

- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

EMC PARTNER
PRODUCT RANGES



Immunity



Lightning



Component



Emission



Automation



- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

EMC PARTNER COMPANY FACILITIES



EMC PARTNER AG
HEADQUARTER
LAUFEN, SWITZERLAND



Development



Production



Test and
Calibration



Quality
Management



Logistic



Customer
Service



Sales



- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

EMC PARTNER QUALITY MANAGEMENT

EMC PARTNER	Qualitätsmanagement Handbuch	Dokumen	Seite
		GMH	12 / 62
Grundstation » Beschreibung des GM-System 1		Änd. Datum	Version
			2.0

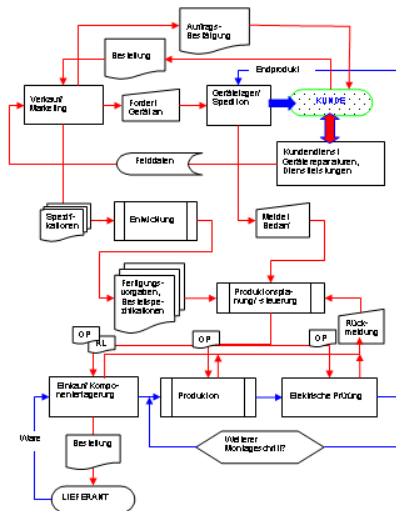


Abbildung 3: Hauptprozesse und deren Wechselwirkung

Erstellt	Geprüft	Freigegeben
Von: Thomas Schneider	Von: M. Lutz	Von:
Dat: 07.07.2010	Dat: 11.07.2010	Dat:
Abt.: TK	Abt.:	Abt.:

EMC PARTNER	Qualitätsmanagement Handbuch	Dokumen	Seite
		GMH	64 / 62
Vorgehen beim Kalibrieren von EMC-Testgeräten		Änd. Datum	Version
			2.0

9 Vorgehen beim Kalibrieren von EMC-Testgeräten

Dieses Kapitel gilt für die Abteilung EP und beschreibt die Organisation des Kalibrierlabors und die Kalibrierungsabläufe.

9.1 Mitgelieferte Dokumente

- EMV-KalIBO 11025
- Angabe der Messunsicherheit bei Kalibrierungen (EMV-KIB)
- GMH Qualitätsmanagementhandbuch der Firma EMC PARTNER AG
- Bedienungsanleitung Kalibrationssoftware J2A/BK*
- ISO/IEC 17025-1, [http://www.bvdi.ch/Software/produkte](#)
- Bauleistungen IEC 61000-4-x
- [ZUSP/Unsicherheitsberechnung/UnsBerechnung](#), diese Dokumente

9.2 Organisation und Einrichtung des Kalibrierlabors

Im **Organigramm** der EMC P AG untersteht der Kalibrierlabor dem Leiter der Abteilung 0 und somit der Gruppe EP. Alle IM-Labeller der r-Gruppe bei Konklipröfung führen auch Kalibrierungen durch. Diese sind entsprechend ausgebildet und geschult. Der Leiter des Kalibrierlabors überprüfien Kennzeichens, zeichneln diesen auf und selbst zeichneln IM-Labeller nach dem es besitzlichen Kenntnissen und Erfahrungen ein. Für die Qualitätssicherung ist der Inhaber der Stelle OS verantwortlich, als GMH für die ganze Firma zeichneln OS verantwortlich.

