DFWIECEX Weight Indicator, IECEx and ATEX Certified, for Zones 1 and 21, 2 and 22

Standard Features

- LCD display with RGB backlight
- State-of-the-art, high-speed X-Core CPU ideal for handling fast and accurate weighing, filling or dosing processes
- ASCII/RTU Modbus
- Comprehensive range of industrial interfaces, at your choice:
  - Intrinsically safe digital I\O
  - Intrinsically safe analog output
  - Up to 3 intrinsically safe bi-directional RS485 serial ports
  - Wireless Personal Area Network (WPAN)

  NOTE: All of the above interfaces are certified for use in hazardous areas

The DFWIECEX weight indicator represents the state of the art for weighing in environments with a high risk of explosion. Thanks to the RGB backlit display, to the powerful processor and above all to the main interfaces available, all intrinsically safe, DFWIECEX allows the integration of weighing within production processes, directly in hazardous areas, driving solenoid valves and communicating with PLCs and other devices. IECEx and ATEX certified and approved for legal-for-trade use.

DFWIECEX Specifications

Technical features:

- Protection:- for Gas: Ex ib [ib Gb] [ia Ga] IIC T4 Gb- for dust: Ex tb [ib Db] [ia Da] IIIC T135°C Db
  - ATEX: II2(2)G(1)G
  - ATEX: II2(2)D(1)D
  - Ta 0°C / +50°C

- High contrast RGB backlit display, with 6 digits of 25 mm. Brightness adjustable from keyboard

- 17-key waterproof keyboard

- AISI 304 stainless steel casing, with IP65 certified protections and IP68 performance

- Minimum measurement range (internal use): 0.01 µV/d

- 4 load cell inputs, with selectable operating mode:
  - Single scale (use of only one input)
  - 4-channel digital junction box (use of multiple load cell inputs)

- Metrological approval: 10,000e or multi range 3x3000e @ 0.3µV/e

- Connection up to 8 load cells of 350Ohm

- Possibility of direct connection to load receptor installed in Zone 0 and 20

- 1 Intrinsically safe RS485 serial port as standard, for two-way communication with PLCs, PCs or devices in explosive zones

- Power supply of your choice (see options table):
  - Through Dini Argeo power supply, 110-230 Vac

- **OPTIONAL DIGITAL INPUTS/OUTPUTS:**

- Intrinsically safe 4-input, 4-output digital card with the following specifications:Inputs- Ui: 18 V
  - Ri: 214 Ω
  - R input: 859 Ω
  Electronic relay outputs- Ui: 18 V
  - Pi: 1,75 W
  In: 70 mA

- Intrinsically safe power supply terminal, for piloting devices in ATEX zone or push-button panel.Output voltage 6V, max current 300mA.

  NOTE: by using the available power supply terminal, it is possible to manage the push button panel code EXPHBN in a direct way, even in a safe area, without protection barriers.

- OPTIONAL ANALOG OUTPUT:

- Intrinsically safe analog output, programmable at 0...10Vdc, 0...20mA or 4...20mA.

  NOTE: It is possible to transmit the signal directly to the safe area using the intrinsically safe protective barrier, code PFANOUTEX for analog output in 0...20mA (or 4...20mA) configuration.

  The analogue output of DFWIECEXAN is an active analogue output, which is

Main certifications:

- EU Type Examination Certificate (EN 45501:2015)
- OIML R76
- EN/IEC 60079-0
- EN/IEC 60079-11
- EN/IEC 60079-5
- EN/IEC 60079-31
- Certification according to ATEX directive 2014/34/EU and in compliance with IECEx certification scheme, group II category 2GD according to EN/IEC 60079-0, EN/IEC 60079-11, EN/IEC 60079-5, EN/IEC 60079-31.

Certification of assembly:

- **EXDC:** ATEX certification of assembly for DFWIECEX

or 24 Vac - 24 Vdc
- Through Dini Argeo external battery, in stainless steel, with autonomy of about 40 h (Connection/disconnection directly in explosive zone and charging in safe area)

NOTE: Autonomy may be reduced depending on load reception system, connected communication accessories, and backlight configuration.

