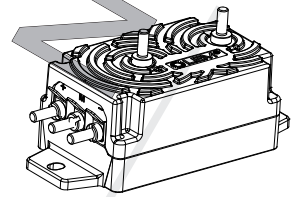


Voltage Transducer DVL Series

For the electronic measurement of voltage: DC, AC, pulsed..., with galvanic isolation between the primary circuit and the secondary circuit.



$V_{PN} = 50 \dots 2000 \text{ V}$



Electrical data

Type	Primary nominal voltage rms V_{PN} (V)	Primary voltage, measuring range V_{PM} (V)
DVL 50	50	± 75
DVL 125	125	± 187.5
DVL 150	150	± 225
DVL 250	250	± 375
DVL 500	500	± 750
DVL 750	750	± 1125
DVL 1000	1000	± 1500
DVL 1500	1500	± 2250
DVL 2000	2000	± 3000
\hat{V}_P Peak primary voltage		$\pm 1.5 V_{PN}$ (100 ms/min @85°C) $\pm 1.15 V_{PN}$ (5 s/5 min @75°C) $\pm 1.05 V_{PN}$ (5 min/h @75°C)
R_M Measuring resistance		$R_{M \min}$ $R_{M \max}$ 0 140 Ω
I_{SN} Secondary nominal current rms		50 mA
V_C Supply voltage ($\pm 10\%$)		DC $\pm 15 \dots 24$ V
I_C Current consumption		$25 + I_s$ mA

Features

- Closed loop (compensated) voltage transducer using the Hall effect
- Isolated plastic case recognized according to UL 94-V0.

Advantages

- Excellent accuracy
- Very good linearity
- Low temperature drift
- Optimized response time
- Wide frequency bandwidth
- High immunity to external interference.

Applications

- Single or three phase inverters
- Propulsion and braking chopper
- Propulsion converter
- Auxiliary converter
- Battery charger.

Application Domain

- Traction.

Accuracy - Dynamic performance data

X_G Overall accuracy @ V_{PN} , $T_A = 25^\circ\text{C}$	± 0.7	%
Overall accuracy @ V_{PN} , $T_A = -40 \dots +85^\circ\text{C}$	± 1.7	%
I_O Offset current @ $V_P = 0$, $T_A = 25^\circ\text{C}$	± 50	μA
t_r Response time to 90 % of I_{PN} step	< 50	μs
BW Frequency bandwidth (-3 dB)	DC .. 11	kHz

General data

T_A Ambient operating temperature	-40 .. +85	$^\circ\text{C}$
T_S Ambient storage temperature	-50 .. +90	$^\circ\text{C}$
m Mass	270	g
Standards	EN 50155: (2007) EN 50124-1: (2001) NFF16101/2: (1988)	

