CIRCULA

Electronic pump

TITANIO PRO

Operating manual

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Warnings

Please read the following notes before starting the installation and operation of the pump.

! Before starting the pump, always ensure that the system is filled with water and never operate the pump dry. Do not tighten or loosen the pump unions or the screws securing the pump head while under pressure.

! The pump should be installed by qualified personnel in accordance with this operating and installation manual and good installation practices. The manufacturer is not responsible for any damage caused by improper pump installation.

! When the pump is operating with high heating fluid temperatures, there is a risk of burns from contact with the pump body.

! In case of leaks from the system that may endanger the pump's electronic components, immediately disconnect the power supply.

! Use caution during maintenance of the electronic pump

DISPOSAL OF USED EQUIPMENT

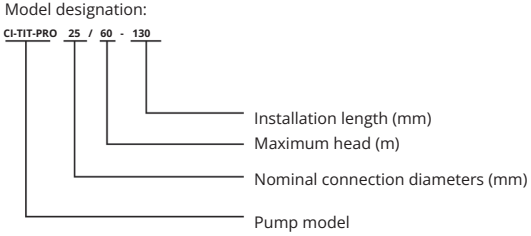
This pump is marked in accordance with European Directive 2012/19/EU and the Polish Act of 11 September 2015 on Waste Electrical and Electronic Equipment (Journal of Laws of 23.10.2015, item 11688) with the symbol of a crossed-out waste container. This marking indicates that the equipment must not be disposed of together with other household waste at the end of its service life. Users are required to hand it over to authorized collection points for waste electrical and electronic equipment. Proper handling of waste electrical and electronic equipment helps prevent harmful consequences for human health and the environment resulting from the presence of hazardous components and improper disposal or recycling of such equipment.

1. Introduction

In the electronic circulation pump, the motor stator is completely enclosed, and the rotating parts are immersed in clean water, which plays an important role in cooling and lubrication during operation. The pump's protective sleeve has a thin-wall structure to fully shield the motor stator from water. The traditional mechanical seal design is eliminated, solving leakage problems typical of conventional water pumps. The rotating components are made of ceramic bearings and ceramic shafts, which are wear-resistant and lubricated by clean water, allowing the motor to be cooled and noise to be reduced. The pump will not overload when operating at full capacity. Essentially, the pump can be maintenance-free, provided it is used correctly.

2. Types and dimensions

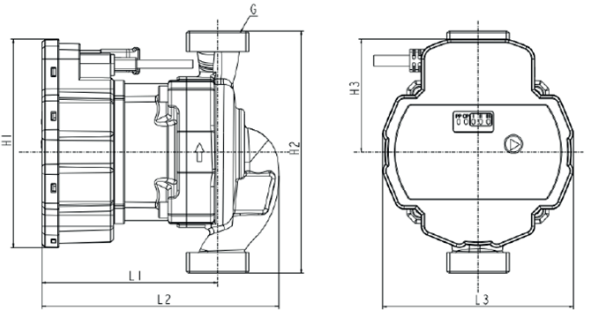
2.1 Overview of models



Model	Nominal connection diameter	Connection size	Maximum flow	Head	Voltage	Frequency	Power	Current	EEI
	mm		m^3/h	m	V	Hz	W	A	
CI-TIT-PRO 25/60-130	25	G 1 1/2"	3,2	0,7 - 6	230	50/60	45	0,42	≤0,20*
CI-TIT-PRO 25/60-180	25	G 1 1/2"	3,2	0,7 - 6			45	0,42	≤0,20*
CI-TIT-PRO 25/80-180	25	G 1 1/2"	3,4	1 - 8			65	0,65	≤0,21*

* The reference value for the most energy-efficient circulation pumps is EEI ≤ 0.20.

2.2 Dimensions



Model	Dimension (mm)						
	L1	L2	L3	H1	H2	H3	G
CI-TIT-PRO 25/60-130	94	127	103	112	130	60	G 1 1/2”
CI-TIT-PRO 25/60-180					180		G 1 1/2”
CI-TIT-PRO 25/80-180							G 1 1/2”

3. Safety rules

 Warning!	• Do not touch the pump body while it is operating. • Do not operate the pump without water.