- Dimensions: 280x143x185 mm
- Available cable glands: 2 x PG9 as standard, 1 PG supplied (not mounted) and setup for a further 2 optional PG9s

why it must not be powered. The resistance of analogue input shall be:
- If the output signal is in voltage: Rmin=1K
- If the output signal is in current: Rmax=300ohm

- RS485 SERIAL PORT
- 2 Optional intrinsically safe RS485 serial ports for communication with repeaters and other devices.
- ASCI protocol
- Programmable weight string and read command
- Modbus RTU

NOTE: it is possible to transmit data directly to the safe area using the protective barrier code PFB485EX

Parts

Part #	Description
Available Versions	
DFWIECEX	IECEX and ATEX certified weight indicator for zones 1, 21, 2, 22. Protection: Ex II 2(2)G(1)G Ex ib [ib Gb] [ia Ga] IIC T4 Gb X for gas and Ex II 2(2)D(1)D Ex tb [ib Db] [ia Da] IIIC T135°C Db X for dust (Ta=0°C/+50°C). Always combine with IECEXPW power supply or IECEXB battery. Includes printed safety instructions and EU ATEX declaration of conformity (EN, DE, FR, ES, IT).
DFWIECEXAN	IECEX and ATEX certified weight indicator for zones 1, 21, 2, 22. With integrated, intrinsically safe analogue output and additional cable gland. Protection: Ex II 2(2)G(1)G Ex ib [ib Gb] [ia Ga] IIC T4 Gb X for gas and Ex II 2(2)D(1)D Ex tb [ib Db] [ia Da] IIIC T135°C Db X for dust (Ta=0°C/+50°C). Always combine with IECEXPW power supply or IECEXB battery. Includes printed safety instructions and EU ATEX declaration of conformity (EN, DE, FR, ES, IT).

Options

Part #	Description

Declaration of ATEX Conformity

EXDC Declaration of ATEX conformity of the assembly. Ex II 2G IIC T4 Gb X and Ex II 2D IIIC T135°C Db X system (Ta=0°C/+40°C), with relative label of whole system, for Dini Argeo DFWIECEX weight indicator connected a mechanical structure with ATEX load cells (each cell must be certified with CCATEX option). Provided with descriptive document of the assembly and ATEX EU declaration of conformity of the assembly (EN and IT). Includes IP68 connection between platform and weight indicator.

Power Supply

IECEXPW IECEx and ATEX power supply for DFWIECEX with 110-230Vac input. Includes input cable for connection to the network (6m) and output cable for connection to the indicator (3m). Protection: Ex II 2(2)G Ex q [ib Gb] IIC T4 Gb X for gas and Ex II 2(2)D Ex tb [ib Db] IIIC T135°C Db X for dust (Ta=0°C/+50°C). Please refer to the instruction manual for more information. A printout of the safety instructions and the EU declaration of conformity ATEX (EN, DE, FR, ES, IT) is included.

IECEXPW24 IECEx and ATEX power supply for DFWIECEX with 24V input (AC or DC). Includes input cable for connection to the network (6m) and output cable for connection to the indicator (3m). Protection: Ex II 2(2)G Ex q [ib Gb] IIC T4 Gb X for gas and Ex II 2(2)D Ex tb [ib Db] IIIC T135°C Db X for dust (Ta=0°C/+50°C). Please refer to the instruction manual for more information. A printout of the safety instructions and the EU declaration of conformity ATEX (EN, DE, FR, ES, IT) is included.

Rechargeable Battery

BTCBIECEX Cable with connector for connecting IECEXB battery to DFWIECEX indicator. Length 1,2m.

