CI9377-5 *3	1 to 3	3	2.12	3rd Generation Fieldbus Barrier PSU
CI9377-6 *3	1 to 3	3	13/02/12	3GFB Barrier PCB Parts List
CI9377-7 *2	1	2	27.4.10	Barrier PSU PCB Track Layout
CI9377-8 *2	1 & 2	2	4.10	Barrier PSU PCB Assy
CI9381-1 *3	1	2	3.11	Certification Drawing for Carrier 6W Simplex.
CI9381-2 *3	1	2	10.11	Parts List for Carrier 6W Simplex
CI9381-3 *3	1	3	3.11	Carrier 6W Simplex PCB Track Layout
CI9381-4 *3	1	3	3.11	Carrier 6W Simplex PCB Component Layout
CI9382-1 *3	1	3	11.11	Carrier 6W Redundant Final Assy.
CI9382-2 *3	1	2	11.11	Parts List for Carrier 6Way Redundant
CI9382-3 *3	1 & 2	2	11.11	Carrier 6 Spur Redundant PCB Track Layout
CI9382-4 *3	1 & 2	2	11.11	Carrier 6-SP Red'nt PCB Component Layout
CI9383-1 *3	1	2	3.11	Certification Drawing for Carrier 12W Simplex.
CI9383-2 *3	1	2	10.11	Parts List for Carrier 6+6 Simplex
CI9383-3 *3	1	3	3.11	Carrier 12W Simplex PCB Track Layout
CI9383-4 *3	1 & 2	3	3.11	Carrier 12W Simplex PCB Component Layout
CI9384-1 *2	1	1	4.10	TTA Wiring Diagram
CI9384-4 *2	1 to 3	2	4.10	TTA Assembly
CI9385-1/1 *2	1	1	4.10	Certification Drawing For Carrier 4W Simplex
CI9385-2 *2	1	1	4.10	Parts List For Carrier 4W
CI9385-3 *2	1	1	4.10	Carrier 4W PCB Track Layout
CI9385-4 *2	1	1	4.10	Carrier 4W PCB Component Layout
CI9386-1/1 *2	1	1	4.10	Certification Drawing For Carrier 8W Simplex
CI9386-2 *2	1	1	4.10	Parts List For Carrier 8W
CI9386-3 *2	1	1	4.10	Carrier 8W PCB Track Layout
CI9386-4 *2	1 & 2	1	4.10	Carrier 8W PCB Component Layout

Note *1 - This drawing is held with IECEx BAS09.09.0081U issue 0, and is common with IECEx BAS 09.0082X issue 0, Baseefa09ATEX0184U and Baseefa09ATEX0185X.

Note *2 - This This drawing is held with IECEx BAS09.09.0081U issue 1, and is common with IECEx BAS 09.0082X issue 1, Baseefa09ATEX0184U issue 1 and Baseefa09ATEX0185X issue 1.

Note *3 - This drawing is held with IECEx BAS09.09.0081U issue 2, and is common with IECEx BAS 09.0082X issue 2, Baseefa09ATEX0184U issue 2 and Baseefa09ATEX0185X issue 3.

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0185X	9 April 2010	The release of prime certificate. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR09.0114/00 & GB/BAS/ExTR09.0015/00.
Baseefa09ATEX0185X/1	9 July 2010	To permit the addition of a GRP enclosure. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR10.0105/00.
Baseefa09ATEX0185X/2	17 October 2011	To permit changes to the permitted gland sizes. The associated test and assessment is documented in Test Report No. 11(C)0596.
Baseefa09ATEX0185X issue 3	29 February 2012	To permit the introduction of the 9372 range of units, to permit electrical and mechanical changes including the introduction of revised terminal parameters, and to confirm that the current design has been assessed for compliance with the requirements of EN 60079-18:2009 edition 3 and EN 60079-27:2008 edition 2 including the revision of the component marking in accordance with these standards. The associated test and assessment is documented in Test Report GB/BAS/ExTR10.0275/00.
Baseefa09ATEX0185X Issue 4	21 June 2013	To permit the use of alternative enclosures. The associated test and assessment is documented in Test Report GB/BAS/ExTR13.0110/00.
For drawings applicable to each issue, see original of that issue.		