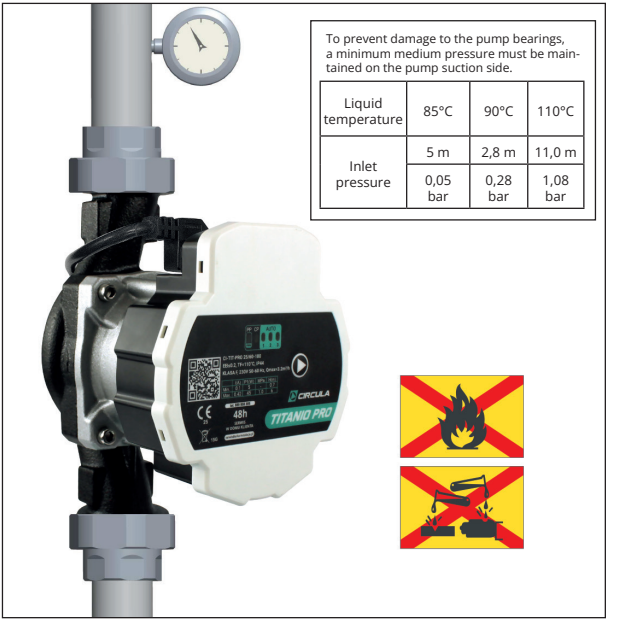
1. The supply voltage of the electronic pump is single-phase 230 V, and the frequency is 50 Hz.
2. Before installa tion, make sure the piping system is securely connected and check that any debris, soldering residues, and waste have been removed from the pipes.
3. Ensure that the pump is installed in a dry and ventilated environment to avoid short circuits caused by moisture or splashes in the housing and to allow access for maintenance and replacement.
4. It is recommended to install shut-off valves on the pump's inlet and outlet to allow for future maintenance and servicing.
5. Do not touch the pump or any pipes to avoid burns.
6. To prevent accidents, disconnect the power supply before performing any maintenance work.
7. Regularly inspect the pump and replace it if any damage is detected.
8. The power cord may only be replaced with appropriate cables or dedicated components.
9. In winter, when the ambient temperature is below 0 °C and the pump is not operating, the water must be completely drained from the pipes to prevent the pump from freezing and cracking.
10. The heating supply pipes should not be frequently refilled with untreated water to prevent calcium buildup inside the piping system and blockage of the impeller.

4. Purpose and installation

4.1 Pumped liquids

Water in heating systems should comply with PN-C-04607:1993 and be free of solid particles, fibers, and impurities.

Maximum operating pressure: 1.0 MPa (10 bar)



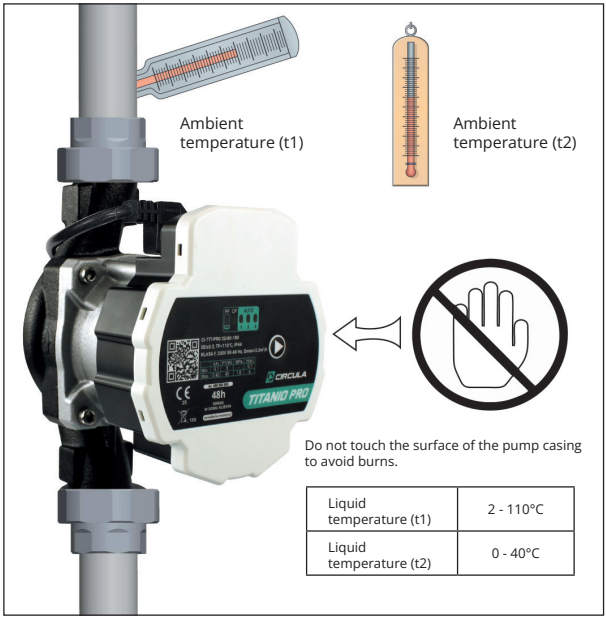
To prevent damage to the pump bearings, a minimum medium pressure must be maintained on the pump suction side.

