CERTIFICATE OF CONFORMITY



1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. Certificate No:

- 3. Equipment: (Type Reference and Name)
- 4. Name of Listing Company:
- 5. Address of Listing Company:

FM18CA0021X

pH, Inductive Conductivity, ORP, and Dissolved Oxygen Analytical Probes

Mettler-Toledo GmbH

Im Hackacker 15 (Industrie Nord) CH-8902 Urdorf, Canton of Zurich Switzerland

6. The examination and test results are recorded in confidential report number:

3063251 dated 18th May 2018

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

CAN/CSA-C22.2 No. 60079-0:2015, CAN/CSA-C22.2 No. 60079-11:2014, CAN/CSA-C22.2 No. 61010-1:2015

- 8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- 9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Intrinsically safe apparatus for use in Class I, Division 1, Groups A, B, C and D, Class II, Division 1, Groups E, F and G, Class III, Division 1, in accordance with manufacturer's Control Drawing, hazardous (classified) locations; and ordinary (unclassified) locations with an ambient temperature rating of 0 °C to +60 °C, indoor and outdoor environments.

Certificate issued by:

J./E. Marquedant VP, Manager, Electrical Systems 18 May 2018 Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE





11. The marking of the equipment shall include:

In type of protection intrinsically safe apparatus, the analytical probes (InPro 2000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800002

In type of protection intrinsically safe apparatus, the analytical probes (InPro 3000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800002

In type of protection intrinsically safe apparatus, the analytical probes (InPro 4000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800002

In type of protection intrinsically safe apparatus, the analytical probes (InPro 6000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800002

In type of protection intrinsically safe apparatus, the analytical probes (InPro 7250 Series) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800003

In type of protection intrinsically safe apparatus, the analytical probes (Strata Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800002

In type of protection intrinsically safe apparatus, the digital sensor simulators (ISM Sensor Simulator Series) equipment is labelled with the following marking(s).

Intrinsically Safe

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G T6; Tamb. = 0 °C to +60 °C; CNTL Dwg. 53800002

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12. **Description of Equipment:**

General – The pH, Inductive Conductivity, Oxidation-Reduction Potential, and Dissolved Oxygen Analytical Probes are designed for industrial and hazardous (classified) location applications. They are intended to be used as analytical measurement instrumentations which can be integrated into plant wide process controls. The analytical probes can be used in biotech and hygienic processes, chemical processes, process/storage gas analytics, wastewater applications, and water purification. The instruments offer maximum reliability and security in a wide array of process temperatures and process pressure ranges. The probe bodies are sealed devices. A cable fitted with a special connector is used to mate with a portable or fixed analytical instrument. The probes do not have the ability for conduit connection.

The InPro 2000 Series (liquid-electrolyte pH probe with integrated temperature sensor and VP connector) is a combination pH probe with an integral temperature sensor designed for highly demanding applications. Three liquid electrolytes are available adding versatility; 3M KCl is a classic electrolyte offering high flow for improved junction cleaning, Viscolyt[™] has limited flow for reduced maintenance needs, and Friscoly[™] is ideal for process media with high protein or organic solvent content, and in low temperatures. Applications range from biotechnical processes requiring in-situ sterilization to dirty industrial processing chemicals.

The InPro 3000 Series (pressure-resistant biotech and pharmaceutical probes with integrated resistance temperature detector) is a combination pH probe with an integral temperature sensor designed specifically for in-line pH measurements in bio-processes where clean-in-place and steam-in-place process systems are used. The rugged gel-filled probe provides fast and precise measurements, even after repeated autoclaving or sterilization cycles at +140 °C. The probe utilizes a patented silver-ion trap, keeping the reference junction clear even in the presence of sulfide-bearing solutions, and is suitable for upside-down mounting, where needed.

The InPro 4000 Series (pH/temperature sensor with detachable cable) is a pressure-resistant, lowmaintenance pH-electrode with built-in resistance temperature detector sensor for a wide range of tough chemical applications. This electrode offers higher performance due to further improvement of the successful Xerolyt[®] solid polymer reference system. As an option a solution ground is available. The solid polymer reference electrolyte is in direct contact with the medium via an open junction. This pH electrode allows reliable process control in heavily contaminated media. The system offers pH and temperature measurements in a single electrode with a detachable cable. It requires low maintenance since the electrolyte requires no refilling. This unit features a high pressure-resistance and can be effective in contaminated or sulfide-bearing media as well as in suspensions and emulsions.

