## PE210620 – Volta Datasheet



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## FEATURES

- Analog input 0-1.600 V
- 4-20 mA analog output & Supply
- 1.600 V input to output reinforced insulation barrier
- ≥20 mm Creepage & Clearance distances
- Superior Gain and offset characteristics
- Fully potted housing, resistant against;
  - o Shock, Vibration
  - o Moisture
  - o Dust & debris
- Excellent common and differential noise rejection
- Diagnostic output feature
- Easy integration & installation



FIGURE 1, VOLTA

### APPLICATION EXAMPLE



Figure 2, Voltage sense application



## TERMINAL DESCRIPTION



## DEVICE DESCRIPTION

The Volta is a reinforced isolated signal amplifiers, designed specifically for interfacing low voltage control systems with high voltage DC distribution networks or battery systems. The isolator ensures accurate measurements while providing isolation between the high voltage input and the low voltage control equipment. The signal isolator is powered from a single 11 to 28V DC supply.

The analog input voltage range is from 0 to 1.600 Vdc. The isolators reflect the magnitude of the input voltage on their analog output with a bandwidth of 100 kHz. The full range of the analog input signal is translated to a (3-wire) 4-20mA analog output. As a diagnostic feature, the output is set to 2mA upon detection of a (functional) malfunction in the isolator circuitry.

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# SPECIFICATIONS

#### MAXIMUM RATINGS

Parameter	Condition	MAX	UNIT
Supply voltage		32	V
Analog input voltage	Volta series	1.7	kV
Common mode voltage	Input to output CM voltage	±1.7	kV
Temperature		80	°C
Shock	Three orthogonal directions	30	G

#### RECOMMENDED OPERATING CONDITIONS

Parameter	Condition	MIN – MAX	UNIT
Power Supply	(Three wire 4-20mA)	11-28	V
Analog Input	Volta	0-1.6	kV
Ambient temperature		-20 - 80	°C

#### INSULATION SPECFICIATIONS

Parameter	Condition	Value	UNIT
External Clearance	Between input terminals	≥ 20	mm
External Creepage	Between input terminals	≥ 28	mm
External Clearance	Input to output terminal	≥ 60	mm
External Creepage	Input to output terminal	≥ 70	mm
Maximum-rated isolation working voltage	VDE V 0884-11	1.7	kVpk
Maximum transient isolation voltage	t = 60 s (qualification test)	6	kV
Maximum transient isolation voltage	t = 5 s (100% production test)	7.2	kV
Insulation resistance	Input to output	≥1	GΩ
Barrier capacitance	Input to output	5	pF
Comparative tracking index	IEC 60112	≥ 600	V
Overvoltage category per IEC 60664-1	Rated mains voltage ≤ 600 VRMS	I-IV	
Overvoltage category per IEC 60664-1	Rated mains voltage ≤ 1000 VRMS	1-111	
Pollution degree		2	



#### ELECTRICAL SPECIFICATIONS

Parameter	Condition	Value	UNIT
INPUT			
Input voltage range	Linear operating range	0-1.6	kV
Diff. input resistance	Volta	3.79	MΩ
OUTPUT 4-20mA			
Nominal gain	Input to output, Volta	100	V/mA
Offset		±5	μA
Gain error		±0.4	%
Output bandwidth	-3dB	100	kHz
Supply			
Current draw	At 12V supply, Without output load	18	mA
	At 24V supply, Without output load	13	mA

## CONNECTIONS

Figure 3 presents a connection example of the three-wire 4-20mA interface of the signal isolator.



FIGURE **3**, CONNECTION EXAMPLE



## MECHANICAL DIMENSIONS







#### Notes:

- All dimensions in millimeters (mm)
- Body shall be mounted with two M5 screws, one on each side