Liquid temperature	85°C	90°C	110°C
Inlet pressure	5 m	2,8 m	11,0 m
	0,05 bar	0,28 bar	1,08 bar

The pump is intended for the following systems:

- Non-aggressive, non-explosive fluids, free from solid particles and fibers
- Refrigerant fluids without oil additives
- Fluids for use in heating installations

4.2 Liquid temperature and ambient temperature

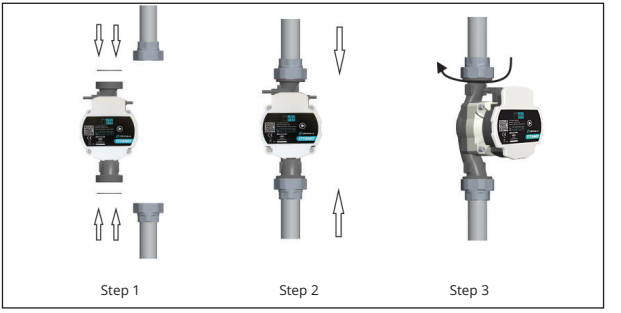


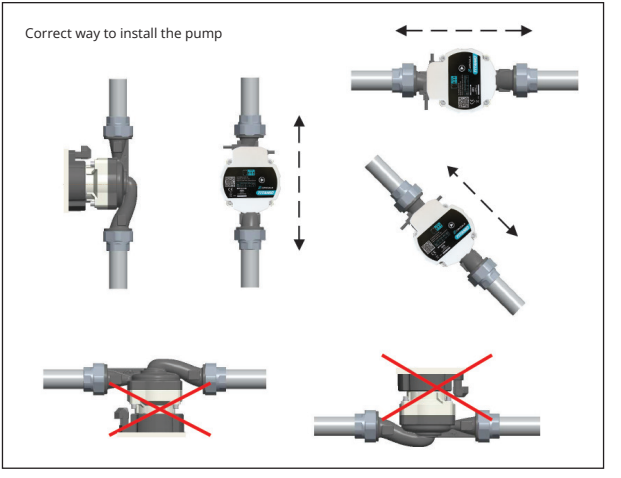
Do not touch the surface of the pump casing to avoid burns.

Liquid temperature (t1)	2 - 110°C
Liquid temperature (t2)	0 - 40°C

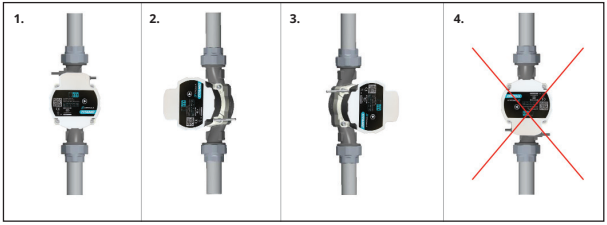
4.3 Installation

During assembly, the engine shaft must be positioned horizontally, and the direction of fluid flow in the pipe must be the same as the arrow marked on the pump housing.



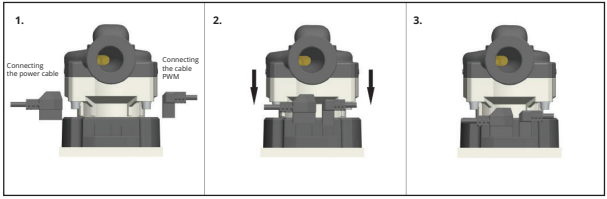


4.4 Control box positions



Warning!	Changes to the position of the control box and engine housing can only be carried out by an authorized Circula pump service.

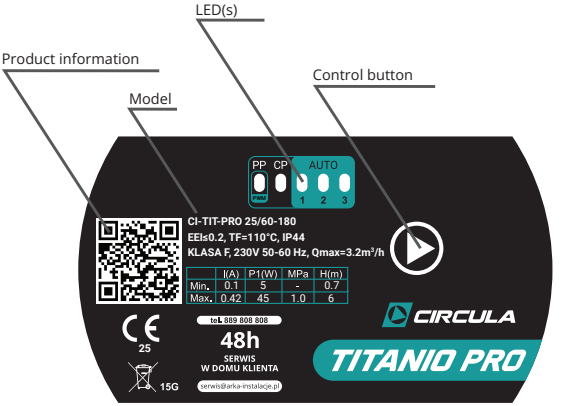
4.5 Electrical and PWM signal connection



1. Mounting position
2. Plug it into the control box socket and press it in
3. Complete assembly

5. Description and operation of the pump

5.1 Control Panel - Description



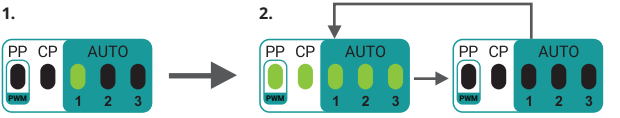
The relationship between the electronic pump setting and the display readings