The InPro 6000 Series (polarographic oxygen sensor) is an "Advanced Line" dissolved oxygen sensor specifically designed for reliable in-line measurement in processes under sterile, hygienic conditions. The sensors are developed and manufactured in accordance with the most precise surface treatment standards to comply fully with European Hygienic Engineering & Design Group and Food and Drug Administration flat-surface recommendations for extremely high-level hygiene applications.

The InPro 7250 Series (compact design and top performance) is a versatile inductive conductivity sensor for easy integration into plant processes. It is particularly adequate for applications in the chemical industry, food & beverage, clean-in-place, and pulp and paper. The shaft material polyether ether ketone offers high resistivity against aggressive solutions and is particularly suitable in processes with frequent clean-in-place and steam-in-place process cycles. The sensor is available with 1.4435, Hastelloy C22 and Titanium pins. The wide measurement range from 0.02 to 500 mS/cm makes it a valuable solution for a wide range of applications.

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The Strata Series (pH, multipurpose use with unbreakable sensing element) is a sensor family which combines the features of InPro 2000 Series, InPro 3000 Series, and InPro 4000 Series families with a new unbreakable pH sensing element.

The InFit 7XX Series (stationary housings) insertion housings are available in a large variety of models and are for pH/redox electrodes with gel-type or polymer electrolyte, oxygen, carbon dioxide, turbidity and conductivity sensors (with 12 mm diameter and Panzer-Gewinde 13.5 thread). The insertion housing is utilized for pressurized pH/redox electrodes with liquid electrolyte. They allow quick and simple static installation of measurement electrodes/sensors in vessels (top-entry or side-entry), pipes and flow-through chambers via an appropriate adapter. Typical applications cover measurement of pH/oxidation-reduction potential, dissolved oxygen, conductivity and turbidity.

The InTrac 7XX Series (retractable sensor housings) insertion housings combine rugged design with versatility to meet the demands of the harshest process conditions in chemical, petrochemical, pulp and paper, or utilities applications. The retractable housing provides easy sensor access whenever maintenance is needed. The small footprint of the housings and various insertion lengths and process connections provide excellent flexibility at the measurement point and minimum reengineering is required. The design of the internal cleaning chamber makes sensor cleaning more efficient. Operation with EasyClean systems is possible for fully automatic sensor cleaning, flushing and calibration (for pH sensors).

The InTrac 7XX Series of retractable sensor housings help ensure reliable measurements of pH/oxidationreduction potential, dissolved oxygen, dissolved carbon dioxide and conductivity in various applications. The InTrac 781 operates mainly with 12 mm diameter (Panzer-Gewinde 13.5) sensors, while the InTrac 784 is designed for use with the long-proven pH measurement problem solver InPro 2000 or 465 pH/oxidationreduction potential sensor.

The housings are specifically designed for use in harsh applications. Wetted parts are available in different materials (1.4404/SS 316L; Alloy C-22; PP; PVDF or PEEK), offering suitability with many applications. Various immersion lengths and type of process connections are available, giving excellent flexibility at the measurement point and minimum reengineering is required.

An intelligent sensor locking system in the housing enhances operating safety. Without the presence of a sensor, the housing insertion rod cannot be deployed into the process. The locking system makes it possible to remove the sensor from the housing when in the service position without stopping the process. The insertion rod includes a protective cage which can be turned to protect the sensor from damage from fast flowing or high particle load media.

The housing is able to operate with EasyClean systems for programmable automatic sensor cleaning, flushing and calibration (for pH sensors). With the specially designed cleaning chamber and four integrated spray nozzles, the sensor can be thoroughly and quickly cleaned.

The InTrac 781 and InTrac 784 housings allow the end-user to retract the sensor from the running process medium for maintenance/replacement. The sensor (with stainless steel housing version) is retractable from the process in up to 16 bar with no compromise to operator safety.

