UL Type Examination Certificate

ATEX Directive 2014/34/EU

Certificate
UL 22 ATEX 2480U
Rev. 2

Issue date
2022-07-29

Re-issued
2025-12-17

This is to acknowledge that

Pepperl+Fuchs SE

Lilienthalstrasse 200, 68307 Mannheim, Germany

has had

VisuNet FLX Panel

Models RM-320P, PC-320P, DM-320P

evaluated and meets the requirements of the standards

EN IEC 60079-0:2018
EN 60079-11:2012
EN 60079-31:2014

Test Report No. **DK/ULD/ExTR22.0019/02**

Certification Manager
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This is to certify that the sample(s) of the product described herein ("Certified Product") has been investigated and found in compliance with the above mentioned harmonized Standard(s) per Article 12 of Directive 2014/34/EU of the European Parliament and of the Council relating to equipment and protective systems for use in potentially explosive atmospheres indicated on this Certificate, in accordance with the UL Type Examination Certificate Scheme Requirements.
The responsibilities of manufacturers, their authorized representatives are provided in Articles 6 and 7 of the Directive 2014/34/EU. This remains the responsibility of the manufacturer and authorized representative and is not covered as part of this certificate.
This certificate and test results obtained apply only to the product sample(s) submitted by the Applicant. UL International Demko A/S did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established follow-up service for inspection or other surveillance of the product. The Certificate Holder is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives/Regulations. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

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UL TYPE EXAMINATION CERTIFICATE

TECHNICAL DETAILS/SCHEDULE

Description of component

VisuNet FLX Panels consist of a display unit with touch screen in combination with a computing unit. Various display sizes and configurable computing units like Box PC BPC3200 and Direct Monitor Unit DMU3200 are available. The BPC3200 (certified under UL 22 ATEX 2478X) and DMU3200 (DMU certified under UL 22 ATEX 2479X) are installed on the backside of the display and form a VisuNet FLX Panel.
The devices are classed as Open Type equipment to be installed in or as part of an enclosure that provides a degree of protection not less than IP 6X in accordance with IEC 60079-31 by the end-user.

Configurations available are:

- Direct Monitor (DM-320P-) Based on the DPU with an additional interface (DMU – direct monitor unit) for direct connection of an external graphic card.
- Remote Monitor (RM-320P-) Based on the DPU with an additional interface (BPC3200 TCU – thin client unit) for connection to a thin client (Ethernet) network and a host
- PC (PC-320P-) Based on the DPU with an additional industrial PC (BPC3200 PCU – PC unit) for connection to an Ethernet network and a host PC.

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is covered in this certificate based on Exception 1) to the scope of EN 60079-28:2015.

Nomenclature

VisuNet FLX Panel

I		II		III	IV		V		VI		VII		VIII	IX
RM-	320	P	-	X	A	-	22GT	-	D	-	1NNNNS1	-	N	N0

I –	**Technology**	
	RM-:	Remote Monitor
	PC-:	Panel-PC
	DM-:	Direct Monitor
II –	**Type**	
	P:	Panel
III –	**Approvals**	
	L:	ATEX/IECEx Zone 2, cULus CL I, DIV 2
	N:	General purpose
IV –	**Operating Temperature range**	
	A:	Ambient Temperature: 0…45°C
	B:	Ambient Temperature: -20…55°C
V –	**Display Unit**	
	22GT:	21.5 inch, Full-HD, capacitive touch
	22KT:	
	22FC:	comparable to 22GT and 22KT, differences like optical bonding
	19SC:	19 inch, SXGA, capacitive touch optical bonding
	15FC:	15.6 inch, Full-HD, capacitive touch optical bonding
VI –	**Supply**	
	D:	24Vdc (+/-20%), SELV/PELV, Class 2
VII –	**Configurations**	
	Computing platform	
	1N:	Intel Celeron 3965U
	2N:	Intel Core i5-7300U
	VN:	Direct Monitor Unit

