

Sensors

General Specifications

2-Wire DC NAMUR

Differential Travel (Hysteresis)	1-10% (5% typical)
Nominal Voltage	8.2 VDC (EN60947-5-6)
Resistance Change from Nonactivated to Activated Condition	typical <1.0 to >8.0 k Ω
Resulting Current Change	≥ 2.2 mA to ≤ 1.0 mA
Recommended Switching Point for Remote Amplifier	>1.2 to <2.1 mA, typ. 1.55 mA ON/1.75 mA OFF
Power-On Effect	Realized in Amplifier
Reverse Polarity Protection	Incorporated
Wire-Break Protection	Realized in Amplifier
Transient Protection	Realized in Amplifier
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	$\leq 2\%$ of Rated Operating Distance

2-Wire DC

Ripple	$\leq 10\%$
Differential Travel (Hysteresis)	3-15% (5% typical)
Voltage Drop Across Conducting Sensor	Non-polarized (AD) <5.0 V Polarized (AG) <4.0 V
Trigger Current for Overload Protection	≥ 120 mA
Minimum Load Current	≥ 3.0 mA
Off-State (Leakage) Current	≤ 0.8 mA
Power-On Effect	Per IEC 947-5-2
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	$\leq 2\%$ of Rated Operating Distance

REED (AC) and (DC)

Ripple	$\leq 10\%$
Differential Travel (Hysteresis)	≤ 1 mm (Depends on magnet)
Maximum Switching Capacity	10 W
No-Load Current	0 mA
Maximum Approach Velocity	≤ 10 m/s
Power-On Effect	Per IEC 947-5-2
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	$\geq \pm 0.1$ mm (constant temperature & voltage)
Temperature Drift	≤ 0.1 mm
Voltage Drop	≤ 0.5 Volts

3-Wire DC

Ripple	≤10%
Differential Travel (Hysteresis)	3-15% (5% typical)
Voltage Drop Across Conducting Sensor.	≤1.8 V
	- Si...K08/K10(AP71, AN7) . ≤0.7 V
	- Bi/Ni../S34 ≤1.8 V
	- Bi 2-Q8SE-AP/AN.. . . . ≤2.5 V
Trigger Current for Overload Protection	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current	<100 µA
No-Load Current	<10 mA (Uprox ≤15 mA)
Time Delay Before Availability	≤8 ms
Power-On Effect	Per IEC 947-5-2
Reverse Polarity Protection	Incorporated
Wire-Break Protection	Incorporated
Transient Protection.	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	≤2% of Rated Operating Distance
	Bi 2-Q8SE-AP/AN.. ≤5% of Rated Operating Distance

4-Wire DC

Ripple.	≤10%
Differential Travel (Hysteresis).	3-15% (5% typical)
Voltage Drop Across Conducting Sensor.	≤1.8 V at 200 mA
Trigger Current for Overload Protection	≥220 mA on 200 mA Load Current
	≥170 mA on 150 mA Load Current
	≥120 mA on 100 mA Load Current
Off-State (Leakage) Current	<100 µA
No-Load Current	<10 mA (Uprox ≤15 mA)
Power-On Effect	Per IEC 947-5-2
Reverse Polarity Protection	Incorporated
Wire-Break Protection	Incorporated
Transient Protection.	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	≤2% of Rated Operating Distance

Sensors

General Specifications

2-Wire AC w/o Short-Circuit Protection

Line Frequency	40-60 Hz
Differential Travel (Hysteresis)	3-15% (5% typical)
Voltage Drop Across Conducting Sensor	≤6.0 V at 400 mA
	8 and 12 mm ≤6.0 V at 100 mA
Continuous Load Current	≤400 mA
	8 and 12 mm ≤100 mA
Off-State (Leakage) Current	≤1.7 mA
Minimum Load Current	≥5.0 mA
Inrush Current	≤8.0 A (≤10 ms, 5% Duty Cycle)
Power-On Effect	Per IEC 947-5-2
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes

