



[1] **EU – TYPE EXAMINATION CERTIFICATE**

[2] Equipment or Protective Systems Intended for use in Potentially Explosive Atmospheres  
Directive 2014/34/EU.

[3] EU-Type Examination Certificate Number: **FIDI 25 ATEX 0024X** Issue: **0**

[4] Product: **Wireless I/O Module**

Type: **LWI Series**

[5] Manufacturer: **SOLEXY SRL**

[6] Address: **Via Enrico Fermi 2, 25015 Desenzano del Garda (BS), Italy**

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

[8] FIDITAS Ltd., Notified Body number 2829 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II of the Directive.

The examination and test results are recorded in confidential Report No: **FIDI 25 CR 066**

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

**EN IEC 60079-0:2018**

**EN 60079-11:2012**

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 product is subject to Specific Conditions of Use specified in the schedule to this certificate.

[11] This EU-Type Examination Certificate relates only to the design, examination and test of the specified product in accordance with Annex III. Further requirements of the Directive apply to the manufacturing process and supply of this products. These are not covered by this certificate.

[12] The marking of the product shall include the following:



**II 1G Ex ia IIC T4 Ga**  
**II 1D Ex ia IIIC T135°C Da**

Our ref.: 23.CRT.351

Date: 04.11.2025



**Fiditas d.o.o.**  
**ZAGREB**

**FIDITAS Ltd.**

**Certification department**

Approved:

*[Signature]*  
Stipo Đerek, M.E.Eng.



[13]

**SCHEDULE**

[14] **EU - TYPE EXAMINATION CERTIFICATE No.:** **FIDI 25 ATEX 0024X**

[15] **Description of product**

The Wireless I/O Module LWI Series is an intrinsically safe device that allows the wireless monitoring and control of digitals and analog input and digital output in hazardous locations.

The device has a modular construction and it is made by a Main board with radio module, a Battery pack for power supply and different interface modules that can be assembled on Main board.

Battery pack and the Main board are encapsulated. Battery pack is intended to be replaced in Hazardous Areas.

Battery pack has two connectors:

- An external power supply input: when this power input is used the Battery pack installed works as backup battery and it powers the device only when the external power input is not present (or the voltage of power input is  $\leq 2$  V).
- Second battery pack input: It is possible to connect one additional Battery pack cascade-connected extending the battery lifetime.

The device uses the LoRaWAN® protocol as communication protocol for communication with third party device.

The interface modules available which can be connected on the Main board on the connector J2 and/or J3 are:

- I/O Module: this module has 4 digital input and 1 digital output NC/NO (relay rating 2A@30VAC)
- PT100 / PT1000 Module: this module has 1 input suitable for RTD PT100 or PT1000
- ADC Module 0-10 VDC: this module has 1 analogue input suitable for 0-10 VDC signal
- ADC Module 4-20 mA: this module has 1 analogue input suitable for 4-20 mA signal
- K Probe Module: this module has 1 input suitable for Thermocouple Type K
- 6 RTD and 1 4-20mA Module: this module has 6 inputs suitable for RTD PT100 or PT1000 and one analog input suitable for 4-20 mA signal

Module configuration assembly:

- Main board plus one module: I/O Module, PT100 / PT1000 Module, ADC Module 0-10 VDC, ADC Module 4-20 mA, K Probe Module, 6 RTD and 1 4-20mA Module.
- Main board plus one I/O Module plus one module on the connector J5 (of the I/O Module): PT100 / PT1000 Module, ADC Module 0-10 VDC, ADC Module 4-20 mA, K Probe Module

Wiring to the field on the interface modules is done through terminals.

Device is assembled by manufacturer in the enclosure that complies with the requirements of a minimum IP54 rating according to EN IEC 60079-0.

In the case of version of product without external enclosure, the product is intended to be installed inside an enclosure that complies with the requirements for surrounding enclosures according to EN IEC 60079-0, with degree of protection IP54 or better, certified according to EN IEC 60079-0.