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	RAM	
	N:	None
	A:	1x4GB
	B:	1x8GB
	C:	1x16GB
	K:	1x4GB wide temperature grade for operating temperature range B
	L:	1x8GB wide temperature grade for operating temperature range B
	M:	1x16GB wide temperature grade for operating temp. range B
	Storage	
	N:	None
	A:	32GB
	B:	64GB
	C:	128GB
	D:	256GB
	E:	512GB
	K:	32GB wide temperature grade for operating temperature range B
	L:	64GB wide temperature grade for operating temperature range B
	M:	128GB wide temperature grade for operating temperature range B
	P:	256GB wide temperature grade for operating temperature range B
	Q:	512GB wide temperature grade for operating temperature range B
	Operating System & Software (not safety-relevant)	
	1	Win10
	2	P+F RM Shell
	X:	Can be an alphanumeric character, representing another Operating System & Software
	Housing	
	S1:	Mounting: Stainless steel bezel such as 304A or 316L
	S2:	Mounting: Stainless steel bezel such as 304A or 316L
VIII –	**Special Accessories (not safety-relevant)**	
	X:	Can be an alphanumeric character
	N:	None
IX –	**Options (not safety-relevant)**	
	X:	Can be an alphanumeric character
	N0:	Standard, No options

Ex marking

Ex II 3 D Ex tc [ic Dc] IIIC Dc (when fitted with BPC3200: RM-320P, PC-320P)

Ex II 3 D Ex tc IIIC Dc (when fitted with DMU: DM-320P)

Temperature range

Service temperature range is -20°C to +62.6°C.

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Trademark

The trademark PEPPERL+FUCHS will be used as the company identifier on the marking label.

Ratings

VisuNet FLX Panel,
Designated RM-320P, PC-320P (fitted with BPC3200)
24 V DC +/- 20%, 4.0 Amp, 80W max, SELV/PELV/Class 2

VisuNet FLX Panel,
Designated DM-320P (fitted with DMU3200 Direct Monitor Unit)
24 V DC +/- 20% 1.5 Amp, 30W max, SELV/PELV/Class 2

Intrinsically safe specifications:
Um = 30 V DC (when fitted with BPC3200)

Ex i USB ports
Uo: ≤ 5.3 V
Io: ≤ 240 mA
Po: ≤ 1.27 W
Li: negligible
Ci: ≤ 11 µF
Output characteristic: rectangular

For group IIC:
Co = 989µF
Lo = 50µH
Following values of Lo and Co can be applied combined. (Ci already subtracted)

Co (uF)	6	15	32	129	989
Lo (uH)	20	10	5	2	1

For group IIB/IIIC:
Co = 989µF
Lo =1400µH
Following values of Lo and Co can be applied combined. (Ci already subtracted)

Co (uF)	5	32	76	329	989
Lo (uH)	1000	200	50	10	4

For group IIA:
Co = 989µF
Lo = 5500µH
Following values of Lo and Co can be applied combined. (Ci already subtracted)

Co (uF)	14	28	75	239	989
Lo (uH)	1000	500	100	20	4

Ex i Remote Power (connector for external switch)
Uo: ≤ 5 V
Io: ≤ 10 mA
Po: ≤ 50 mW
Li: negligible
Ci: ≤ 1 µF

For group IIC:
Co = 999 µF
Lo = 100 mH
Following values of Lo and Co can be applied combined. (Ci already subtracted)

Co [µF]	2.1	3.8	11	31	189
Lo [µH]	100000	5000	100	10	2

Routine tests

N/A

Descriptive documents

The scheduled drawings are listed in the report no. provided under item “Test Report No.” on page 1 of this UL Type Examination Certificate.

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Schedule of Limitations

- The Display Panel seal has been evaluated for a service temperature range of -20°C to +62.6°C. Under these conditions the temperature of the exposed surface does not exceed 85°C.
- The equipment shall be installed as part of an enclosure that provides a degree of protection not less than IP 6X in accordance with EN IEC 60079-0 and used in an environment of not more than pollution degree 2 as defined in EN 60664-1.
- The device has to be mounted in an area with a lower risk of mechanical impact.
- Impacts from heavy or sharp-edged objects on the device have to be avoided. The maximum force for the housing parts is 4 N, the maximum force for light transmitting parts is 2 N
- The use of OSD power button is not allowed in hazardous areas.

Additional Information

The VisuNet FLX Panel has in addition passed the tests for Ingress Protection to IP 66 in accordance with EN60529:1991+A1:2000+A2:2013.

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