

xpr Readers



Xpro Range
Tested Under Extreme Conditions



▲ XP

Operating temperatures:	-40°C to + 70°C / -22°F to 158°F
Water and dust resistance:	As per IEC 60529-2013, weather resistance level IP65
Moisture resistance:	As per IEC 60068-2-38:2021, 0% to 95% at temperatures 40°C to 55°C; total duration: 48 hours
Saline environments:	As per IEC-60068-2-11:2007, 5±1% salt solution; one cycle 48 hours with 24 hours; flow rate 1.0 to 2.0 ml/80 cm ² /hour; exposure to salt solution at temperature 35°C and 24-hour drying condition; total duration: 96 hours
Shock resistance:	As per EC-62262:2002, IK11 level
Fire resistance:	Complies with UL94-VO
UV resistance:	Housing is F1 rated, UL746C
Liquid resistance:	With hydrogen peroxide (H ₂ O ₂) diluted at 10% water, ammonia (NH ₃) diluted at 12.5% water



▲ XP-K

Operating temperatures:	-40°C to + 70°C / -22°F to 158°F
Water and dust resistance:	As per IEC 60529-2013, weather resistance level IP65
Moisture resistance:	As per IEC 60068-2-38:2021, 0% to 95% at temperatures 40°C to 55°C; total duration: 48 hours
Saline environments:	As per IEC-60068-2-11:2007, 5±1% salt solution; one cycle 48 hours with 24 hours; flow rate 1.0 to 2.0 ml/80 cm ² /hour; exposure to salt solution at temperature 35°C and 24-hour drying condition; total duration: 96 hours
Shock resistance:	As per EC-62262:2002, IK10 level
Fire resistance:	Complies with UL94-VO
UV resistance:	Housing is F1 rated, UL746C
Liquid resistance:	With hydrogen peroxide (H ₂ O ₂) diluted at 10% water, ammonia (NH ₃) diluted at 12.5% water



▲ XPM

Operating temperatures:	-40°C to + 70°C / -22°F to 158°F
Water and dust resistance:	As per IEC 60529-2013, weather resistance level IP65
Moisture resistance:	As per IEC 60068-2-38:2021, 0% to 95% at temperatures 40°C to 55°C; total duration: 48 hours
Saline environments:	As per IEC-60068-2-11:2007, 5±1% salt solution; one cycle 48 hours with 24 hours; flow rate 1.0 to 2.0 ml/80 cm ² /hour; exposure to salt solution at temperature 35°C and 24-hour drying condition; total duration: 96 hours
Shock resistance:	As per EC-62262:2002, IK11 level
Fire resistance:	Complies with UL94-VO
UV resistance:	Housing is F1 rated, UL746C
Liquid resistance:	With hydrogen peroxide (H ₂ O ₂) diluted at 10% water, ammonia (NH ₃) diluted at 12.5% water

1. HIGH- AND LOW-TEMPERATURE TESTS



Note: The readers were tested under temperature of -40°C but the recommended operating temperature is -30°C.

Purpose of Test: To evaluate the effects of high- and low-temperature conditions on device safety, integrity, and performance

Description of the Test: Xpro readers were tested under extreme temperature conditions

Test Specifications:

- High Temperature Test: Temperature: +70°C; Duration: 48 hours
- Low Temperature Test: Temperature: -40°C; Duration: 48 hours

Name of the Equipment: Climatic Chamber

Test Result: No physical abnormalities noticed on the sample and did not exhibit any other condition that may affect functioning, performance, or safety

Test Report No.:

- High Temperature Test: ITSPL2425134A
- Low Temperature Test: ITSPL2425134B



2. IP65 EXTERNAL IMPACT TEST

1) IPX5 Waterproof Test



Purpose of Test: Equipment Under Test (EUT). Protected against low-pressure jets of water from any direction – limited ingress permitted

Description of the Test: Xpro readers were tested in extreme environmental conditions

Test Specifications:

- Nozzle diameter: 6.3 mm
- Distance from EUT: 3 m
- Water flow rate: 12.5 l/min
- Test duration: 3 min

Name of the Equipment: Rain Chamber

Test Result: Limited ingress noticed in the sample at the backside of the product (as per standard limited ingress is permitted). Functionality check was successful

Test Report No.: ITSPL2425178A



2) IP6X Dustproof Test



Purpose of Test: To evaluate the ability of the device to resist the effects of dust

Description of the Test: Xpro readers were tested in dusty environments

Test Specifications:

- Dust used: Talcum powder
- Maximum pressure: 20 mbar
- Test duration: 8 hours

Name of the Equipment: Dust Chamber

Test Result: No dust ingress noticed on the sample after test. **Functionality check was successful**

Test Report No.: ITSPL2425178A

3. SALINE (SALT SPRAY) ENVIRONMENT TEST



Purpose of Test: To check the resistance of materials and surface coatings of a system/component against salt mist

Description of the Test: Xpro readers were tested in salty environments

Test Specifications:

- Salt solution with a concentration of $5\% \pm 1\%$
- One cycle: 48 hours with 24 hours
- Exposure to salt solution at 35°C
- 24-hour drying condition
- No. of cycles: 2
- Test duration: 96 hours