**Intrinsically safe circuits:**

**Battery pack**

Connection: Connector J1 (Aux battery)	pin1: Vin pin2: GND
Maximum values:	Intended for Solexy additional Battery pack connection only
Connection: Connector J2	pin1: Vout pin2: GND
Maximum values:	Intended for Solexy Main board connection only
Connection: Connector J3 (External power supply)	pin1: Vin pin2: GND
Maximum values:	U <sub>i</sub> = 24 V; I <sub>i</sub> = 20 mA; P <sub>i</sub> = 0,48 W L <sub>i</sub> = 0 μH; C <sub>i</sub> = 0 μF

**Main board**

Connection: Connector J1 (Battery pack connection)	pin1: Vin pin2: GND
Maximum values:	Intended for Solexy Battery pack connection only
Connection: Connector J2 (Interface modules connection)	pin1: +3,3VP; pin2: +5VP, pin3-pin8: data lines pin9-pin10: GND
Maximum values:	Intended for Solexy Interface modules connection only
Connection: Connector J3 (Interface modules connection)	pin1: VDC; pin2: +3,3VP, pin4: +5VP pin5-pin11: data lines; pin12: GND
Maximum values:	Intended for Solexy Interface modules connection only
Connection: Connector J4/J8 (Antenna connection)	
Maximum values:	L <sub>i</sub> = 0 μH; C <sub>i</sub> = 75 pF Limit for the antenna + antenna cable: C <sub>o</sub> = 30μF; L <sub>o</sub> = no limit
Connection: Connector J5 (RS-485)	pin1: VDC; pin2-pin3: Data line A+/B- pin4: GND
Maximum values:	pin1: VDC U <sub>o</sub> = 16,8 V; I <sub>o</sub> = 147 mA; P <sub>o</sub> = 618 mW L <sub>i</sub> = 0 μH; C <sub>i</sub> = 0 μF L <sub>o</sub> = 1,64 mH; C <sub>o</sub> = 390 nF
	pin2-pin3: Data line A+/B- U <sub>o</sub> = 6,3 V; I <sub>o</sub> = 228 mA; P <sub>o</sub> = 360 mW L <sub>i</sub> = 0 μH; C <sub>i</sub> = 0 μF L <sub>o</sub> = 683 μH; C <sub>o</sub> = 31 μF U <sub>i</sub> = 6,3 V; I <sub>i</sub> = 228 mA





**I/O Module**

Connection: Connector J1 (digital input)	pin1, pin3, pin5, pin7: In pin2, pin4, pin6, pin8: GND	
Maximum values:	pin1, pin3, pin5, pin7: In	Uo = 6,3 V; Io = 6,37 mA; Po = 10 mW Li = 0 μH; Ci = 0 μF Lo = 0,8 H; Co = 31 μF Ui = 6,3 V; Ii = 100 mA

Connection: Connector J2 (digital output relay contact NC/NO)	pin1: NO pin2: C pin3: NC	
Maximum values:	pin1, pin2, pin3	Li = 0; Ci = 0 For the connection of an intrinsically safe circuit in Level of Protection 'ia' with the following maximum values: Ui < 30 V; Ii < 2 A; Pi < 30 W

**PT100 / PT1000 Module**

Connection: Connector J1 (PT100 or PT1000 input)	pin1, pin2, pin3, pin4	
Maximum values:	pin1, pin2, pin3, pin4	Uo = 6,3 V; Io = 80 mA; Po = 126 mW Li = 0 μH; Ci = 0.33 μF Lo = 5,55 mH; Co = 30 μF

**ADC Module 0-10 VDC**

Connection: Connector J1 (analog voltage input)	pin1: +12VA; pin2: Input signal pin3: GND	
Maximum values:	pin1: +12VA	Uo = 16,8 V; Io = 147 mA; Po = 618 mW Li = 0 μH; Ci = 0 μF Lo = 1,64 mH; Co = 390 nF
	pin2: Input signal	Uo = 6,3 V; Io = 0,63 mA; Po = 1 mW Li = 0 μH; Ci = 0 μF Lo = 1 H; Co = 31 μF Ui = 10V; Ii = 1mA