2-Wire DC AS-Interface

Ripple	≤10%
Differential Travel (Hysteresis)	3-15% (5% typical)
Voltage Drop Across Conducting Sensor	≤1.8 V at 200 mA
Off-State (Leakage) Current	<100 μA
No-Load Current	<30 mA
Time Delay Before Availability	≤8 ms
Power-On Effect	Per IEC 947-5-2
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	±2% of Rated Operating Distance
	Bi 2-Q8SE-Ap/AN..±5% of Rated Operating Distance
E/A Configuration	(HEX)/ID-Code (HEX) 1/1
I/O Matrix Input	0=Switching Signal
	1-3= Not Used
	0-3-3= Not Used

2-Wire AC/DC w/Short-Circuit Protection

Line Frequency	40-60 Hz
Differential Travel (Hysteresis)	3-15% (5% typical)
Voltage Drop Across Conducting Sensor	≤6.0 V at 400 mA
	8 and 12 mm ≤6.0 V at 100 mA
Trigger Current for Overload Protection	AC: ≥440 mA; DC: ≥330 mA
	8 and 12 mm AC: ≥120 mA; DC: ≥120 mA
Continuous Load Current	AC: ≤400 mA; DC: ≤300 mA
	8 and 12 mm AC: ≥100 mA; DC: ≥100 mA
Off-State (Leakage) Current	≤1.7 mA (AC)
	≤1.5 mA (DC)
Minimum Load Current	≥3.0 mA
Inrush Current	4.0 A (≤20 ms, 10% Duty Cycle)
Power-On Effect	Per IEC 947-5-2
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	≤2% of Rated Operating Distance

3-Wire DC Capacitive

Ripple	≤10%
Differential Travel (Hysteresis)	2-20% (5% typical)
Voltage Drop Across Conducting Sensor	≤1.8 V at 200 mA
Trigger Current for Overload Protection	≥220 mA
Off-State (Leakage) Current	<100 μA
No-Load Current	≤15 mA
Power-On Effect	Per IEC 947-5-2
Reverse Polarity Protection	Yes
Wire-Break Protection	Yes
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	≤2% of Rated Operating Distance
Temperature Drift	<±20% of Rated Operating Distance

4-Wire DC Capacitive

Ripple	≤10%
Differential Travel (Hysteresis)	2-20 (5% typical)
Voltage Drop Across Conducting Sensor	≤1.8 V at 200 mA
Trigger Current for Overload Protection	≥220 mA
Leakage (Off-State) Current	<100 μA
No-Load Current	≤15 mA
Power-On Effect	Per IEC 947-5-2
Reverse Polarity Protection	Incorporated
Wire-Break Protection	Incorporated
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	≤2% of Rated Operating Distance
Temperature Drift	<±20% of Rated Operating Distance

2-Wire AC Capacitive

Line Frequency	50-60 Hz
Hysteresis (Differential Travel)	2-20% (5% typical)
Voltage Drop Across Conducting Sensor	≤7.0 V at 500 mA
Off-State (Leakage) Current	≤1.7 mA
Minimum Load Current	≥5.0 mA
Inrush Current	≤8.0 A (≤10 ms, 5% Duty Cycle)
Power-On Effect	Per IEC 947-5-2
Transient Protection	Per EN 60947-5-2
Shock	30 g, 11 ms
Vibration	55 Hz, 1 mm Amplitude in all 3 Planes
Repeatability	≤2% of Rated Operating Distance
Temperature Drift	<±20% of Rated Operating Distance

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General Specifications

4-Wire DC LIU Analog

Ripple	≤10%	Wire-Break Protection	Incorporated
No-Load Current	≤8.0 mA	Transient Protection	Per EN 60947-5-2
Voltage Output	0-10 V/R _L ≥4.7 kΩ	Shock	30 g, 11 ms
Current Output	0-20 mA/R _L ≤500 Ω	Vibration	55 Hz, 1 mm Amplitude, in all 3 planes
Linearity Tolerance	±3% of full scale	Repeatability	≤1% (0.5% after 30 min. warm up)
Temperature Tolerance	±0.06% / °C		
Reverse Polarity Protection	Incorporated		

3-Wire DC LI2 Analog

Ripple	≤10%	Wire-Break Protection	Incorporated
No-Load Current	≤8.0 mA	Transient Protection	Per EN 60947-5-2
Current Output	4-20 mA/R _L ≤500 Ω	Shock	30 g, 11 ms
Linearity Tolerance	±3% of full scale	Vibration	55 Hz, 1 mm Amplitude, in all 3 planes
Temperature Drift	±0.06% / °C	Repeatability	≤1% (0.5% after 30 min. warm up)
Reverse Polarity Protection	Incorporated		

LI = indicates current output only.
2 = Indicates a variance to standard which is 0-20 mA.

