Features

- Compact design
- Rack mountable
- High voltage rating
- High power handling capability
- Realistic testing of downhole tools
- Characteristics that match real cables

Product Description

The NSE High Power Cable simulator is designed to replicate the characteristics of real-world wireline cables. A specially developed circuitry design allows us to shape the attenuation and resistance characteristics of most wirelines and coiled tubing setups in use.

Testing with a realistic cable profile will give better tests and more accurate verifications of the system behavior. This creates more confidence and reliable operations. The high power and voltage rating means that most tools can be tested at full power through the simulator.

Easy connection with banana safety connectors at both front and rear panel. 230Vac mains inlet for fan operation.

Contact NSE for custom cable characteristics.

1 Product Specification

1.1 Electrical Specifications

Parameter	Conditions / Comments	Version 5014-11	Unit
POWER RATING			
Input Voltage	*Maximum DC Input voltage* *IN+ to GND or OUT+ to GND*	+/- 900	*Vdc*
Input Current	*Continuous @ 25degC ambient ** *IN+ to OUT+*	3	*Adc*
Input Current	*Pulse < 10sec (max 1 pulse / 5min)* *IN+ to OUT+*	5	*A*
Power dissipation	*Maximum continuous power dissipation** *(V_IN+ – V_OUT+) x Current*	800	*W*
CABLE CHARACTERISTICS			
Characteristics	*Reference cable*	1N32PTZ	
Cable length	*Reference cable length*	9144 30.000	*M* *feet*
DC Resistance	*Cable simulator DC Resistance*	86	*Ω*
COOLING FANS			
Supply Voltage		230	*Vac*
ENVIRONMENTAL			
Ambient temperature	*Operational temperature range*	0 – 30	*°C*
Storage temperature		0 – 50	*°C*

**Requires cooling (230Vac mains) fans when operated.*

1.2 Polarity and AC voltage

NOTE! **<u>The cable simulator is designed for DC Voltage ONLY!</u>**

However, it will handle AC voltages and noise ripple from telemetry systems and/or motor controllers connected, but it should not be fed with an AC power supply.

The **IN+** and **OUT+** terminals of the simulator can be connected to either positive or negative DC voltage sources.

The simulator is bi-directional. Current can flow from IN+ to OUT+ or in the opposite direction.

2 Cable characteristics

2.1 NSE-5014-11 (1N32PTZ – 9144m/30kft.)

2.1.1 Reference cable

Reference cable for the NSE-5014-11 version is CEM27491 Camesa 1N32PTZ

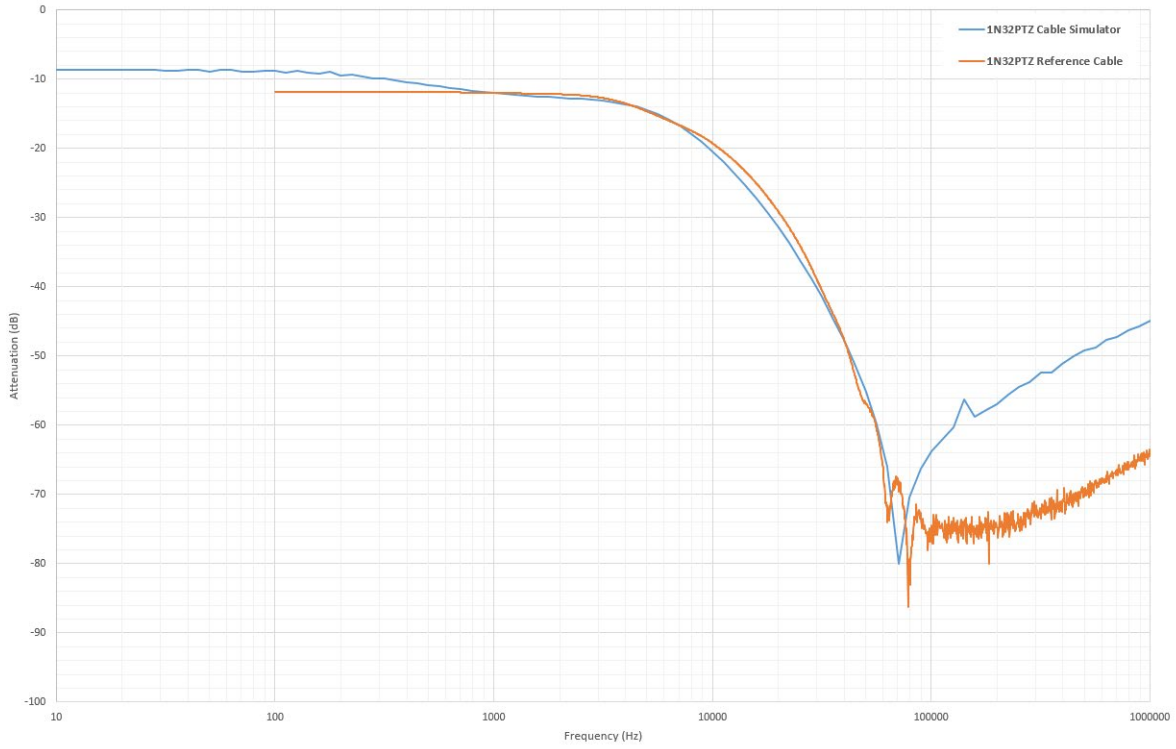
Cable is measured at Altus September 2015 using a BODE 100 instrument to measure the response of the cable.