Name of the Equipment: Salt Spray Chamber

Test Result: No red or white rust noticed on the sample after test

Functionality check was successful

Test Report No.: ITSPL2425134D



4. MOISTURE RESISTANCE TEST



Purpose of Test: To determine the resistance of device to the effects of a warm, humid atmosphere

Description of the Test: Xpro readers were tested in high-humidity environments

Test Specifications:

- 0% to 95% at temperatures 40°C to 55°C
- Test duration: 48 hours

Name of the Equipment: Climatic Chamber

Test Result: No physical abnormalities noticed on the sample and did not exhibit any other condition that may affect functioning, performance, or safety

Functionality check was successful

Test Report No.: ITSPL2425134C





1. IK EXTERNAL IMPACT TEST

Purpose of Test: To check the degrees of protection provided by enclosures for electrical equipment, determine the product's resistance to external mechanical impacts using the IK Code

Description of the Test: Xpro readers were tested for accidental drops or collisions

Test Specifications:

- Impact energy (Joule): 50 Joule (IK11) / 20 Joule (IK10)
- Drop height (mm): 500 mm / 400 mm
- Mass (kg): 10 kg / 5 kg
- No. of impacts: 5 on front surface of the housing

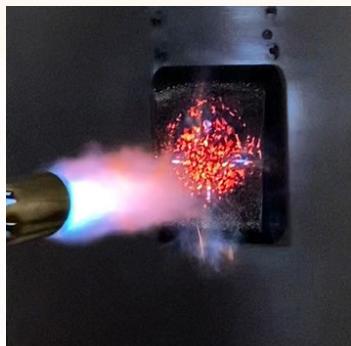
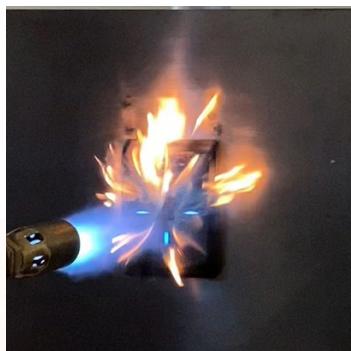
Name of the Equipment: Impact Tester

Test Result: No physical abnormalities noticed on the sample after test

- XPM: IK11
- XP: IK11
- XP-K: IK10

Test Report No.: - XPM: ITSPL2324271A

- XP: ITSPL2324271B
- XP-K: ITSPL2324271C



2. FIRE RESISTANCE TEST

Purpose of the Test: To check the ability of the reader housing to resist fire

Description of the Test: Xpro readers were tested for protection against fire

Test Specifications: Test duration 3 min

Test Result: The reader housing (PC-ABS) did not catch fire even after being exposed to flame.

Functionality check was successful

Test Report No.: Not applicable; test done in-house





HYDROGEN PEROXIDE TEST



AMMONIA TEST



3. LIQUIDS (CHEMICAL) TEST

Purpose of the Test: To check the ability of the reader to withstand any damages that can occur due to chemical effects

Description of the Test: Xpro readers were tested for protection against other liquids

Test Specifications:

- Liquid used for test: Hydrogen peroxide (H₂O₂) diluted at 10%; ammonia (NH₃) diluted at 12.5%
- Test duration: 2 hours in each liquid
- Reader housing was immersed inside a container filled with hydrogen peroxide and ammonia

Test Result: No damages were observed on the surface of the housing after the test, the printed logo was not affected by the liquid (chemical) and passed the test

Test Report No.: Not applicable; test done in-house



4. WATER SPLASH TEST

Purpose of the Test: To check the ability of the reader exposed outside to rain for its normal functioning

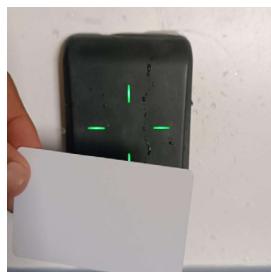
Description of the Test: Xpro readers were tested for resistance to heavy waterfalls

Test Specifications:

- Heavy and continuous pouring of water for more than 2 min
- Reader installed outside to be exposed to rain for more than a year

Test Result: Readers were able to function normally, even after outside exposure for a long time

Test Report No.: Not applicable; test done in-house



5. OTHER RESISTANCES



1) Hit by Adjustable Spanner:

Purpose of the Test: To assess the mechanical durability and impact resistance when subjected to strikes by an adjustable spanner

Description of the Test: Xpro readers were tested for resistance to impacts

Test Specifications:

- Adjustable spanner weight: 1.5 kg
- No. of strikes: 3-5 impacts per test sample

Test Result: No damage observed.

Functionality check was successful

Test Report No.: Not applicable; test done in-house



2) Hit by Hammer:

Purpose of the Test: To evaluate the impact resistance and mechanical durability under heavy strikes using hammer

Description of the Test: Xpro readers were subjected to repeated strikes

Test Specifications:

- Hammer weight: 1 kg
- No. of strikes: 3-5 impacts per test sample

Test Result: No damage observed.

Functionality check was successful

Test Report No.: Not applicable; test done in-house





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