9.2.1 Personal und Verantwortung im Bereich Kalibrierung

Abteilung	Qualifikation/ Nachweise/ Ausbildung	Schulung/ Weiterbildung/ Erfahrung	Befähigung					
			Vollqualif. Vorgesetzter	Vollqualif. Vorgesetzter	Fähigkeit	Bewertung/ Inspektion	Unterstütz. Personal	Prüfung
R. Herz (GPL)	AL, D und GPL, GP bei anderen	X	X	X	X	X	X	
P. Bachmann (We GPL)	Radio-Elektronik			X				
F. Storzbaum	Radio- und Fernseh-Elektronik				X			
V. Di. Pfister	Dipl.-Ing. 1110 Elektrotechnik				X			
D. Wietel	Elektromechanik				X			
M. Seebach	Elektromechanik				X	X	X	
Manfred Lutz	Ing. Elektrotechnik	Mitg. ICFI bei der ICC		X	X	X	X	
Thomas Schneider (TS)	Dipl.-Ing. 1110 Elektrotechnik	Quality System Manager (QMS)	X					

Erstellt	Geprüft	Freigegeben
Von: Thomas Schneider	Von: M. Lutz	Von:
Dat: 07.07.2010	Dat: 11.07.2010	Dat:
Abt.: TK	Abt.:	Abt.:

Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra	Eidgenössischer Departement für Innere Verwaltung, Energie und Kommunikation (SEK)

Sicherheitsprogramm von

EMC PARTNER AG

Baselstrasse 160

4242 Laufen

(Bekanntester Versender)

Erstellt am:

September 2010

Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Equipment for Immunity Tests



TRA3000 – LAB IN A BOX

All in One Impulse Generator with extendable possibilities.

Available Features (Build-In):

- **EFT** (Fast Transient) IEC 61000-4-4 Ed.2
- **SURGE** IEC 61000-4-5 Ed.2 CWG
- **DIPS** IEC 61000-4-11 Ed.2.
- **CM** IEC 61000-4-16 Ed.1.2,

External Accessories

- **ESD** (Electro Static Discharge) according IEC 61000-4-2 Ed.2
- **MF** (Magnetic Fields) Antennas and Stand acc.IEC61000-4-8 + 9



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

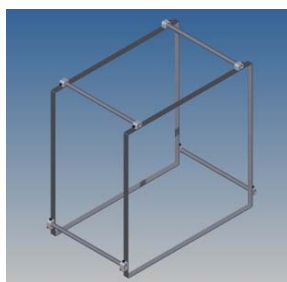
Product News

Equipment for Immunity Tests



MF-COIL-HAND

0.4 A/m up to 4A/m. Frequency range 50Hz to 10kHz . inhomogeneous field
According **EN55103-2 2009**



MF-HELMHOLTZ

0.01A/m up to 10A/m Frequency range 50Hz to 10kHz. homogeneous field.
According **EN55103-2 2009**



CM-SWEEP

extends the GENECS-TRA software. Up to 8 points can be programmed in one sweep sequence.
According to **IEC 60533**



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Avionics



Complete Avionic Test Systems for:

DO-160 / Section 17

Voltage Spike

DO-160 / Section 19

Induced Signal Susceptibility

DO-160 / Section 22

Lightning Induced Transient Susceptibility

- Pin Injection
- Multiple Stroke
- Single Stroke
- Multiple Burst



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Airbus



CN-WF5A1500

Coupler for WF5A V/I max
1500V/1500A.
Source impedance V/I= 1 Ohm.
Complies with **ABD0100.1.2_G**



WF2-FS-A350

Source impedance
V/I= 15 Ohm or 25 Ohm.
Max. V/I 1600V/107A.
ABD0100.1.2_G lightning
test requirement.



CN-WF5A2000

Coupler for WF5A V/I max
2000V/2000A.
Source impedance V/I= 1 Ohm.
Complies with **ABD0100.1.2_G**



Product News

Test Equipment for Airbus



Fx-AMD24C1

ABD0100.1.8.1 voltage spike testing.

Wave Forms:

- 2/10 μ s
- 2/50 μ s
- 2/100 μ s
- 2/200 μ s
- 2/400 μ s



Company Profile
Product Range
Facilities
Quality
Representatives
Product News

Product News **Coupler for Avionics**



CN-CI-V1

Voltage coupling transformer for waveform WF4 and WF5A. SS and MS.EUT cable only one turn, aperture 6 x15 cm



CN-CI-I1

Current Coupling Transformer for waveforms WF1, WF5A, W5B up to 5000A. EUT cable only one turn, aperture 6 x15 cm.