IECEXBP IECEx and ATEX external rechargeable battery for DFWIECEX, capacity 9Ah, with robust quick-release connector. Protection: Ex II 2(2)G Ex ib [ib Gb] IIC T4 Gb X for gas and Ex II 2(2)D Ex ib [ib Db] IIIC T135°C Db X for dust (Ta=0°C/+50°C). Charging in safe area through battery charger code IECEXCB. See instruction manual for more information. Printout of safety instructions and EU declaration of conformity ATEX (EN, DE, FR, ES, IT) is included. To be combined with BTCBIECEX cable for connection to DFWIECEX indicator.

IECEXCBAL IECEXB battery charging kit (recharge in safe area). Composed by certified battery charger mod. IECEXCB and power supply with 230Vac socket (VDE cable)

PWCORDUKVDE Version with BS1363 power cord (UK plug).

PWCORDAUSVDE Version with AU power cord.

EXSTFA12 Stainless steel bracket for "IECEXB" battery column mounting.

Communication Interfaces

485IECEX Intrinsically safe RS485 serial port , for communication in ATEX zone. Maximum communication distance 200m. (NOTE: for direct communication with devices in safe area, it is necessary to use PFB485EX protective barrier.)

ALM-IECEX Alibi Memory and Calendar Clock for DFWIECEX indicator.

BTH-IECEX Built-in Bluetooth 5.0 (BLE, compatible with SPS protocol, not compatible with SPP protocol) interface for hazardous area. Maximum communication distance 10 m. Available only for DFWIECEX indicators.

Part #	Description
	Installation service included.

Digital Input / Output

Part #	Description
IECEX4IN4OUT	Card with 4 opto-isolated digital inputs and 4 outputs , intrinsically safe, for piloting devices in hazardous areas. To be used in conjunction with intrinsically safe voltages. For further information consult the instruction manual.
PPVIECEX4OUT	Din Rail Mount unit with 4 normally closed (NC) Flipper valves. Compatible with DFWIECEX digital outputs. Conforms to ATEX directive and IECEx certification scheme. Degree of protection: Gas: II 2G Ex ia IIC T6...T4 Gb
PPVIECEX2OUT	Din Rail Mount unit with 2 normally closed (NC) Flipper valves. Compatible with DFWIECEX digital outputs. Conforms to ATEX directive and IECEx certification scheme. Degree of protection: Gas: II 2G Ex ia IIC T6...T4 Gb
PPVEX	3/2-way, Piezo-pilot, overlapping, normally closed (NC) poppet valve. Compatible with DFWIECEX digital outputs. Conforms to ATEX directive. Degree of protection: Gas: II 1G Ex ia IIC T4/T5/T6 Ga.
PPVIECEX	3/2-way, Piezo-pilot, superposed, normally closed (NC) poppet valve. Compatible with DFWIECEX digital outputs. Conforms to ATEX directive and IECEx certification scheme. Degree of protection: Gas: II 1G Ex ia IIC T6 or T4 Ga and Dust: II 1D Ex ia IIIC T135°C.
PPVIECEX4OUT	Din Rail Mount unit with 4 normally closed (NC) Flipper valves. Compatible with DFWIECEX digital outputs. Conforms to ATEX directive and IECEx certification scheme. Degree of protection: Gas: II 2G Ex ia IIC T6...T4 Gb
PPVIECEX2OUT	Din Rail Mount unit with 2 normally closed (NC) Flipper valves. Compatible with DFWIECEX digital outputs. Conforms to ATEX directive and IECEx certification scheme. Degree of protection: Gas: II 2G Ex ia IIC T6...T4 Gb