**ADC Module 4-20 mA**

Connection: Connector J1 (4-20 mA current input)	pin1: +12VA; pin2-pin3: Input signal pin4: GND	
Maximum values:	pin1: +12VA	Uo = 16,8 V; Io = 147 mA; Po = 618 mW Li = 0 μH; Ci = 0 μF Lo = 1,64 mH; Co = 390 nF
	pin2-pin3: Input signal	Uo = 6,3 V; Io = 0,2 mA; Po = 0,4 mW Li = 0 μH; Ci = 0 μF Lo = 1 H; Co = 31 μF Ui = 30 V; Ii = 25mA





**K Probe Module**

Connection: Connector J1 (Thermocouple Type K input)	pin1, pin2	
Maximum values:	pin1, pin2	Uo = 6,3 V; Io = 73 mA; Po = 115 mW Li = 0 μH; Ci = 0,121 μF Lo = 6,67 mH; Co = 30 μF

**6 RTD and 1 4-20mA Module**

Connection: Connector J3, J4, J5, J6, J7, J8 (PT100 or PT1000 input)	pin1, pin2, pin3, pin4	
Maximum values:	pin1, pin2, pin3, pin4	Uo = 6,3 V; Io = 217 mA; Po = 342 mW Li = 0 μH; Ci = 19,13 μF Lo = 0,75 mH; Co = 11,87 μF

Connection: Connector J9 (4-20 mA current input)	pin1: +12VA; pin2-pin3: Input signal pin4: GND	
Maximum values:	pin1: +12VA	Uo = 16,8 V; Io = 147 mA; Po = 618 mW Li = 0 μH; Ci = 0 μF Lo = 1,64 mH; Co = 390 nF
	pin2-pin3: Input signal	Uo = 6,3 V; Io = 0,2 mA; Po = 0,4 mW Li = 0 μH; Ci = 0 μF Lo = 1 H; Co = 31 μF Ui = 30 V; Ii = 25mA

**Note:**

The above parameters of capacitance and inductance apply when one of the two conditions below is met:

- The total Li of the external circuit (excluding the cable) is < 1 % of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1 % of the Co value.

The above parameters for capacitance and inductance are reduced to 50 % when both of the two conditions below are met:

- the total Li of the external circuit (excluding the cable) is ≥ 1 % of the Lo value and
- the total Ci of the external circuit (excluding the cable) is ≥ 1 % of the Co value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF for Group IIIC and 600nF for Group IIC.





**Rated data:**

Ambient temperature:

Battery pack installed	Ambient temperature range
BL-01 (LS14500)	-40°C to +80°C
BL-02 (LS17500)	-40°C to +60°C

In the case of version of product with external increased safety enclosure the ambient temperature range must be consistent with the ambient/service temperature range of the enclosure used, within the maximum values indicated above which depend on battery pack installed.

**Ingress protection:** IP54 (see Specific Conditions of Use)

Warning markings:

“WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS” in the case of external enclosure with nonconductive layer

**Codification of product**

LWI	x	x	xx	xx	xx	-	xxxxx
	1	2	3	4	5		6

1	Housing	x	1 digit for housing type
		0	Without external enclosure
		M	Metal housing IP65
		P	Plastic housing IP65
2	Digital I/O	0	RS485
		1	RS485 + 4 digital input and digital output (I/O Module)
3	Analogue I/O	00	None
		01	Thermocouple Type K (K Probe Module)
		02	PT100 (PT100 / PT1000 Module)
		03	PT1000 (PT100 / PT1000 Module)
		04	4-20 mA receiver (ADC Module 4-20 mA)
		05	4-20 mA for existing loop (ADC Module 4-20 mA)
		06	0-10 VDC (ADC Module 0-10VDC)
		07	Multi rtd+4-20 mA
4	Operating frequency	xx	2 digits for operating frequency and RF approvals
5	Standard reference	xx	2 digits for certification marking
6	Special execution	xxxxx	Up to 5 digits for special execution in terms of marking, labelling, instruction, packaging, etc...