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa09ATEX0185X – Issue 5**

4 Equipment or Protective System: **937X-FB-**-** Fieldbus Barrier System**

5 Manufacturer: **Measurement Technology Limited**

6 Address: **Butterfield, Luton, LU2 8DL**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No's. **GB/BAS/ExTR16.0041/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 EN 60079-1:2007 EN 60079-7:2007 EN 60079-11:2007 EN 60079-18:2009 EN 60079-27:2008

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ⓔx II 2(1)GD Ex d e ib mb [ia Ga] IIC T4 Gb (See schedule) Ex tb IIIC T80°C Db

Baseefa Customer Reference No. **0703** Project File No. **16/0212**

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R S SINCLAIR
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0185 – Issue 5**

15 Description of Equipment or Protective System

The 937X-FB-**-** Fieldbus Barrier System comprises a Trunk Terminator Assembly, a 6 way or 12 way carrier assembly, one or two Barrier Modules, optionally a component certified Trunk Surge Module (part ref. 9376-SP), optionally a component certified Trunk Terminator (part ref. 9378-FT) and optionally up to twelve Spur Surge Modules (part ref. FS32) that are all housed inside an appropriately certified stainless steel or GRP dust tight enclosure.

The 6 way carrier assembly is normally associated with a single Barrier Module and the 12 way carrier is normally associated with two Barrier Modules.

The 937X-FB-**-** Fieldbus Barrier System is designed to be supplied from a power supply conforming to IEC 61158 and produce 6 or 12 Spur outputs that are each compliant with the FISCO Power Supply requirements. The Spur outputs are isolated from the input supply but are not isolated from each other. Electrical connections are made via screw terminals.

Stainless Steel enclosure variants have a certification temperature range of -40°C to +70°C.

GRP enclosure variants have a certification temperature range of -40°C to +65°C.

Models marked 9372-FB-SS-004 are suitable for EPL [Ga] Gb only.

Terminal Parameters - SPUR+ve Output Terminal and Shield Terminal w.r.t Spur-ve (each channel)

9371 & 9373 Units - Simplex Models

U_o	= 17.5V
$I_{o\ peak}$	= 249.5mA
$I_{o\ continuous}$	= 113mA
P_o	= 982mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(µF)	(mH)		(µH/ohm)
IIC	0.339	0.57		32.5
IIB	1.97	2.28		130
IIA	8.2	4.57		260

The above load parameters apply where:

1. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.

or 2. The inductance and capacitance are distributed as in a cable.

or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and lumped capacitance, up to 50% of each of the L and C values is allowed.

9372 - Redundant Models

U_o	= 16.4V
$I_{o\ peak}$	= 246mA
$I_{o\ continuous}$	= 215mA
P_o	= 912mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(µF)	(mH)		(µH/ohm)
IIC	0.424	0.59		35.2
IIB	2.51	2.35		140
IIA	10.0	4.70		281

The above load parameters apply where:

2. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.

or 2. The inductance and capacitance are distributed as in a cable.

or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and lumped capacitance, up to 50% of each of the L and C values is allowed.

16 Report Number

GB/BAS/ExTR16.0041/00

17 Specific Conditions of Use

1. The equipment shall only be powered from supplies conforming to IEC 61158.

2. When a Trunk Surge Module is fitted, the power input circuit will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

3. When one or more Spur Surge Modules are fitted, the spur outputs will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

4. Potential electrostatic hazard. The equipment should only be cleaned with a damp cloth.

18 Essential Health and Safety Requirements

As follows, in addition to those covered by the standards at item 9.

Clause	Subject	Compliance
1.4.1	External effects	To be addressed by the user instructions.
1.4.2	Aggressive substances, etc.	To be addressed by the user instructions.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
CI9373-1 *1	1 to 3	7	3.16	3GFB Stainless Steel Final Assembly
CI9373-3 *2	1 to 3	6	3.16	937X Encl Cert Label

Note *1 - This drawing is held with IECEx BAS09.09.0081U issue 4, and is common with IECEx BAS 09.0082X issue 4, Baseefa09ATEX0184U issue 4 and Baseefa09ATEX0185X issue 5.
Note *2 - This drawing is held with IECEx BAS09.09.0082X issue 4, and is common with Baseefa09ATEX0185X issue 5.