The InTrac 781 (single flushing chamber, chemical applications, sensor housings for harsh conditions) retractable housings are specifically designed for use in a wide range of harsh industrial processes. Wetted parts are available in different materials, offering installation flexibility in many applications. The intelligent sensor locking system prevents deployment of the insertion rod if no sensor is present. InTrac housings can be operated with EasyClean systems for automatic sensor cleaning, flushing and calibration. With the housings' specifically designed cleaning chamber, sensors can be thoroughly and quickly cleaned whenever required.

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The InTrac 784 (single flushing chamber, chemical applications, sensor housings for harsh conditions) retractable housings are specifically designed for use in a wide range of harsh industrial processes. Wetted parts are available in different materials, offering installation flexibility in many applications. The intelligent sensor locking system prevents deployment of the insertion rod if no sensor is present. InTrac housings can be operated with EasyClean systems for automatic sensor cleaning, flushing and calibration. With the housings' specifically designed cleaning chamber, sensors can be thoroughly and quickly cleaned whenever required.

The ISM Sensor Simulator Series (Intelligent Sensor Management) digital sensors technology are equipped with an integrated chip in the sensor head that stores all relevant sensor parameters and algorithms for enhanced sensor diagnostics. The intelligent sensor management sensor simulators are a qualification tool that allows the user the simulation of reading values of pH or oxygen intelligent sensor management sensor with predefined values and errors. The qualification kits serve to provide several functions; to be utilized as a qualification tool which allows the user the simulation of reading values of pH or oxygen intelligent sensor management sensor management sensor with predefined values, and also to act as a service tool for quick checks and loop trouble-shooting for qualification of measuring systems.

Construction – The InPro Series and Strata Series pH probes are constructed of mainly glass, titanium, stainless steel or polymeric materials, such as polyether ether ketone, assembly, and are suitable for installation and use with the InFit Series and InTrac Series housings.

The InPro Series oxygen sensors are constructed of mainly stainless steel or titanium assembly, and are suitable for installation and use with the InFit Series and InTrac Series housings.

The InPro Series inductive conductivity sensors are constructed of mainly of polymeric materials, such as polyether ether ketone, assembly, and are suitable for direct installation and use in pipes or vessels.

The InFit Series stationary insertion housings are constructed of mainly stainless steel or other steel alloys assembly.

The InTrac Series retractable insertion housings are constructed of mainly stainless steel or polymeric materials, such as polyether ether ketone, polypropylene, polyvinylidene difluoride, or other steel alloys assembly.

The ISM Sensor Simulator Series oxygen sensors are constructed of polymeric materials, such as polyphenylene sulfide, assembly.

The ISM Sensor Simulator Series pH sensors are constructed of polymeric materials, such as polyphenylene sulfide, assembly.

For more specifics concerning construction and description details of the analytical probes and retractable sensor housings for the analytical probes, and digital sensors, reference the manufacturer's sales literature and specification sheets.

Ratings - The equipment is certified to the following ratings.

The ambient operating temperature range is 0 °C to +60 °C when properly mounted and installed.

The process temperature range of the media is 0 °C to +130 °C, each depending on the model configuration and process fitting, with a maximum working pressure range of 0 to 1.5 MPa (0 to 218 psig) for pH electrodes, 0 to 1.2 MPa (0 to 174 psig) for oxygen sensors, and 0 to 1.5 MPa (0 to 218 psig) for inductive conductivity sensors.

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The equipment is designated for installation transient overvoltages up to levels of Overvoltage Category III and environmentally classified as Pollution Degree 3.

In type of protection intrinsically safe apparatus, the barrier protected analytical probes (InPro 2000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), InPro 2000 Series are: Vmax (Ui) = 16 VDC, Imax (Ii) = 50 mA, Ci = 0.1 µF, Li = 0 mH, Pi = 250 mW

In type of protection intrinsically safe apparatus, the barrier protected analytical probes (InPro 3000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), InPro 3000 Series are: Vmax (Ui) = 16 VDC, Imax (Ii) = 50 mA, Ci = 0.1 µF, Li = 0 mH, Pi = 250 mW

In type of protection intrinsically safe apparatus, the barrier protected analytical probes (InPro 4000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), InPro 4000 Series are: Vmax (Ui) = 16 VDC, Imax (Ii) = 50 mA, Ci = 0.1 µF, Li = 0 mH, Pi = 250 mW