Typical performance characteristics

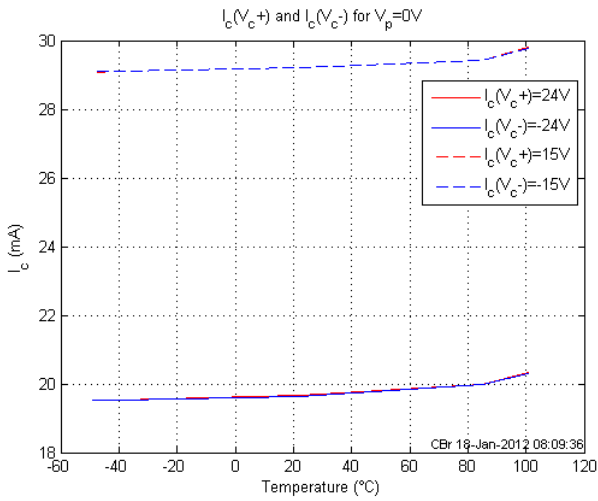


Figure 1: Supply current function of temperature

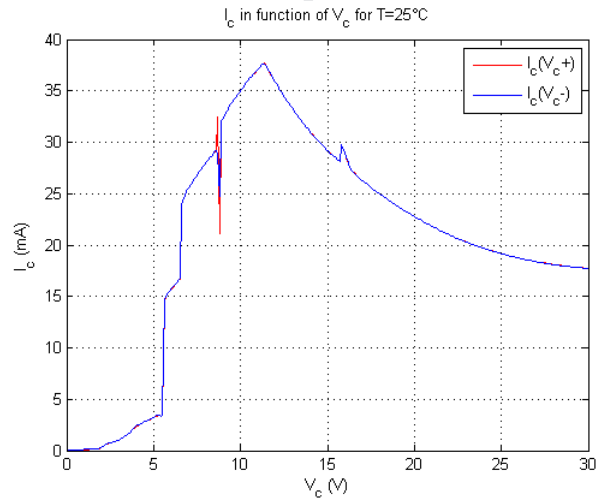


Figure 2: Supply current function of supply voltage

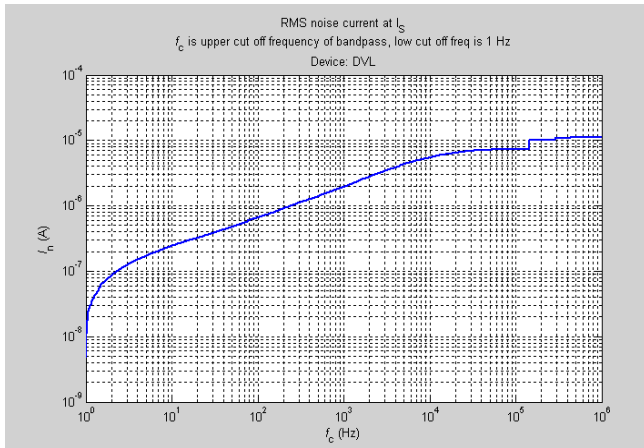


Figure 3: Typical total output current noise (rms) with $R_M = 33.3333 \Omega$ (f_c is upper cut off frequency of bandpass, low cut off frequency is 1 Hz)

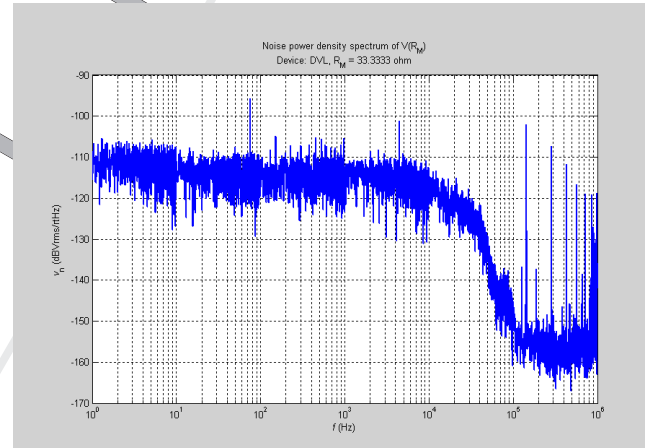


Figure 4: Typical noise power density of $V (R_M)$ with $R_M = 33.3333 \Omega$

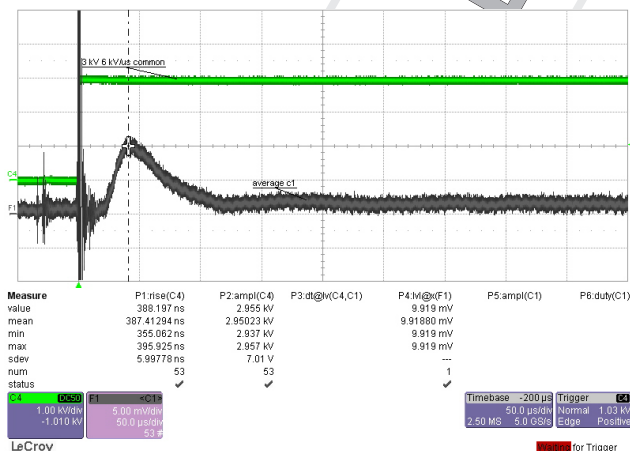


Figure 5: Typical common mode perturbation (3000 V step with 6 kV/ μ s with $R_M = 100 \Omega$)

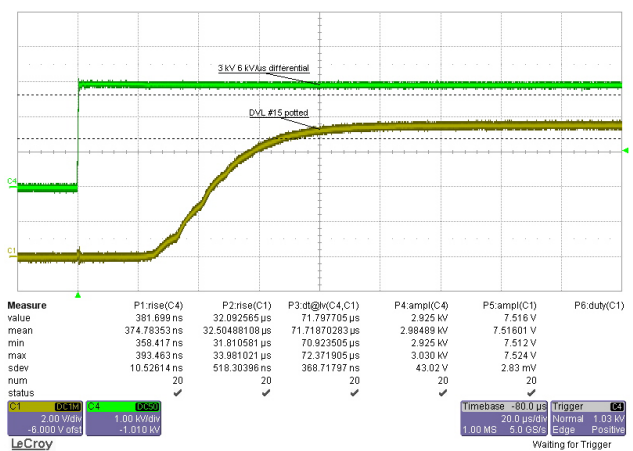


Figure 6: Typical step response (0 to 3000 V) with $R_M = 100 \Omega$

Voltage Transducer DVL Series

Isolation characteristic

V_d	Rms voltage for AC insulation test, 50 Hz, 1 min	8.5	kV
V_e	Patial discharge extinction voltage rms @ 10 pC	2.7	kV
CTI	Comparative tracking index Clearance and creepage	600	see drawing (page 4)

Safety



This transducer must be used in electric/electronic equipment with respect to applicable standards and safety requirements in accordance with the manufacturer's operating instructions.

