

CERTIFICATE OF CONFORMITY




- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM22US0019X
- Equipment:** Capanivo CN 71xx
(Type Reference and Name) Capacitance Level Limit Switch Series
- Name of Listing Company:** UWT GmbH
- Address of Listing Company:** Westendstrasse 5
87488 Betzigau
Germany
- The examination and test results are recorded in confidential report number:

PR461571 dated 28th September 2022
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2022, FM Class 3610:2021, FM Class 3810:2021, ANSI/UL 61010-1:2019,
ANSI/UL 60079-0:2020, ANSI/UL 60079-11:2013, ANSI/UL50:2020, ANSI/UL50E:2020,
ANSI/IEC 60529:2020
- 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.
- 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.

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

28 September 2022

Date

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

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SCHEDULE



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10. Equipment Ratings:

Intrinsically safe for use in Class I, II, III, Division 1, Groups A, B, C, D, E, F and G in accordance with Entity requirements and Control drawing gi021121 for Hazardous (Classified) locations.

11. The marking of the equipment shall include:

IS, Class I, II, III Division 1, Groups A, B, C, D, E, F, G, / T* / T_a** , Type 4X, IP68

* / ** Marked temperature classification and ambient temperature range vary as defined in Section 12 of this Certificate.

12. **Description of Equipment:**

General - The level limit switch series Capanivo CN 71xx is a modular concept of capacitance level limit switches. It is designed for level detection in any kind of containers, tanks, bins, silos, hoppers and pipes. The level limit switch is able to detect many kinds of liquids, solids, slurries, foam and interfaces.

The unit consists of the probe with electrodes / electronics (optionally mounted to a pipe or a cable extension), a process connection and an enclosure Ø 65 mm or Ø 35 mm.

Construction - The level limit switch series Capanivo CN 71xx enclosure is made of plastic or stainless steel. For the enclosure Ø 35 mm the upper part of the process connection forms a part of the enclosure. Inside the enclosure Ø 65 mm or Ø 35 mm there is located further electronics.

Depending on the version there are provided connecting terminals inside the enclosure (enclosure Ø 65 mm) or an integrated factory-connected M12-plug (enclosure Ø 35 mm) for electrical connection of the equipment.

The field-wiring cable can optionally be provided by the manufacturer of the equipment or by the end user.

Type series: **Capanivo CN 71xx**

xx =	20	Short extension length version – Stainless steel process connection
	21	Short extension length version – Plastic process connection
	30	Pipe extension version
	50	Cable extension version (Dust approvals only with use of suitable cable with surface resistance of cable sheath $\leq 10^9 \Omega$; otherwise CN7150 Approved as CI I Div 1 Gps ABCD)

Ratings - The level limit switch series Capanivo CN 71xx operate at 10.8 - 30 Vdc (0.7W). The level limit switches are rated for use in an ambient temperature range of -40°C to +85°C and rated for use in a process temperature range of -40°C to +125°C.

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Entity Parameters:

Operation mode	Terminal Block	M12 plug Pins	IS circuits	U _i (V)	I _i (mA)	P _i (W)	C _i (nF)	L _i (mH)
2-wire operation with 8/16 mA loop	1, 2; 8/16mA loop 3; Shield 4, 5; not used	1, 3; 8/16mA loop 2, 4; not used	Intrinsically safe supply	30	160	0.8	7.6	0.3
4-wire operation with DC supply and Solid-State Relay (signal output)	1, 2; Power Supply 3; Shield 4, 5; Signal output	Not Available	Power supply: Intrinsically safe supply	30	160	0.8	7.6	0.3
			Signal output: Intrinsically safe "switch amplifier for contact input" or an intrinsically safe PLC with integrated input card for contact input	30	200	0.35	4.2	0

Temperature class, ambient temperature and process temperature range vary as follows:

For use at altitude ≤ 2000 m

Ambient temperature Ta **	Process temperature Tp	Temperature Class *
-40 °C ... +50 °C ¹⁾	-40 °C ... +50 °C ¹⁾	T6
-40 °C ... +65 °C ¹⁾	-40 °C ... +65 °C ¹⁾	T5
-40 °C ... +85 °C ¹⁾	-40 °C ... +100 °C ¹⁾	T4
-40 °C ... +85 °C ¹⁾	-40 °C ... +125 °C ¹⁾	T3C

For use at altitude > 2000 m ... ≤ 3000 m:

Ambient temperature Ta **	Process temperature Tp	Temperature Class *
-40 °C ... +45 °C ¹⁾	-40 °C ... +45 °C ¹⁾	T6
-40 °C ... +58 °C ¹⁾	-40 °C ... +58 °C ¹⁾	T5
-40 °C ... +76 °C ¹⁾	-40 °C ... +90 °C ¹⁾	T4
-40 °C ... +76 °C ¹⁾	-40 °C ... +112 °C ¹⁾	T3C

¹⁾ With option FFKM O-ring seal: Lower ambient temperature and lower process temperature limited to -20 °C

Capanivo Type CN 71xx 12345678 Capacitance Level Switches

1 = Basic Type; A (= CN 7120), B (= CN 7121), C (= CN 7130), D (= CN 7150)

2 = Certificate; P

3 = Enclosure; 1, 2, 4, 5, 6

4 = Electronics; A

5 = Process Connection; * (Any process connection available for each type according to 002-xx drawings).

6 = Material of sensor; A, B, C

7 = Material of process connection and extension L; 1, 2, 4, 5

8 = Length of extension L; * (Any Length of pipe extension or cable extension according to 002-xx drawings).

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13. Specific Conditions of Use:

1. *The relation between ambient temperature range, process temperature range and temperature class (for gas) or maximum surface temperature (for dust) is shown in the thermal parameters table.*
2. *If the process temperature exceeds the permissible ambient temperature, the max. resulting temperature close to the enclosure (see dotted line in the manual) shall not exceed the related max. permissible ambient temperature, taking the worst-case conditions into account. This shall be verified by measurement when installed.*
3. *With option FFKM O-ring seal lower ambient temperature range and lower process temperature range are limited to -20 °C.*
4. *For gas- and dust-explosive atmospheres:
The apparatus shall be installed in such a way that electrostatic charging hazards on nonmetallic parts outside the process can be excluded.*
5. *For gas-explosive atmospheres only:
The apparatus shall be installed in such a way that electrostatic charging hazards on nonmetallic parts inside the process can be excluded.*
6. *For dust-explosive atmospheres only:
The intrinsically safe circuits of the apparatus shall be regarded as grounded in the event of a fault. Appropriate measures to avoid danger from circulating fault currents acc. To ANSI/UL 60079-14 shall be considered, depending on the installation (e. g. equipotential bonding along the intrinsically safe circuits).*

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
28 th September 2022	Original Issue.

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