In type of protection intrinsically safe apparatus, the barrier protected analytical probes (InPro 6000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), InPro 6000 Series are: Vmax (Ui) = 16 VDC, Imax (ii) = 50 mA, Ci = 0.1 µF, Li = 0 mH, Pi = 250 mW

In type of protection intrinsically safe apparatus, the barrier protected analytical probes (InPro 7250 Series) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), InPro 7000 Series are: Vmax (Ui) = 16 VDC, Imax (Ii) = 150 mA, Ci = 900 pF, Li = 0.3 mH, Pi = 155 mW

In type of protection intrinsically safe apparatus, the barrier protected analytical probes (Strata Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), Strata Series are: Vmax (Ui) = 16 VDC, Imax (Ii) = 50 mA, Ci = 0.1 µF, Li = 0 mH, Pi = 250 mW

In type of protection intrinsically safe apparatus, the barrier protected digital sensor simulators (ISM Sensor Simulator Series) equipment is connected to a certified intrinsically safe single or multi-channel linear circuit with the following maximum entity parameter values.

Supply and Signal Circuit (Terminals 1, 2), ISM Sensor Simulator Series are: Vmax (Ui) = 16 VDC, Imax (Ii) = 50 mA, Ci = 0.1 µF, Li = 0 mH, Pi = 250 mW

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Model Codes – The equipment is identified with the following model code structure.

In type of protection intrinsically safe apparatus, the analytical probes (InPro 2000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following model code(s).

InPro a/b/c/d/e/f/g, InPro 2000 Series pH Electrode.

Reference Control Drawing No. 53800002 for Entity Parameter values

- a = Sub-family: 2000, 2001, 2002, 2003, 2000i, 2001i, 2002i or 2003i
- b = Empty or name
- c = Empty or SG for solution ground
- d = A-length
- e = Temperature sensor: Pt100, Pt1000 or Pt3000
- f = Electrolyte
- g = Connection

InFit 76X *1/*2/*3/*4/*5/*6/*7/*8, InFit Series Housing.

- X = Housing for pH/redox electrode (1 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 4 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (C = CIP-shaft, K = NPT-shaft, S = 25 mm-shaft, or Y = 19 mm-shaft)
- *3 = Insertion length: (25-375 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Position of o-ring (nut-distance in mm)
- *8 = Identifier open for special versions (S = special version or standard version)

InFit 76Y *1/*2/*3/*4/*5/*6/*7, InFit Series Housing.

- Y = Long housing for pH/redox electrode (2 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 3 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (F = Turbidity sensor (FSC), G = 12 mm Sensor with PG 13.5 thread, H = Electrode with liquid electrolyte a = 150 mm, L = IND Conductivity sensor, or U = Electrode with liquid electrolyte a = 120 mm)
- *3 = Insertion length: (400-4000 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Identifier open for special versions (S = special version or standard version)

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InTrac 7XX *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- XX =Retractable housing (76 = for liquid filled pH electrodes, 77 = for gel-filled and polymer electrodes and sensors, 79 = for turbidity sensors, 97 = for gel filled and polymer electrodes and sensors, with double rinsing chamber, or 99 = for turbidity sensors, with double rinsing chamber)
- *1 = Operation mode (M = manual, P = pneumatic, R = pneumatic with pneumatic position indicators, or X = pneumatic with Ex inductive position indicators)
- *2 = Insertion length (070-500 mm)
- *3 = Wetted material (Hastelloy, stainless steel, titanium or other alloys)
- *4 = Process adaptation (flange, etc.)
- *5 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *6 = Material of cylinder body (conductive Polypropylene or stainless steel)
- *7 = Connection of rinsing chamber (Serto and others)
- *8 = Zero or specials

InTrac 7YY *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- YY = Retractable housing (81 = for gel-filled and polymer electrodes and sensors for harsh applications, or 84 = for liquid filled pH electrodes for harsh applications)
- *1 = Operation mode (M = manual, R = pneumatic with pneumatic check back, or I = pneumatic with inductive check back
- *2 = Wetted material (Hastelloy, stainless steel, PP, PVDF, PEEK or other alloys)
- *3 = Wetted O-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *4 = Insertion length (070-500 mm)
- *5 = Process adaptation (flange, etc.)
- *6 = Connection of rinsing chamber (Serto and others)
- *7 = Zero or specials
- *8 = not used

In type of protection intrinsically safe apparatus, the analytical probes (InPro 3000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following model code(s).

