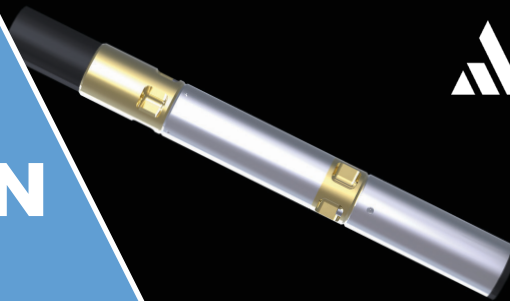


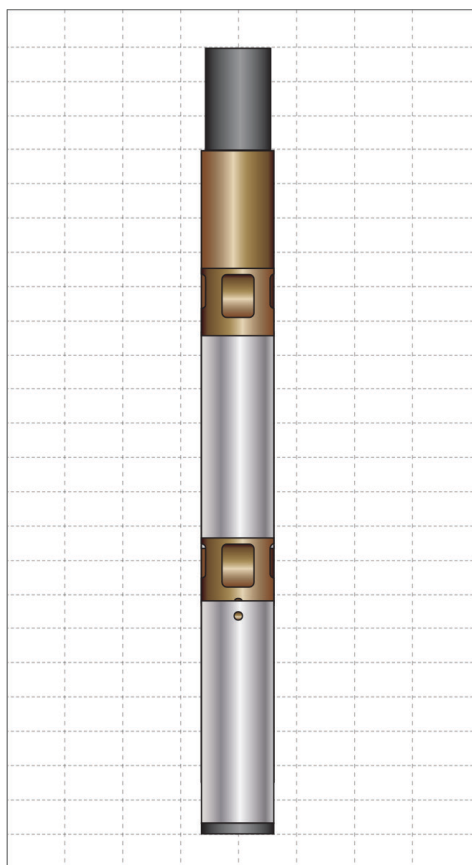
PRECISION MECHANICAL APPLICATIONS

VOLTAGE PROTECTION MODULE



MAKING INTERVENTION
SMARTER

The Voltage Protection Module (VPM) is a surface controlled “electrical switch” that provides an additional level of safety when conveying perforating guns or other ballistic devices with the Power Trac systems. In the safe mode (switch in open position), it ensures no current is available at the ballistic device. In log/fire mode (switch in closed position) correlation tools can be powered and ballistic devices fired. The switch position is continuously monitored and fed back to surface.



APPLICATIONS

In highly deviated or horizontal wells, tractor conveyance of:

- Perforating guns
- Pipe severing tools/back off string shots/tubing punchers
- Explosive plug setting

FEATURES

- Combinable with passive and powered CCLs
- Standard GO type head connections
- Can be run with both positive and negative polarity fired perforating guns
- Compliant with API RP67

BENEFITS

- QHSE; general perforating safety
- Improved operational efficiency

Service Name	VPM-G¹	VPM-E¹
Tool body OD	2.13 inches/54.0mm	3.38 inches/85.7mm
Length	2.34 ft./0.71m	0.98 ft./0.30m
Minimum restriction ID	2.50 inches/63.5 mm	3.50 inches/88.9mm
Pressure rating	15,000 psi/1,034 bar	15,000 psi/1,034 bar
Temperature rating (max)	177 °C / 350 °F	177 °C / 350°F
Temperature rating (min)	0 °C / 32 °F	0 °C / 32 °F
H2S/CO2	NACE MRO-175	NACE MRO-175
Operating voltage	- 50 VDC to -100 VDC	-50 VDC to -100 VDC
Current (quiescent)	10 mA ± 2 mA	15 mA
Current (motor run)	50 – 75 mA	40 -120 mA
Maximum applied voltage	1,000 VAC/+1,250 VDC/-1,000 VDC	1,000 VAC/+1,250 VDC/-1,000 VDC

¹VPM-E,G are products of Guardian Global Technologies