Parameter	Comment	Value
DC Resistance	-	84ohm
Cable Length	-	9144meter / 30kft
Cable Resistance	-	9.18 ohm/km
Type of Drum	-	Steel drum
Cable type	1N32PTZ	5/16”

2.1.2 Comparison of simulator and reference cable

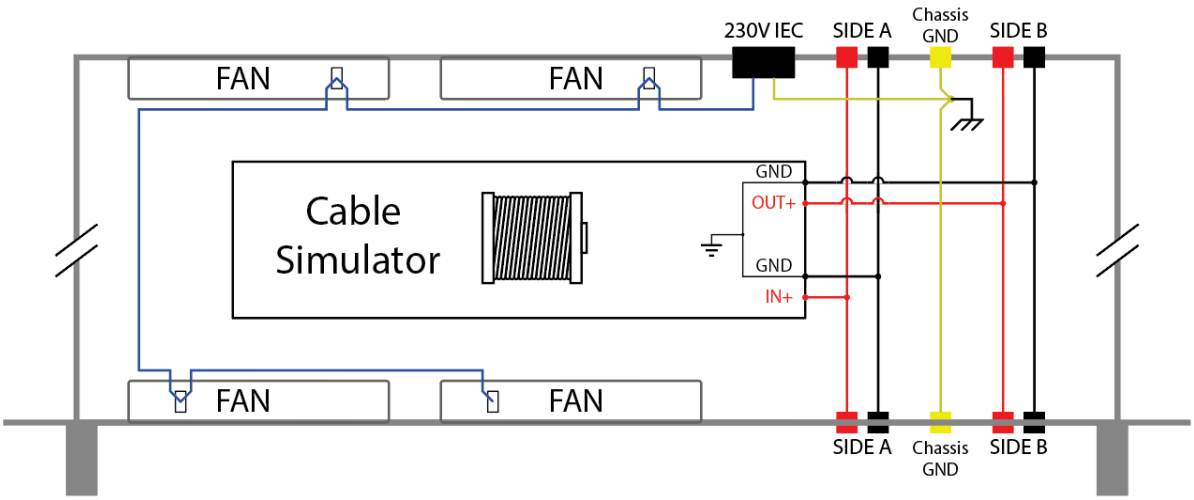
Parameter	Reference cable	Cable Simulator
DC Resistance	84Ω	86Ω

The plot below shows the comparison of the cable simulator (blue line) versus the reference cable (red line).



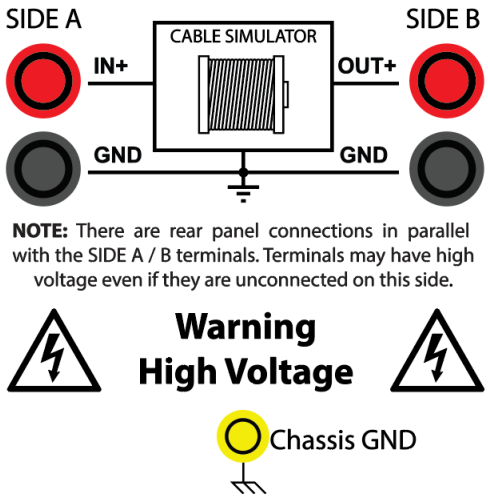
3 Connections

The cable simulator has terminals on both the front and rear panel as shown below. These terminals are routed in parallel, so it does not matter which is used. One should however note that due to the connection, voltage may be present on either side of the panel, even if one side is unconnected.



3.1 Front panel connections

The simulator has safety banana connections on the front panel. In addition, there is a chassis GND connector for ground safety connections.