InPro a/b/c/d/e/f, InPro 3000 Series pH Electrode.

Reference Control Drawing No. 53800002 for Entity Parameter values

- a = Sub-family: 3100, 3101, 3102, 3103, 3200, 3201, 3202, 3203, 3250, 3251, 3252, 3253, 3270, 3271, 3272, 3273, 3280, 3281, 3282, 3283, 3290, 3291, 3292, 3293, 3100i, 3101i, 3102i, 3103i, 3250i, 3251i, 3252i, 3253i, 3270i, 3271i, 3272i, 3273i, 3280i, 3281i, 3282i, 3283i, 3290i, 3291i, 3292i or 3293i
- b = Empty or name
- c = Empty or SG for solution ground
- d = A-length
- e = Temperature sensor: Pt100, Pt1000 or Pt3000
- f = Connection

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InFit 76X *1/*2/*3/*4/*5/*6/*7/*8, InFit Series Housing.

- X = Housing for pH/redox electrode (1 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 4 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (C = CIP-shaft, K = NPT-shaft, S = 25 mm-shaft, or Y = 19 mm-shaft)
- *3 = Insertion length: (25-375 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Position of o-ring (nut-distance in mm)
- *8 = Identifier open for special versions (S = special version or standard version)

InFit 76Y *1/*2/*3/*4/*5/*6/*7, InFit Series Housing.

- Y = Long housing for pH/redox electrode (2 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 3 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (F = Turbidity sensor (FSC), G = 12 mm Sensor with PG 13.5 thread, H = Electrode with liquid electrolyte a = 150 mm, L = IND Conductivity sensor, or U = Electrode with liquid electrolyte a = 120 mm)
- *3 = Insertion length: (400-4000 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Identifier open for special versions (S = special version or standard version)

InTrac 7XX *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- XX =Retractable housing (76 = for liquid filled pH electrodes, 77 = for gel-filled and polymer electrodes and sensors, 79 = for turbidity sensors, 97 = for gel filled and polymer electrodes and sensors, with double rinsing chamber, or 99 = for turbidity sensors, with double rinsing chamber)
- *1 = Operation mode (M = manual, P = pneumatic, R = pneumatic with pneumatic position indicators, or X = pneumatic with Ex inductive position indicators)
- *2 = Insertion length (070-500 mm)
- *3 = Wetted material (Hastelloy, stainless steel, titanium or other alloys)
- *4 = Process adaptation (flange, etc.)
- *5 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *6 = Material of cylinder body (conductive Polypropylene or stainless steel)
- *7 = Connection of rinsing chamber (Serto and others)
- *8 = Zero or specials

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InTrac 7YY *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- YY = Retractable housing (81 = for gel-filled and polymer electrodes and sensors for harsh applications, or 84 = for liquid filled pH electrodes for harsh applications)
- *1 = Operation mode (M = manual, R = pneumatic with pneumatic check back, or I = pneumatic with inductive check back
- *2 = Wetted material (Hastelloy, stainless steel, PP, PVDF, PEEK or other alloys)
- *3 = Wetted O-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *4 = Insertion length (070-500 mm)
- *5 = Process adaptation (flange, etc.)
- *6 = Connection of rinsing chamber (Serto and others)
- *7 = Zero or specials
- *8 = not used

In type of protection intrinsically safe apparatus, the analytical probes (InPro 4000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following model code(s).

InPro a/b/c/d/e/f, InPro 4000 Series pH Electrode.

Reference Control Drawing No. 53800002 for Entity Parameter values

a = Sub-family: 4200, 4201, 4202, 4203, 4250, 4251, 4252, 4253, 4500, 4501, 4502, 4503, 4550, 4551, 4552, 4553, 4260, 4261, 4262, 4263, 4270, 4271, 4272, 4273, 4280, 4281, 4282, 4283, 4290, 4291, 4292, 4293, 4800, 4801, 4802, 4803, 4870, 4871, 4872, 4873, 4880, 4881, 4882, 4883, 4890, 4891, 4892, 4893, 4260i, 4261i, 4262i, 4263i, 4270i, 4271i, 4272i, 4273i, 4280i, 4281i, 4282i, 4283i, 4290i, 4291i, 4292i, 4293i, 4550i, 4551i, 4552i, 4553i, 4800i, 4801i, 4802i, 4803i, 4850i, 4851i, 4852i, 4853i, 4870i, 4871i, 4872i, 4873i, 4880i, 4881i, 4882i, 4883i, 4890i, 4891i, 4892i or 4893i

- c = Empty or SG for solution ground
- d = A-length
- e = Temperature sensor: Pt100, Pt1000 or Pt3000
- f = Connection

InFit 76X *1/*2/*3/*4/*5/*6/*7/*8, InFit Series Housing.