Connection Cables

Part #	Description
RSCBTW	4-core twisted shielded cable (2x2x0.34 mm^2), for RS485 communication or analogue output. Polyolefin inner sheath. Tinned copper braid shielding. Outer sheath PVC, diameter 7mm. Temperature range: -30 / +80 °C. Minimum bending radius >/= 6 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).
EXACB4	4x0.5 mm^2 armoured cable (suitable for Ex zones). PVC inner sheath. Armour: galvanised steel wire braid. Outer sheath PVC, diameter 7.3 mm. Temperature range: -30 / +80 °C. Minimum bending radius >/= 10 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).
EXCB6	Blue shielded cable 6x0.22 mm^2, only for EX i (2GD) assemblies. PVC inner sheath. Tinned copper braid shielding. Polyurethane outer sheath, diameter 5.8 mm. Temperature range: -40 / +80 °C. Minimum bending radius >/= 7 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).
LCCB	Shielded cable 6x0.25 mm^2 (suitable for Ex zones). PVC inner sheath. Tinned copper braid shielding. PVC outer sheath, diameter 5.8 mm. Temperature range: -40 / +80 °C. Minimum bending radius >/= 6 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).
LCCBA	Armoured cable 6x0.25 mm^2 (suitable for Ex zones). PVC inner sheath, diameter 5mm. Iron-zinc alloy armour. Transparent PVC outer sheath, 8 mm diameter. Temperature range: -15 / +70 °C. Minimum bending radius >/= 5 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).

Part #	Description
CB10P	Shielded cable 10x0.25 mm^2 (suitable for Ex zones). PVC sheathing, 7.5mm diameter. Operating temperature: -25 / +70 °C (fixed installation). Minimum bending radius >/= 8 x O.D. €/m. Maximum length that can be ordered: 100 m or multiples.

Columns, Supports Brackets, Visors

EXSTFR	AISI 304 stainless steel bracket, adjustable inclination. For mounting IECEX weight indicators on the wall or on TCBI columns.
EXSTFI	AISI 304 stainless steel wall bracket. For mounting IECEX weight indicators.
PANEL-ST	Bracket for mounting the indicator on the panel.

ATEX 2GD Remote Button Control

EXPHBN	EX 2GD hand control with 2 buttons and cable gland (optional connection cable). Protection II 2G Ex db eb IIC T6 Gb for gases, II 2D Ex tb IIIC T80°C Db for dust.
EXACB4	4x0.5 mm^2 armoured cable (suitable for Ex zones). PVC inner sheath. Armour: galvanised steel wire braid. Outer sheath PVC, diameter 7.3 mm. Temperature range: -30 / +80 °C. Minimum bending radius >/= 10 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).

Approval for Sale to Third Parties

KCEM	Plates and Welmec form for legal trade use of a scale. NET PRICE. Service available in combination with a Dini Argeo indicator.
ECEMDOC	Printed EU declaration of conformity, EU certificate of verification, test certificate and metrological book (free download from our website, only for approved CE-M products). NET €.
ECEM-AU	Single platform/scale legal-for-trade approval for Australia.

PC Software

D-LEGAL	Legal for trade approved software for recording weighing results to a PC (virtual alibi function) with an integrated API library for interfacing with other software.
D-API	Software for recording weighing results to a PC (for internal use) with an integrated API library for interfacing with other software.

Protection Barrier

PFB485EX	Protection barrier for RS485, for direct connection in safe area. Max cable length: 200m.
RSCBTW	4-core twisted shielded cable (2x2x0.34 mm^2), for RS485 communication or analogue output. Polyolefin inner sheath. Tinned copper braid shielding. Outer sheath PVC, diameter 7mm. Temperature range: -30 / +80 °C. Minimum bending radius >/= 6 x O.D. €/m. Maximum orderable length: 100 m (longer lengths available only upon request).
PFANOUTEX-1	Protection barrier for analogue current output, in 0..20mA or 4..20mA configuration (recommended), for direct connection in safe area. Max. cable length: 200m. Requires an external 24Vdc power supply.
PFANOUTEXPW	24Vdc power supply for PFANOUTEX protective barrier.

Part #	Description
PG Cable Glands	
PG7-IECEX	PG7 Cable Gland for DFW and 3590 IECEx Series Cable diameter: 4 to 7 mm.
PG9-IECEX	PG9 Cable Gland for DFW and 3590 IECEx Series Complete with ferrules and seals. Cable diameter: 4 to 7 mm or 7 to 10 mm.
PG13-IECEX	PG13 Cable Gland for DFW and 3590 IECEx Series Complete with ferrules and seals. Cable diameter: 5,5 to 8 mm, 8 to 10,5 mm or 10,5 to 13 mm.