Signal name	Description / Function	Connector Pinout (Face View)
SIDE A – IN+	Input to cable simulator	
SIDE A – GND	Ground reference	
SIDE B – OUT+	Output from cable sim.	
SIDE B – GND	Ground reference	
Chassis GND	Simulator chassis ground	

Note that the simulator is bi-directional.

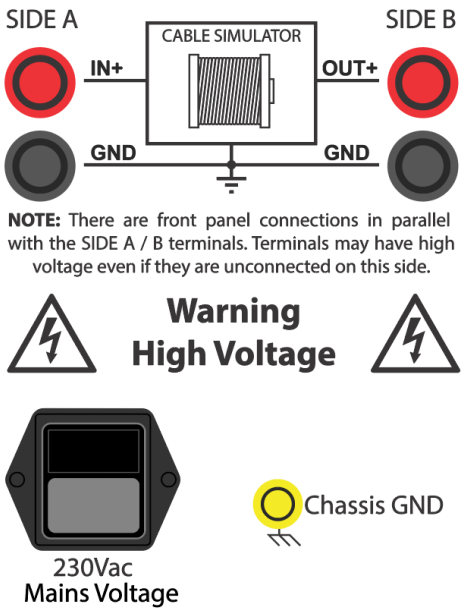
Input and output can be swapped.

Chassis ground should always be used to ensure safety of the setup.

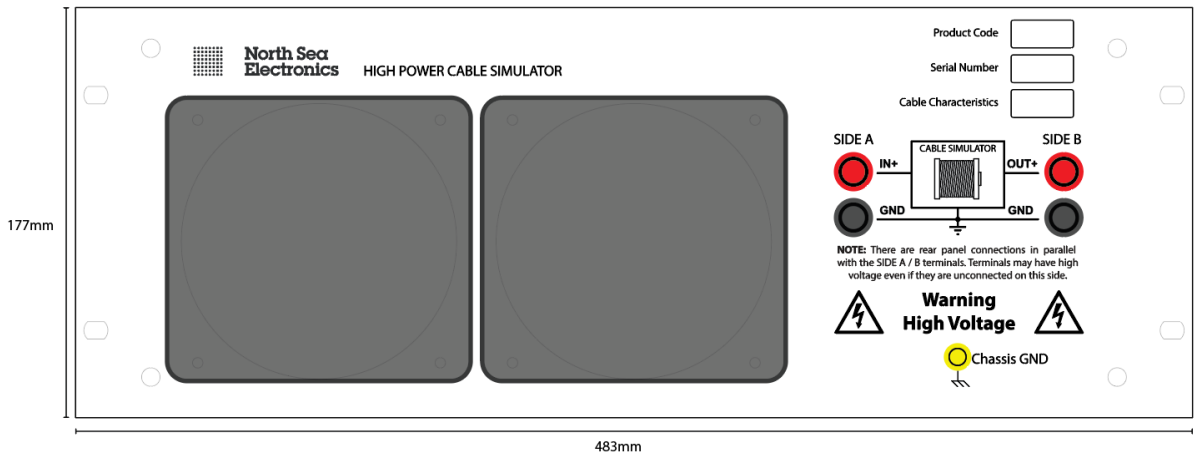
3.2 Rear panel connections

The simulator has safety banana connections on the rear panel. In addition, there is a chassis GND connector for ground safety connections.

Signal name	Description / Function	Connector Pinout (Face View)
SIDE A – IN+	Input to cable simulator	
SIDE A – GND	Ground reference	
SIDE B – OUT+	Output from cable sim.	
SIDE B – GND	Ground reference	
Chassis GND	Simulator chassis ground	
230Vac	AC Fan voltage	
Note that the simulator is bi-directional. Input and output can be swapped.		
Chassis ground should always be used to ensure safety of the setup.		



4 Mechanical Dimensions



- Rack Height: 4U (177mm)
- Depth: 340mm + front handles
- Width: 19'' (483mm)

5 Datasheet Revision History

REV	DATE	DESCRIPTION	PREP	APPR
A	25.01.2022	Initial release	RFY	GLK

6 Ordering

6.1 Order code

		Order code:	**NSE-5014**	**-1x**
Category	NSE-5014	= NSE High Power Cable Simulator		
Model	-11	= 1N32PTZ 9144m Cable Simulator		
	-1**X**	= Custom cable (on request)		

6.2 Where to buy

Email: sales@nse.no
Web: www.nse.no
Phone: +47 406 48 400