Number of button presses	Mode	Description	Display
0	CS III (Ustawienia fabryczne)	Constant curve, speed III	
1	PWM	PWM mode	0% (blinking LED)  0%-100% 
2	AUTO	Adaptive mode	
3	PP I	Proportional pressure curve, speed	
4	PP II	Proportional pressure curve, speed II	
5	PP III	Proportional pressure curve, speed III	
6	CP I	Constant pressure curve, velocity I	
7	CP II	Constant pressure curve, velocity II	
8	CP III	Constant pressure curve, velocity III	
9	CS I	Constant curve, speed I	
10	CS II	Constant curve, speed II	
11	CS III	Krzywa stała, prędkość III	

Note: when the input duty cycle is in the range of 1-100%, the key lock cannot switch modes unless the signal is disconnected or set to 0%

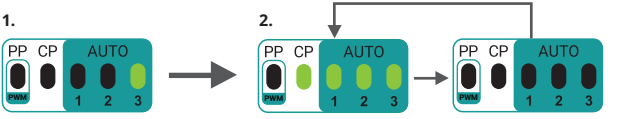
5.2 Automatic pump venting function

The function is activated by holding down the button until the „AUTO 1" LED lights up. The pump will bleed automatically for 5 minutes (this function does not bleed the heating system).



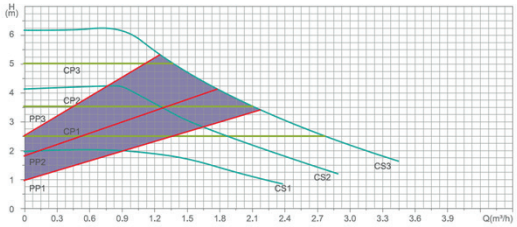
5.3 Pump start function

The function is activated by holding the button until the ‚AUTO 3' LED lights up. The pump will start and stop continuously for 5 minutes in order to unlock.

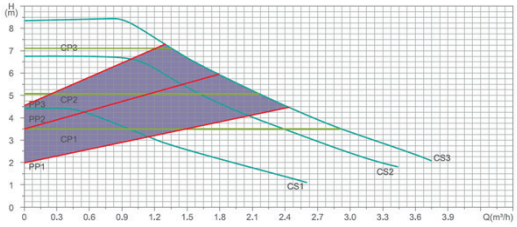


5.4 Hydraulic characteristics of pumps

CI-TIT-PRO 25/60-180, CI-TIT-PRO 25/60-130



CI-TIT-PRO 25/80-180

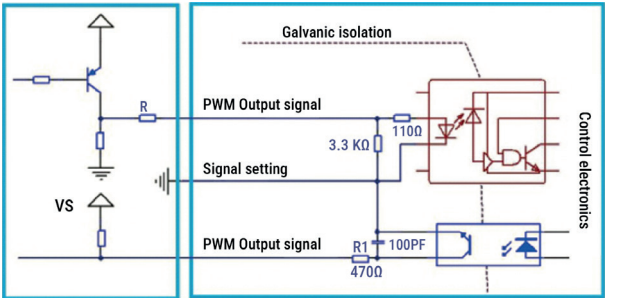


- PP - proportional pressure curve
- CP - constant pressure curve
- CS - constant curve

5.5 PWM

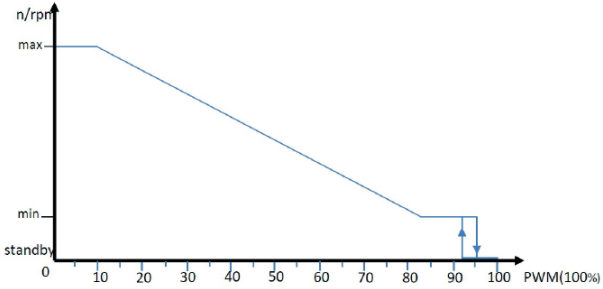
5.5.1 Control rules

When a PWM signal is connected, the operation of the circulation pump is controlled by the PWM signal, and in the absence of a PWM signal, the operation of the circulation pump is controlled by the internal pump controller.