CN-MIG-BT5

Injection probe for frequency range 10kHz up to 10MHz, application for MIL 461 CS116 and DO-160 W2, W3 (1 and 10MHz) up to level 3 (600V). Dimensions of aperture: 8 x 7.2 cm





Product Overview
Military Test Equipment

EMC PARTNER AG Equipment for Military Standards

MIL-STD-461

Requirements for the control of Electromagnetic Interference characteristic
Of subsystems and equipment

- CS115
- CS116
- CS106

MIL-STD-1275

Characteristics of 28V DC electrical systems in military vehicles



- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

Product Overview Military Test Equipment



MIL-STD-461

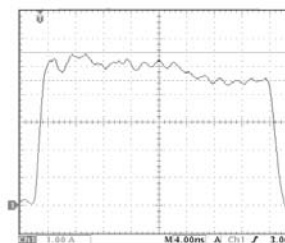
Requirements for the control of Electromagnetic Interference characteristic of subsystems and equipment

MIG200-6 + Modular extensions for:

- CS106
- CS115
- CS116 (10,100kHz +1,10MHz / 30,100MHz)

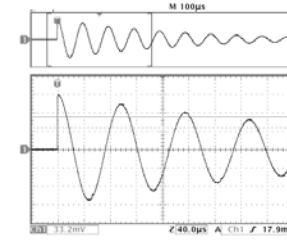


CS115
Extension CS115REC



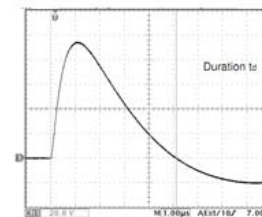
Rectangular 30ns : 5.0A positive
Amplitude: 4.5 to 5.5A (5.0 A)
Duration: 30ns to 36ns (30ns)

CS116
Extension CS116-10K10M



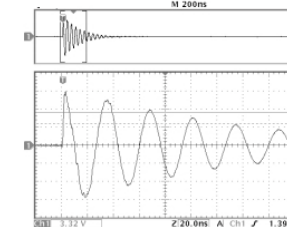
10kHz , 0.5sec : 0.100A positive
Peak: 0.090 to 0.110 A (0.100 A)
Frequency: 9kHz to 11kHz (10kHz)
Decaying: 4th peak 40% to 60% (50%)

CS106
Extension FX-CS106



CN-MIG-BT: Vmin. (100V) positive, 5 Ohm load
Peak: 90 to 110 V (100V)
Rise time: 1 µs to 2 µs
Duration: 3.9 µs to 6.1 µs (5 µs)

CS116
Extension CS116-30M100M



30MHz , 0.5sec : 10.0A positive
Peak: 9.0 to 11.0 A (10.0 A)
Frequency: 27MHz to 33MHz (30MHz)
Decaying: 4th peak 40% to 60% (50%)

Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Component Tests



MIG14403

Insulation tester; 1.2/50 μ s
with two outputs: 48 and 500 Ohm.

Standards, Applications

IEC60060-1: 1989, *High voltage test techniques. Part 1 General definition and test requirements.*

IEC61010-1: 1990-09, *Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1 General requirements.*



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Telecom Tests



MIG0305LP3

Impulse current generator 10/350 μ s, up to 5kA.

