

# benvac

## ELECTRICAL SAFETY FOR EV-CHARGING



The photo shows the IEC versions only.

Charging of electric vehicles at a standard wall socket or a wall box requires protection devices against DC fault currents to avoid electric shock. Installed type A residual current circuit-breakers (RCCBs) are unable to identify and deactivate DC fault currents.

benvac differential current sensors offer the opportunity to save the cost and space for a costly type B RCCB in IC-CPD or wall boxes.

- avoids hazardous situations with DC fault currents
- protects RCCB type A from saturation
- saves costly type B RCCB
- volume optimized
- AC/DC-current sensitivity at low cost
- self-monitoring and test functions
- robust mechanical design suitable for IC-CPD

benvac is a joint development of Bender GmbH & Co. KG and VACUUMSCHMELZE.

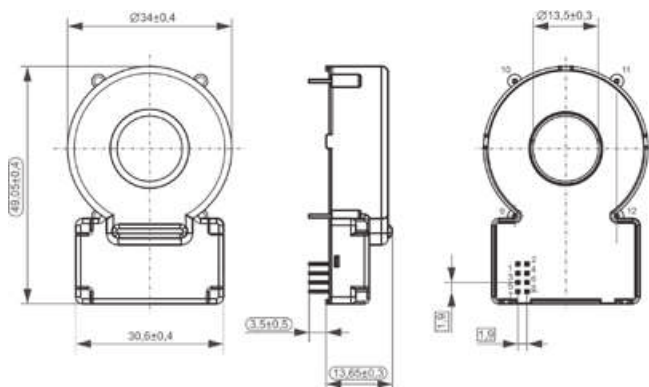
ADVANCED MAGNETIC SOLUTIONS

**VAC**<sup>®</sup>  
VACUUMSCHMELZE

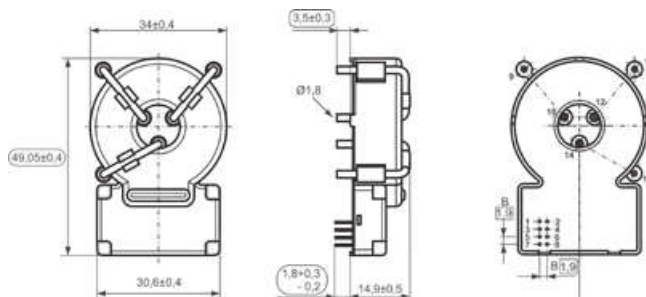
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## PRODUCTS T60404-N4641-

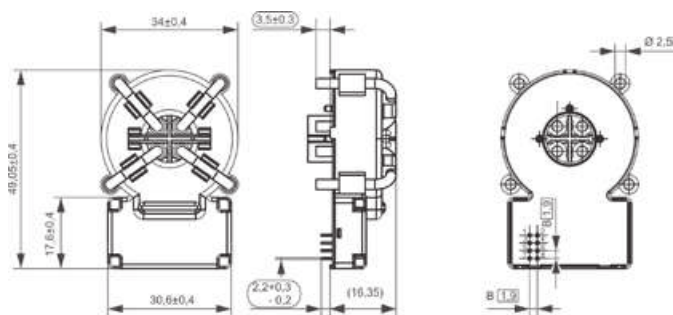
IEC	UL
X900	
	X901



IEC	UL
X910	
	X911



IEC	UL
X920	
	X921



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## PROPERTIES

- Fault current detection according to IEC 62752 or UL 2231
- Frequency range DC up to 2 KHz
- Load current up to 80 A<sub>rms</sub> (1-phase) or 3 x 32 A<sub>rms</sub> (3-phase)
- Switching output for 6 mA DC and 30 mA AC (acc. to IEC 62752)
- Integrated self-monitoring and test functions
- Measurement resolution of 0.2 mA
- Variants with pass through opening or with integrated primary conductors
- Differential current range 0...300 mA
- Robust mechanical design suitable for IC-CPD environmental requirements (e.g. drop test)
- Widely usable in harsh electronic environment (e.g. resistant to external magnetic fields)
- Total system cost significantly reduced compared to RCD type B

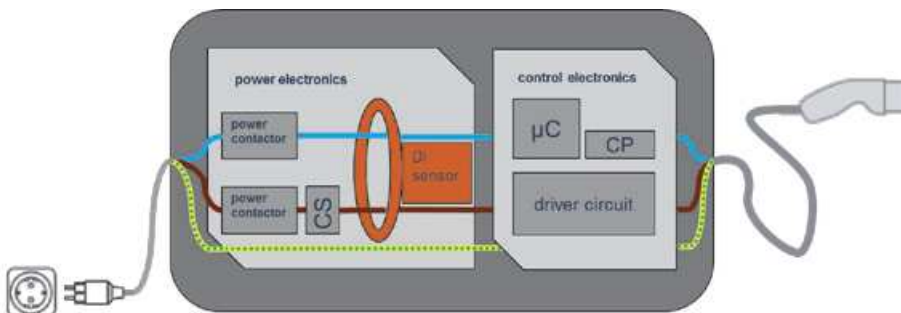
## APPLICATIONS (MODE 2 AND MODE 3)

- IC-CPD in charging cables for electric vehicles (EV) and plug-in hybrid electric vehicles (PHEV)
- Wallboxes for charging EV and PHEV
- Charging piles for charging EV and PHEV
- Inductive charging for EV and PHEV

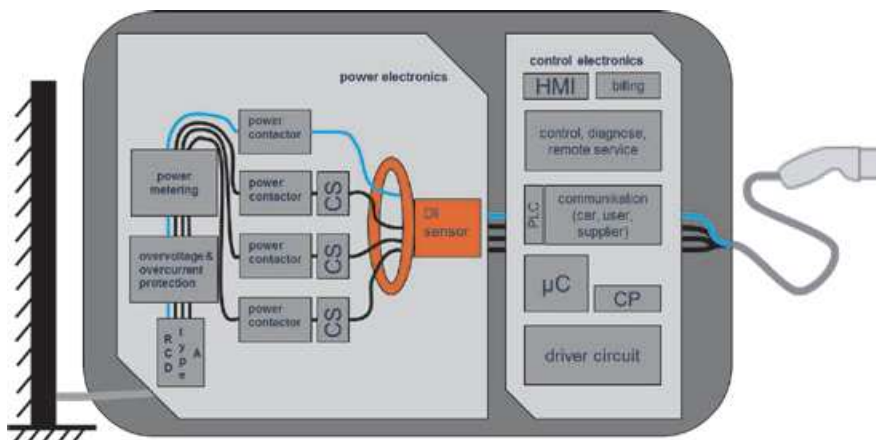


	AC-charging Wall outlet IC-CPD	AC- charging Wallbox	AC- public charging-station
<b>Mode</b>	<b>2</b>	<b>3</b>	
<b>Standard</b>	IEC 62752/ UL 2231	IEC 61851-1 /-21 /-22	
<b>Power class</b>	1ph 16 A (3.7 kW) 3ph 16 A (11 kW) 3ph 32 A (22 kW)	1ph 16 A (3.7 kW) 3ph 63 A (43 kW)	

## GENERAL BLOCK DIAGRAM OF AN IC-CPD



## GENERAL BLOCK DIAGRAM OF PUBLIC CHARGING STATIONS



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