

保护管道和人身安全

问题：外部电压

由于管道具有良好的绝缘性，易受到外部电压的干扰。这种情况尤其发生在管道沿铁路或高压线敷设的情况。这种外部电压会导致高接触电压，危及在管道上作业或意外触摸管道的人员。除此之外，还会在管道上引起交流腐蚀（AC 腐蚀），从而对运输安全产生不利影响。

解决方案：限制过电压

VCSD 智能耦合控压装置保护管道和人员免受稳态、暂态和瞬态的过电压影响。通过智能耦合控压装置将稳态交流电压限制在一个安全的预设值范围内。而管道的阴极保护电位（DC 电位）**不会**受到负面影响。



型号 / 货号：	VCSD 40 IP 65 / 923 401	
	限制电压*	放电电流
瞬态 (至 1 ms)	≤ 1.25 kV	100 kA
暂态 (至 200 ms)	≤ 400 V (AC _{rms})	1.1 kA _{rms}
稳态 (> 200 ms)	最大 50 V (AC _{rms}) (可调 3 ... 50 V)	40 A _{rms} (持久)

*满足以下要求：德国 DVGW/VDE 工作组第 3 号规定（包括附录）/ DIN EN 50443



保护目标如下：

- 应对外部电压
- 避免交流腐蚀
- 保护管道及人身安全



符合 CE 要求的保护方案 VCSD：

DEHN 提供的保护方案是一套经过制造商测试和 CE 认证的完整系统！

安全且智能！智能耦合控压装置 VCSD 为您带来的优势一目了然：



时刻为您的员工提供安全保障

VCSD 的控压性能始终低于预设的极限值。即使在关闭状态下，智能耦合控压装置也会将稳态过电压限制在 50V，不会对人身带来危险。



智能辅助您的日常工作

信息尽在掌控：将 VCSD 集成到阴极保护监测系统中可以随时了解管道的状态。集成的 USB 接口持续提供测量值，如放电电流、管道电压或设备温度。



简单的测试和测量操作更加节省时间

对阴极保护测量无需执行连接和断开操作：可从控制室远程操作耦合控压装置。另一个优势：由于集成了自测程序，可以方便快速地测试 VCSD。



由于技术更新，我们保留对产品性能、结构、技术、重量和材料的更新和解释权。插图仅供参考。



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Voltage Controlled Smart Decoupling Device

Smart decoupling device VCSD



Safe pipelines – safe people

Problem: External voltages

Due to their good insulation, pipelines are prone to external voltages. This is particularly the case where pipelines run alongside railway lines or high-voltage lines. These external voltages lead to high touch voltages and present a risk to people working on pipelines or who accidentally touch them. In addition, they can cause alternating current corrosion (AC corrosion) on the pipelines, thus adversely affecting the reliability of pipelines.

Solution: Limitation of surges

The smart decoupling device VCSD protects pipelines and people from long-duration, temporary and transient overvoltages. Long-duration AC voltages are limited to a preset value by the voltage-controlled short-circuiter of the decoupling device. This does **not** negatively affect the desired cathodic protection potential (DC potential) of the pipeline.



Type / Part No.	VCSD 40 IP 65 / 923 401	
	Limiting voltage*	Discharge current
Transient (up to 1 ms)	≤ 1.25 kV	100 kA
Temporary (up to 200 ms)	≤ 400 V (AC _{rms})	1.1 kA _{rms}
Long-duration (> 200 ms)	max. 50 V (AC _{rms}) (adjustable from 3 to 50 V)	40 A _{rms} (permanently)

* Fulfills the following specifications: AfK recommendation no.3 including supplement / EN 50443



Protection goals in a nutshell:

- Coping with external voltages
- Avoiding AC corrosion
- Protecting pipelines and people



CE-compliant protection solution VCSD:

This manufacturer-tested and CE-certified complete system is only available from DEHN!

SAFE and SMART! Your benefits from the smart decoupling device VCSD in short:



Staff safety – at all times

The limiting performance of the VCSD is always below the normative limit values. Even when it is switched off, the smart decoupling device limits long-duration overvoltages to 50 V and therefore to a value which is harmless for human beings.



Smart support – with your daily work

Well informed: By integrating the VCSD in cathodic protection monitoring systems, you stay informed about the status of your pipeline. The integrated USB interface continuously delivers measured values such as discharge current, pipeline voltage or device temperature.



Save time – test and measure the easy way

No need to connect and disconnect to get cathodic protection measurements: The decoupling device can be controlled remotely from the control room. Another advantage for you: Testing the VCSD is quick and easy thanks to its integrated self-test routine.



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