**[16] Confidential Report No.** FIDI 25 CR 066

**[16.1] Routine testing**

Dielectric strength test between following circuits according to EN 60079-11 cl. 11.2 using 500 VAC, 60s on I/O Module

- All pins on Connector J1 vs all pins on Connector J2

**[17] Specific Conditions of Use**

Version of the device:

1. without external enclosure must be installed and operated only within the surrounding enclosure which:
  - complies with the requirements for surrounding enclosures according to EN IEC 60079-0,
  - is rated with the degree of protection IP54 or better according to EN 60529.
2. with an external enclosure with non-conductive layer includes electrostatic hazard and shall not be cleaned with dump clothes.
3. with external enclosure tested and certified for lower impact energy shall be installed on places not exposed to high risk of impact.

**[18] Essential Health and Safety Requirements**

Covered by the conformity with harmonized standards listed under item 9.

**[19] Drawings and Documents**

Title:	Drawing No.:	Rev. level:	Date:
Intrinsically safe LoRa module	TDTN-0028	06	07/10/2025
Intrinsically safe LoRa main board module Rth calculation	TDTN-0033	09	06/10/2025
Intrinsically safe LoRa main board module COT calculation	TDTN-0037	07	06/10/2025
Intrinsically safe LoRa battery module Rth calculation	TDTN-0038	05	10/09/2025
Intrinsically safe LoRa battery module COT calculation	TDTN-0039	05	10/09/2025
Intrinsically safe LoRa interface modules Temperature Evaluation	TDTN-0040	04	06/10/2025
Intrinsically safe LoRa PCB modules Evaluation	TDTN-0043	04	10/09/2025
LoRa Series ATEX / IECEx	TDTF-0017	09	07/10/2025
Compound Thickness LoRa Main Board	DDDD-0018-S	00	21/03/2025
Compound Thickness LoRa Battery Board	DDDD-0019-S	01	04/06/2025
Potting Container Battery Board	DDDM-0064	00	21/03/2025
Potting Container Main Board	DDDM-0065	00	21/03/2025
Product Marking LWI Serie ATEX / IECEx	DDMD-0066-S	00	17/10/2025
LoRa system block	DDSD-0013-S	02	07/10/2025
LoRa main board schematic	DDSD-0014-S	03	27/08/2025



Title:	Drawing No.:	Rev. level:	Date:
LoRa battery board schematic	DDSD-0015-S	06	10/06/2025
LoRa in/out daughter board schematic	DDSD-0016-S	02	06/12/2023
LoRa ADC 0-10V daughter board schematic	DDSD-0017-S	02	15/07/2025
LoRa PT100/1000 daughter board schematic	DDSD-0018-S	01	06/12/2023
LoRa Thermocouple daughter board schematic	DDSD-0019-S	01	06/12/2023
LoRa ADC 4-20mA daughter board schematic	DDSD-0020-S	01	15/07/2025
LoRa 6 RTD and 1 4-20mA daughter board schematic	DDSD-0022-S	03	08/09/2025
LoRa BOM main board	TDBM-0015	05	06/10/2025
LoRa BOM battery board	TDBM-0016	03	07/10/2025
LoRa BOM in/out daughter board	TDBM-0017	03	06/10/2025
LoRa BOM ADC 0-10V daughter board	TDBM-0018	04	06/10/2025
LoRa BOM PT100/1000 daughter board	TDBM-0019	03	06/10/2025
LoRa BOM Thermocouple daughter board	TDBM-0020	03	06/10/2025
LoRa BOM ADC 4-20mA daughter board	TDBM-0021	04	06/10/2025
LoRa BOM 6 RTD and 1 4-20mA daughter board	TDBM-0026	04	06/10/2025
LWI Installation & Wiring Manual ATEX - IECEx	IM0059	00	/