- X = Housing for pH/redox electrode (1 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 4 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (C = CIP-shaft, K = NPT-shaft, S = 25 mm-shaft, or Y = 19 mm-shaft)
- *3 = Insertion length: (25-375 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Position of o-ring (nut-distance in mm)
- *8 = Identifier open for special versions (S = special version or standard version)

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b = Empty or name





InFit 76Y *1/*2/*3/*4/*5/*6/*7, InFit Series Housing.

- Y = Long housing for pH/redox electrode (2 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 3 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (F = Turbidity sensor (FSC), G = 12 mm Sensor with PG 13.5 thread, H = Electrode with liquid electrolyte a = 150 mm, L = IND Conductivity sensor, or U = Electrode with liquid electrolyte a = 120 mm)
- *3 = Insertion length: (400-4000 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Identifier open for special versions (S = special version or standard version)

InTrac 7XX *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- XX =Retractable housing (76 = for liquid filled pH electrodes, 77 = for gel-filled and polymer electrodes and sensors, 79 = for turbidity sensors, 97 = for gel filled and polymer electrodes and sensors, with double rinsing chamber, or 99 = for turbidity sensors, with double rinsing chamber)
- *1 = Operation mode (M = manual, P = pneumatic, R = pneumatic with pneumatic position indicators, or X = pneumatic with Ex inductive position indicators)
- *2 = Insertion length (070-500 mm)
- *3 = Wetted material (Hastelloy, stainless steel, titanium or other alloys)
- *4 = Process adaptation (flange, etc.)
- *5 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *6 = Material of cylinder body (conductive Polypropylene or stainless steel)
- *7 = Connection of rinsing chamber (Serto and others)
- *8 = Zero or specials

InTrac 7YY *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- YY = Retractable housing (81 = for gel-filled and polymer electrodes and sensors for harsh applications, or 84 = for liquid filled pH electrodes for harsh applications)
- *1 = Operation mode (M = manual, R = pneumatic with pneumatic check back, or I = pneumatic with inductive check back
- *2 = Wetted material (Hastelloy, stainless steel, PP, PVDF, PEEK or other alloys)
- *3 = Wetted O-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *4 = Insertion length (070-500 mm)
- *5 = Process adaptation (flange, etc.)
- *6 = Connection of rinsing chamber (Serto and others)
- *7 = Zero or specials
- *8 = not used

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE





In type of protection intrinsically safe apparatus, the analytical probes (InPro 6000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following model code(s).

InPro a/b/c/d/e/f, InPro 6000 Series Dissolved Oxygen Sensor.

Reference Control Drawing No. 53800002 for Entity Parameter values

- a = Sub-family: 6800, 6810, 6820, 6830, 6900, 6910, 6950, 6960, 6850i, 6900i or 6950i
- b = Empty or name
- c = Diameter of the sensor
- d = A-length
- e = Empty or name
- f = 8-digit code for material, membrane type, construction, connection

InFit 76X *1/*2/*3/*4/*5/*6/*7/*8, InFit Series Housing.

- X = Housing for pH/redox electrode (1 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 4 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (C = CIP-shaft, K = NPT-shaft, S = 25 mm-shaft, or Y = 19 mm-shaft)
- *3 = Insertion length: (25-375 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Position of o-ring (nut-distance in mm)
- *8 = Identifier open for special versions (S = special version or standard version)

InFit 76Y *1/*2/*3/*4/*5/*6/*7, InFit Series Housing.