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
CI255TFR *1	1 & 2	1	01.10	3GFB Comms 3 Coil Co-Ax Trnfmr
CI9373-2 *3	1 to 3	4	1.12	3GFB GRP Enclosure Final Assembly
CI9377-1 *3	1 to 6	2	5.11	3rd Generation Fieldbus Barrier Spur Control
CI9377-2 *3	1 to 3	3	15/11/11	R-Barrier Spur Control Parts List
CI9377-3 *3	1	2	9.11	Barrier Spur Control PCB Track Layout
CI9377-4 *3	1 to 3	3	5.11	Barrier Spur Control PCB Assy
CI9377-5 *3	1 to 3	3	2.12	3rd Generation Fieldbus Barrier PSU
CI9377-6 *3	1 to 3	3	13/02/12	3GFB Barrier PCB Parts List
CI9377-7 *2	1	2	27.4.10	Barrier PSU PCB Track Layout
CI9377-8 *2	1 & 2	2	4.10	Barrier PSU PCB Assy
CI9381-1 *3	1	2	3.11	Certification Drawing for Carrier 6W Simplex.
CI9381-2 *3	1	2	10.11	Parts List for Carrier 6W Simplex
CI9381-3 *3	1	3	3.11	Carrier 6W Simplex PCB Track Layout
CI9381-4 *3	1	3	3.11	Carrier 6W Simplex PCB Component Layout
CI9382-1 *3	1	3	11.11	Carrier 6W Redundant Final Assy.
CI9382-2 *3	1	2	11.11	Parts List for Carrier 6Way Redundant
CI9382-3 *3	1 & 2	2	11.11	Carrier 6 Spur Redundant PCB Track Layout
CI9382-4 *3	1 & 2	2	11.11	Carrier 6-SP Red'nt PCB Component Layout
CI9383-1 *3	1	2	3.11	Certification Drawing for Carrier 12W Simplex.
CI9383-2 *3	1	2	10.11	Parts List for Carrier 6+6 Simplex
CI9383-3 *3	1	3	3.11	Carrier 12W Simplex PCB Track Layout
CI9383-4 *3	1 & 2	3	3.11	Carrier 12W Simplex PCB Component Layout
CI9384-1 *2	1	1	4.10	TTA Wiring Diagram
CI9384-4 *2	1 to 3	2	4.10	TTA Assembly
CI9385-1/1 *2	1	1	4.10	Certification Drawing For Carrier 4W Simplex
CI9385-2 *2	1	1	4.10	Parts List For Carrier 4W
CI9385-3 *2	1	1	4.10	Carrier 4W PCB Track Layout
CI9385-4 *2	1	1	4.10	Carrier 4W PCB Component Layout
CI9386-1/1 *2	1	1	4.10	Certification Drawing For Carrier 8W Simplex
CI9386-2 *2	1	1	4.10	Parts List For Carrier 8W
CI9386-3 *2	1	1	4.10	Carrier 8W PCB Track Layout
CI9386-4 *2	1 & 2	1	4.10	Carrier 8W PCB Component Layout

Note *1 - This drawing is held with IECEx BAS09.09.0081U issue 0, and is common with IECEx BAS 09.0082X issue 0, Baseefa09ATEX0184U and Baseefa09ATEX0185X.

Note *2 - This This drawing is held with IECEx BAS09.09.0081U issue 1, and is common with IECEx BAS 09.0082X issue 1, Baseefa09ATEX0184U issue 1 and Baseefa09ATEX0185X issue 1.
Note *3 - This drawing is held with IECEx BAS09.09.0081U issue 2, and is common with IECEx BAS 09.0082X issue 2, Baseefa09ATEX0184U issue 2 and Baseefa09ATEX0185X issue 3.

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0185X	9 April 2010	The release of prime certificate. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR09.0114/00 & GB/BAS/ExTR09.0115/00 for project 08/0459.
Baseefa09ATEX0185X/1	9 July 2010	To permit the addition of a GRP enclosure. The associated test and assessment is documented in Test Report No. GB/BAS/ExTR10.0105/00 for project 10/0335.
Baseefa09ATEX0185X/2	17 October 2011	To permit changes to the permitted gland sizes. The associated test and assessment is documented in Test Report No. 11(C)0596.
Baseefa09ATEX0185X issue 3	29 February 2012	To permit the introduction of the 9372 range of units, to permit electrical and mechanical changes including the introduction of revised terminal parameters, and to confirm that the current design has been assessed for compliance with the requirements of EN 60079-18:2009 edition 3 and EN 60079-27:2008 edition 2 including the revision of the component marking in accordance with these standards. The associated test and assessment is documented in Test Report GB/BAS/ExTR10.0275/00 for project 10/0618.
Baseefa09ATEX0185X Issue 4	21 June 2013	To permit the use of alternative enclosures. The associated test and assessment is documented in Test Report GB/BAS/ExTR13.0110/00 for project 13/0091.
Baseefa09ATEX0185X Issue 5	22 March 2016	To permit the use of a painted enclosure for gas only models and to permit the use of a stainless steel label. The associated test and assessment is documented in Test Report GB/BAS/ExTR16.0089/00 for project 16/0212.
For drawings applicable to each issue, see original of that issue.		