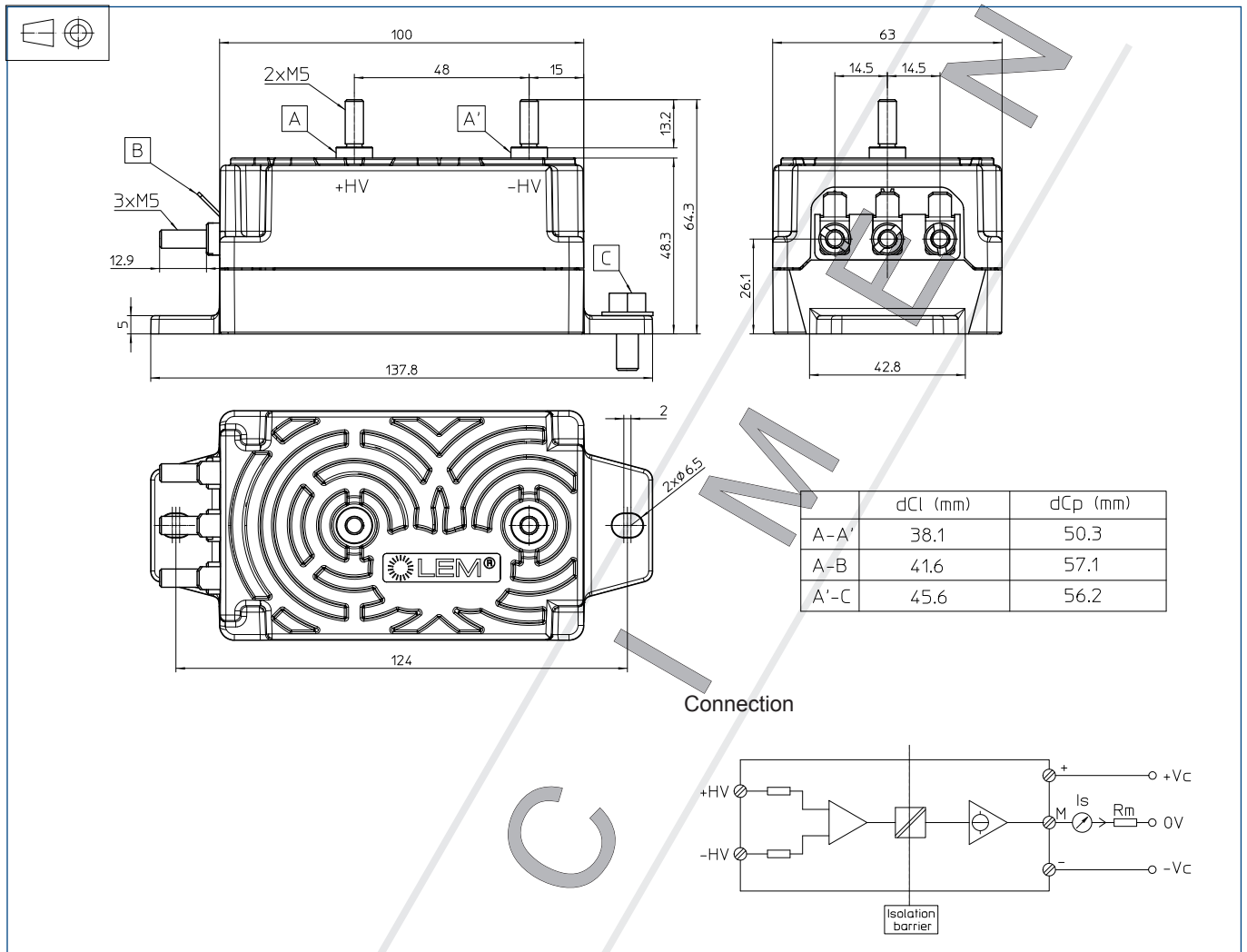


Caution, risk of electrical shock

When operating the transducer, certain parts of the module can carry hazardous voltage (eg. primary busbar, power supply). Ignoring this warning can lead to injury and/or cause serious damage. This transducer is a build-in device, whose conducting parts must be inaccessible after installation. A protective housing or additional shield could be used. Main supply must be able to be disconnected.

SPECIMEN

Dimensions DVL Series (in mm)



Mechanical characteristics

- General tolerance ± 1 mm
- Transducer fastening
 - 2 holes $\varnothing 6.5$ mm
 - 2 M6 screws
- Distance between holes 124 mm
- Recommended fastening torque 4 Nm
- Fastening & connection of primary
 - 2 M5 threaded studs
 - Recommended fastening torque 2.2 Nm
- Fastening & connection of secondary
 - 3 M5 threaded studs or
 - 3 Faston 6.35 x 0.8 mm
 - Recommended fastening torque 2.2 Nm

Remarks

- I_s is positive when V_p is applied on terminal +HV.
- This is a standard model. For different versions (output connections, connector, cable etc.), please contact us.