3-Wire DC LF10 Analog

Ripple	≤10%	Transient Protection	Per EN 60947-5-2
No-Load Current	≤8.0 mA	Shock	30 g, 11 ms
Frequency Output	1-10 kHz	Vibration	55 Hz, 1 mm Amplitude, in all 3 planes
Linearity Tolerance	±5% of full scale	Repeatability	≤1% (0.5% after 30 min. warm up)
Temperature Tolerance	±0.06% / °C		
Reverse Polarity Protection	Incorporated		
Wire-Break Protection	Incorporated		

LF = Linear frequency (1-10 kHz) output.

4-Wire DC LUAP6X Analog

Ripple	≤10%	Voltage Drop Across Conducting Sensor	≤1.8 V
No-Load Current	≤8.0 mA	Trigger Current for	
Voltage Output	0-10 V/R _L ≥4.7 kΩ	Overload Protection	≥220 mA on 200 mA load current
Linearity Tolerance	±5% of full scale	No-Load Current	<10 mA
Temperature Tolerance	±0.06% / °C	Vibration	55 Hz, 1 mm Amplitude, in all 3 planes
Reverse Polarity Protection	Incorporated	Repeatability	≤1% (0.5% after 30 min. warm up)
Wire-Break Protection	Incorporated		
Transient Protection	Per EN 60947-5-2		
Shock	30 g, 11 ms		
Off-State (Leakage) Current	<100 mA		

3-Wire DC LU Analog

Ripple	≤10%	Transient Protection	Per EN 60947-5-2
No-Load Current.	≤8.0 mA	Shock	30 g, 11 ms
Voltage Output.	0-10 V/R _L ≥4.7 kΩ	Vibration	55 Hz, 1 mm Amplitude, in all 3 planes
Linearity Tolerance.	±3% of full scale	Repeatability	≤1% (0.5% after 30 min. warm up)
Temperature Tolerance	±0.06% / °C		
Reverse Polarity Protection	Incorporated		
Wire-Break Protection	Incorporated		

4-Wire DC LIU5 Analog

Ripple	≤10%	Wire-Break Protection	Incorporated
No-Load Current.	≤8.0 mA	Transient Protection	Per EN 60947-5-2
Voltage Output.	0-10 V/R _L ≥4.7 kΩ	Shock	30 g, 11 ms
Current Output	4-20 mA/R _L ≤500 Ω	Vibration	55 Hz, 1 mm Amplitude, in all 3 planes
Linearity Tolerance.	±3% of full scale	Repeatability	≤1% (0.5% after 30 min. warm up)
Temperature Drift	±0.06% / °C		
Reverse Polarity Protection	Incorporated		

LIU = Linear voltage or current output.
5 = Indicates 4-20 mA and 0-10 V output.

Variations:

No Load Current	
WIM 40-Q20L60	≤23.0 mA
WIM 70-Q20L100	≤23.0 mA
WIM 40-NTL/STL	≤23.0 mA
Linearity Tolerance	
WIM 40-Q20L60	≤2%
WIM 70-Q20L100	≤8%
WIM 40-NTL/STL	≤2%

Relative Temp. Drift

WIM 40-Q20L60	≤±0.06% °C
WIM 70-Q20L100	≤±0.06% °C
WIM 40-NTL/STL	≤±0.06% °C

2-Wire DC NAMUR Analog

Linearity Tolerance.	≤5% of final value	Temperature Drift	≤ ±0.06% per °C
Nominal Voltage	8.2 VDC (EN 50227)	Shock	30 g, 11 ms
Current Output	4-20 mA	Vibration	55 Hz, 1 mm Amplitude, in all 3 Planes
Power-On Effect	Realized in Amplifier	Repeatability	≤1% (0.5% after 30 min. warm up)
Reverse Polarity Protection	Incorporated		
Wire-Break Protection	Realized in Amplifier		
Transient Protection	Realized in Amplifier		