5.5.2 PWM output signal

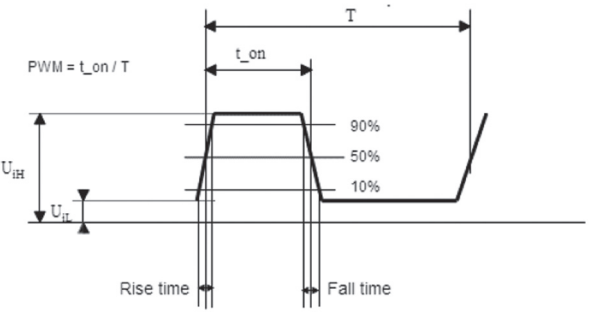
At high PWM signal percentages (duty cycles), hysteresis prevents the circulation pump from starting and stopping if the input signal fluctuates around the switching point. At low PWM signal percentages, for safety reasons, the circulation pump speed is high. In the event of a cable break in the gas boiler installation, the circulation pump will continue to operate at maximum speed to transfer heat from the boiler to the system.



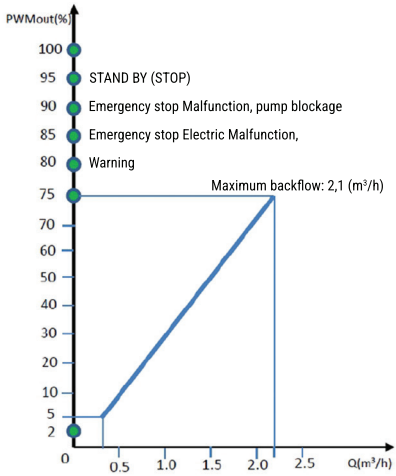
Input signal PWM (%)	Pump status
0	PWM mode off, no PWM signal
0<PWM≤10	Maximum operating speed
10<PWM≤84	Reduce the speed from the highest (11) to the lowest (85)
84<PWM≤91	Maintain the slowest speed
91<PWM≤95	Monitor the water pump status: When the water pump is running, this section operates at the lowest speed; when the water pump stops, this section also stops operating.
95<PWM≤100	Standby mode, waiting for the start signal

5.5.3 PWM signals

Galvanic isolation	TAK
PWM input frequency	100 - 5000Hz (2000Hz)
Input voltage (high level UiH)	4-24V
Input voltage (low level UiL)	<1V
Prąd wejściowy (wysoki poziom IH)	3mA-30mA
PWM regulation range	0-100%
Signal cable length	<3m
Rise time, fall time	<T/1000

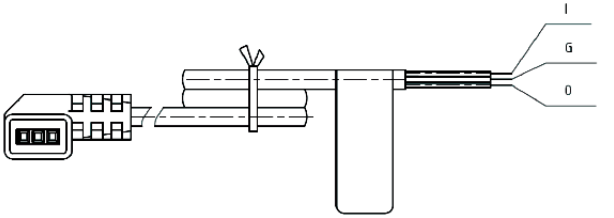


5.5.4 PWM feedback signal (power consumption)



Output signal (%)	Pump information	Cause
0-70	The pump is operating, feedback: flow 0–2.1 m³/h.	/
85	Alarm (low voltage)/Shutdown (phase loss)/Electrical fault (current overload)	Input voltage too low / Phase missing / Interphase short circuit.
90	Alarm/disable: Locked	The rotor is blocked
95	Pump in standby mode, pump waiting for start signal	/
comments	Feedback signal formula: (Q = 0.03 PWMout, Q: m³/h, PWMout: %)	

5.5.5 PWM Feedback Signal



I - red - PWM input (controller)
G - black - ground wire (GND)
O - yellow - PWM output (from the pump)

6. Technical data

Power supply voltage	**230 V, 50/60 Hz**			
Motor protection class	**Does not require external motor protection**			
Motor protection rating	**IP44**			
Insulation class:	**F**			
Ambient relative humidity	**Max. 95%**			
Installation pressure:	**Max. 1,0 MPa, 10 bar**			
Suction inlet pressure	**Liquid temperature**	**≤ 85˚C**	**Minimum inlet pressure:**	**0,05 bar , 0,005 MPa**
		90˚C		**0,28 bar , 0,028 MPa**
		110˚C		**1,08 bar , 0,108 MPa**
EMC Standard	**EN IEC 55014-1:2021; EN IEC 61000-3-2:2019/A1:2021 EN IEC 55014-2:2021; EN 61000-3-3:2013/A2:2021**			
Ambient temperature:	**0˚C ÷ 40˚C**			
Surface temperature	**Max. +125˚C**			
Liquid temperature	**2˚C ÷ 110˚C**			

