German Cathodic Protection

Pipelines running parallel to high voltage overhead lines are subjected to interference from OHL operating and short circuit currents.
Inductive coupling results in the generation of AC voltages between the pipeline and surrounding soil. Maximum permissible voltage exposure for personnel and equipment under different operating conditions are defined by various International Standards and Safety Codes.
Instances of high induced voltages may call for earthing measures to ensure that the magnitude of AC voltages remains within safe limits.

Effect on protection range and the measurement of OFF Potential of an impressed current system

The average current density [Js_M] for a PE insulated pipeline with a directly connected earthing system results in a large reduction of the protection range of an impressed current system.
At direct connection of the earthing system with the pipeline emerges when switching off the impressed current system a potential difference (U_{RE}) between the pipeline and the zinc earthing system of about 80...230 mV. The real OFF Potential (IR free potential) is not measurable because of the appearing transient currents.
In addition, it is not possible to locate pipeline insulation holidays in the potential gradient area of a directly connected earthing system.

The dimensions of VL-14-401 allows installation inside test stations

AC Voltage limiter VL-14-401

AC Voltage limiter VL-14-401 is designed to protect operating personnel and pipeline equipment against electrical shocks and damages caused by AC fault currents.
Limiter VL-14-401 effectively blocks the protective DC-current required for cathodic protection while providing a low ohmic connection for induced AC currents caused by operating or short circuit currents of high voltage overhead line systems.

Limiter VL-14-401 is available in standard models with the following technical data:

V_{RSM}	500 V - 2300 V	V_{RRM}	400 V - 2200 V
I_{FRMS}	10 A	i^2t	100 A^2s

(V_{RSM}) non-repetitive peak reverse voltage

(V_{RRM}) max. allowable peak value of repetitive transient off-state and reverse voltage

(I_{FRMS}) max. current for continuous operation

(i^2t) rating which should not be exceeded due to short circuits

Dimensions:

Length: 270 mm, Diameter: 65 mm, Weight: 1.2 kg