- Y = Long housing for pH/redox electrode (2 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 3 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (F = Turbidity sensor (FSC), G = 12 mm Sensor with PG 13.5 thread, H = Electrode with liquid electrolyte a = 150 mm, L = IND Conductivity sensor, or U = Electrode with liquid electrolyte a = 120 mm)
- *3 = Insertion length: (400-4000 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Identifier open for special versions (S = special version or standard version)

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InTrac 7XX *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- XX =Retractable housing (76 = for liquid filled pH electrodes, 77 = for gel-filled and polymer electrodes and sensors, 79 = for turbidity sensors, 97 = for gel filled and polymer electrodes and sensors, with double rinsing chamber, or 99 = for turbidity sensors, with double rinsing chamber)
- *1 = Operation mode (M = manual, P = pneumatic, R = pneumatic with pneumatic position indicators, or X = pneumatic with Ex inductive position indicators)
- *2 = Insertion length (070-500 mm)
- *3 = Wetted material (Hastelloy, stainless steel, titanium or other alloys)
- *4 = Process adaptation (flange, etc.)
- *5 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *6 = Material of cylinder body (conductive Polypropylene or stainless steel)
- *7 = Connection of rinsing chamber (Serto and others)
- *8 = Zero or specials

InTrac 7YY *1/*2/*3/*4/*5/*6/*7/*8, InTrac Series Retractable Housing.

- YY = Retractable housing (81 = for gel-filled and polymer electrodes and sensors for harsh applications, or 84 = for liquid filled pH electrodes for harsh applications)
- *1 = Operation mode (M = manual, R = pneumatic with pneumatic check back, or I = pneumatic with inductive check back
- *2 = Wetted material (Hastelloy, stainless steel, PP, PVDF, PEEK or other alloys)
- *3 = Wetted O-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon), etc.)
- *4 = Insertion length (070-500 mm)
- *5 = Process adaptation (flange, etc.)
- *6 = Connection of rinsing chamber (Serto and others)
- *7 = Zero or specials
- *8 = not used

In type of protection intrinsically safe apparatus, the analytical probes (InPro 7000 Series) equipment is designated with the following model code(s).

InPro 725X *1/*2/*3, InPro 7000 Series Inductive Conductivity Sensor.

Reference Control Drawing No. 53800003 for Entity Parameter values

Sub-family InPro7250: standard inductive conductivity sensor with PEEK/PFA jacket

- X = Sub-designation
- *1 = Sensor type: HT, PFA, ST or VP
- *2 = Temperature sensor: (Pt100 or Pt1000)
- *3 = Cable length for sensors with fixed cables in meters

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In type of protection intrinsically safe apparatus, the analytical probes (Strata Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following model code(s).

Strata a/b/c/d/e/f/g/h/i, Strata Series pH Electrode.

Reference Control Drawing No. 53800002 for Entity Parameter values

- a = Sub-family for application description: Dura, Food, Pro, Steady or empty
- b = Electrode type number: 3100, 3250, 4260 or empty (for Standard)
- c = Electrode type: Gel, Liquid, Polymer or empty (for Standard)
- d = A-length
- e = Shaft material: ST (for Steel), Ti (for Titanium), PEEK, PPS, PVDF or empty (for Glass)
- f = pH glass type: Name or Number or empty (for General Purpose Glass, LoT for Low Temperature, HF)
- g = Empty if no ORP measurement, or ORP for pH/ORP combined electrode
- h = Connection: Empty for K8S, VP for digital VP
- i = Empty or description of special features

InFit 76X *1/*2/*3/*4/*5/*6/*7/*8, InFit Series Housing.

- X = Housing for pH/redox electrode (1 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 4 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (C = CIP-shaft, K = NPT-shaft, S = 25 mm-shaft, or Y = 19 mm-shaft)
- *3 = Insertion length: (25-375 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Position of o-ring (nut-distance in mm)
- *8 = Identifier open for special versions (S = special version or standard version)

InFit 76Y *1/*2/*3/*4/*5/*6/*7, InFit Series Housing.

- Y = Long housing for pH/redox electrode (2 = with polymer electrolyte and for 12 mm sensors and PG 13.5 thread, or 3 = with liquid electrolyte)
- *1 = Protective cage (N = without, or W = with)
- *2 = Sensor housing connection (F = Turbidity sensor (FSC), G = 12 mm Sensor with PG 13.5 thread, H = Electrode with liquid electrolyte a = 150 mm, L = IND Conductivity sensor, or U = Electrode with liquid electrolyte a = 120 mm)
- *3 = Insertion length: (400-4000 mm)
- *4 = Wetted parts (conductive plastic material or metallic material)
- *5 = Process connection (flange, etc.)
- *6 = Wetted o-ring material (EPDM, FFKM (Kalrez), FKM (Viton) or MVQ (Silicon))
- *7 = Identifier open for special versions (S = special version or standard version)

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In type of protection intrinsically safe apparatus, the digital sensor simulators (ISM Sensor Simulator Series) equipment is designated with the following model code(s).