7. Problems and solutions

Problem	Probable cause	Solution
The pump is not working	Incorrect connection of the power cord	Make sure the power cord is connected properly
	Damaged control electronics	Replace the control box
	Fibers may be wound on the engine or rotor	Clean from fibers and/or contaminants
Noise in the pump installation or housing	Contamination inside the pump	Disassemble the pump and remove the debris
	Air or gas in the pump system or housing	Remove air / bleed the pump
The pump is running, but it is not generating any pressure	The inlet valve is closed	Open the valve
	Air-locked installation	Open the valve to start the pump, and in the meantime, loosen the outlet port connection

In the event of a malfunction, the pump's electronics will respond to certain faults and protect the pump. The table below shows the protection codes on the display panel:

Type of protection	Display	Probable causes	Solution
Protection against rotor lock		The rotor is blocked	Disassemble the engine and check if the rotor can rotate normally. If not, remove any debris to allow the rotor to spin freely.
Surge/undervoltage protection		The input voltage is too high or too low	Check if the voltage is within the normal range
Open phase protection		One or more phases of the internal circuit are disconnected	Contact an authorized Circula pump service center
Overcurrent protection		Short circuit in the internal circuit	Contact an authorized Circula pump service center

8. Warranty card

Pump model	Seller's stamp	Date of sale / seller's signature

ARKA company provides a 24-month warranty on the product, counting from the date of its sale, provided that the Buyer follows the instructions for installation, use, and maintenance.
The warranty covers only manufacturing defects in the material and workmanship that occurred during the production process.

The warranty does not cover:

- mechanical damage,
- damage resulting from installing the pump contrary to the installation instructions or unauthorized interference,
- damage resulting from improper use or handling of the pump,
- damage resulting from the ingress of solid contaminants into the pump,
- damage resulting from freezing, lightning strikes, or electrical installation faults, particularly moisture in electrical connections,
- damage resulting from the pump running dry.

The basis for considering a warranty claim by ARKA is having proof of purchase and this warranty card.

Complaints are accepted:

- at the point of sale where the product was purchased - in this case, the above documents should be submitted along with the defective product,
- electronically: via the form on the website, fax /94/ 346-27-68,
- hotline 889-808-808 (on working days from 8:00 AM to 4:00 PM).

This warranty does not exclude, limit, or reduce the buyer's rights arising from the non-conformity of the goods with the contract.

The warranty is valid only within the territory of the Republic of Poland.

10. Declaration of Conformity

ARKA

Deklaracja zgodności UE

nr 1/circula/2025

1. Model produktu:

   CI-TITANIO PRO POMPA ELEKTRONICZNA C.O.

   Kod produktu (indeks): CI-TIT-PRO 25/60-180; CI-TIT-PRO 25/80-180; CI-TIT-PRO 25/60-130

2. Nazwa i adres producenta lub jego upoważnionego przedstawiciela:
   ARKA Sp. z o.o.
   ul. Ogrodowa 5
   76-004 Sianów

3. Niniejsza deklaracja zgodności wydana zostaje na wyłączną odpowiedzialność producenta.

4. Zgodność przedmiotu deklaracji potwierdzona certyfikatem:

   Certyfikat nr: EBA 101057 0126
   Certyfikat nr: M8A 101057 0127

5. Wymieniony powyżej przedmiot deklaracji niniejszej deklaracji zgodności UE jest zgodny z odnośnymi wymaganiami unijnego prawodawstwa harmonizacyjnego:

   Dyrektywa 2014/35/UE (LVD)
   Dyrektywa 2014/30/UE (EMC)
   Dyrektywa 2006/42/WE (MD)
   Dyrektywa 2009/125/WE (Ekoprojekt)

6. Odniesienia do odnośnych norm zharmonizowanych, które zastosowano, lub do innych specyfikacji technicznych, w stosunku do których deklarowana jest zgodność:
   EN 62233:2008
   EN 60335-1:2012/A15:2021
   EN 60335-2-51:2003/A2:2012
   EN IEC 55014-1:2021
   EN IEC 55014-2:2021
   EN IEC 61000-3-2:2019/A1:2021
   EN 61000-3-3:2013/A2:2021

ARKA
Arka Sp. z o.o.
Tomasz Bamburak
Dyrektor ds. Wdrożeń i Rozwoju B+R

Sianów, 20 sierpnia 2025 r.
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(miejsce i data wystawienia)

.....
(podpis osoby upoważnionej)

Producent:

Arka Sp. z o.o.

arka-instalacje.pl