ISM *1/*2/*3, ISM Simulator Series Oxygen Sensor.

Reference Control Drawing No. 53800002 for Entity Parameter values

- *1 = Parameter: O2
- *2 = Simulated value: O2, O2 ppb, O2 trace or Cond
- *3 = Blank or further description of value

In type of protection intrinsically safe apparatus, the digital sensor simulators (ISM Sensor Simulator Series) equipment is designated with the following model code(s).

ISM *1/*2/*3, ISM Simulator Series pH Sensor.

Reference Control Drawing No. 53800002 for Entity Parameter values

*1 = Parameter: pH

- *2 = Simulated value: pH7...
- *3 = Blank or further description of value

13. Specific Conditions of Use:

In type of protection intrinsically safe apparatus, the analytical probes (InPro 2000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following specific conditions of use.

- 1. The pH probe shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover, and is suitable for use with FM Approved InFit 76X/Y and InTrac 7XX/YY Series Housings.
- 2. Process temperature no greater than +130 °C.
- 3. Maximum permissible working pressure is 15 barg (218 psig).
- 4. Potential Electrostatic Charging Hazard To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth.
- 5. Enclosures containing titanium constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

Approvals

To verify the availability of the Approved product, please refer to www.approvalguide.com

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In type of protection intrinsically safe apparatus, the analytical probes (InPro 3000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following specific conditions of use.

- 1. The pH Probe shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover, and is suitable for use with FM Approved InFit 76X/Y and InTrac 7XX/YY Series Housings.
- 2. Process temperature no greater than +130 °C.
- 3. Maximum permissible working pressure is 15 barg (218 psig).
- 4. Potential Electrostatic Charging Hazard To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth.
- 5. Enclosures containing titanium constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

In type of protection intrinsically safe apparatus, the analytical probes (InPro 4000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following specific conditions of use.

- 1. The pH Probe shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover, and is suitable for use with FM Approved InFit 76X/Y and InTrac 7XX/YY Series Housings.
- 2. Process temperature no greater than +130 °C.
- 3. Maximum permissible working pressure is 15 barg (218 psig).
- 4. Potential Electrostatic Charging Hazard To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth.
- 5. Enclosures containing titanium constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

In type of protection intrinsically safe apparatus, the analytical probes (InPro 6000 Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following specific conditions of use.

- 1. The dissolved oxygen sensor shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover, and is suitable for use with FM Approved InFit 76X/Y and InTrac 7XX/YY Series Housings.
- 2. Process temperature no greater than +130 °C.
- 3. Maximum permissible working pressure is 12 barg (174 psig).
- 4. Potential Electrostatic Charging Hazard To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth.
- 5. Enclosures containing titanium constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

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In type of protection intrinsically safe apparatus, the analytical probes (InPro 7250 Series) equipment is designated with the following specific conditions of use.

- 1. Process temperature no greater than +130 °C.
- 2. Maximum permissible working pressure is 15 barg (218 psig).
- 3. Potential Electrostatic Charging Hazard To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth.

In type of protection intrinsically safe apparatus, the analytical probes (Strata Series with InFit 76X/Y and InTrac 7XX/YY Series Housings) equipment is designated with the following specific conditions of use.

- 1. The pH probe shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application, including a tool removable cover, and is suitable for use with FM Approved InFit 76X/Y and InTrac 7XX/YY Series Housings.
- 2. Process temperature no greater than +130 °C.
- 3. Maximum permissible working pressure is 15 barg (218 psig).
- 4. Potential Electrostatic Charging Hazard To prevent the risk of electrostatic sparking, the non-metallic surface should only be cleaned with a damp cloth.
- 5. Enclosures containing titanium constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact or friction.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings:

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History:

Details of the supplements to this certificate are described below:

Date	Description
18 th May 2018	Original Issue.
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