Standards, Applications

- IEC 62305-1 Ed. 1.0 b *Protection against lightning*
- IEC60060-1: 1989, **High** voltage test techniques.
- IEC61643
- ERICSSON 1/1528-HRB 105 102/1



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product Overview

Test Equipment for Smartgrid Components



ENERGY METER

Energy Meter Standards

- ANSI C12.20
- ANSI C12.1
- IEC 62053-21
- IEC 62052-11
- IEC62055-31 (20kV CWG Test)

Basic Standard

- IEC/EN 61000-4-18



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Smartgrid Components



PROTECTION RELAYS

Protection Relays

- ANSI C37.90
- IEEE 1613
- IEC 61850-3
- IEC 60255-22-1

Basic Standard

- IEC/EN 61000-4-18



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Smartgrid Components

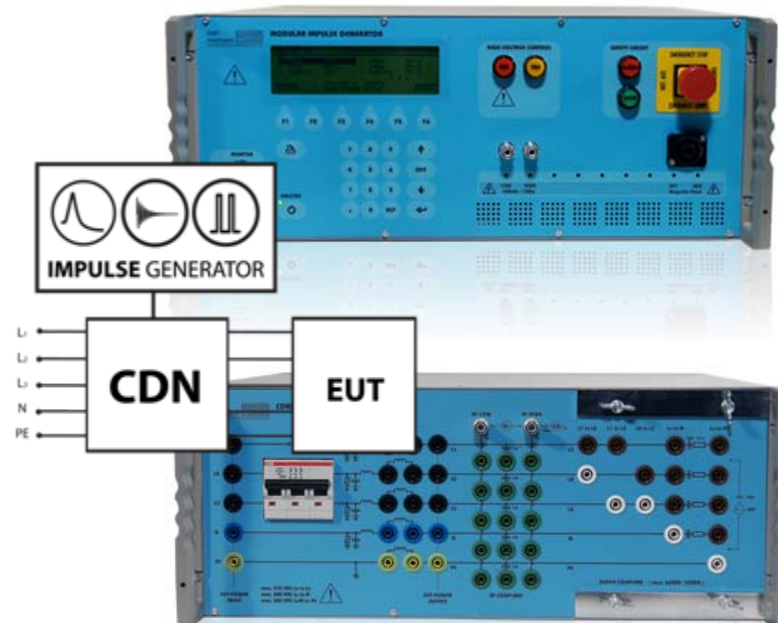
Slow Wave Equipment acc. IEC61000-4-18 Ed.1

MIG-OS-OM / MIG-OS-OS1

For coupling to the control lines,
Generator and CDN needs two
BNC Output.
(Differential Mode Coupling)

CDN 2000-06-25

For Power Supply and coupling
On control lines.



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Smartgrid Components

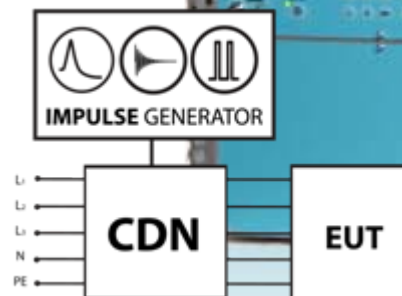
Fast Wave Equipment gem. IEC61000-4-18 Ed.1

MIG-OS-OM-EXT

The Slow Wave Generator MIG-IS-xx can Be extended with MIG-OS-OM-EXT to fulfill the requirements for Fast Wave.

CDN 3000-06-25

Can be used for Slow- and Fast Wave. For Fast Wave only possible in common mode (The BNC Plugs are not possible for differential Mode. Differential Mode is not required in the Standard for Fast Wave Testing.



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product News

Test Equipment for Solar Energy

Solar Panels

- Installed at large Areas
- Delivers Energy in DC-Current

IEC61730-2 Photovoltaic Modules
IEC60664-1 classic Lightning pulses

Power Inverters

- Converting Energy from DC to AC Voltage.
(AC is needed for Smartgrid)
- High Voltage (1000V AC/DC until now)
- High Current (up to 200A) until now

IEC6209-1 Safety on Power Inverters
IEC60664 -1 Lightning Pulses until 12kV
UL1741 Product Standard for Power Inverters
IEC61000-4-5 Surge Immunity / CWG up to 6kV



Product Overview

Test Equipment for Solar Energy



- Installed at large Areas.
- Deliver Energy in DC-Current
- have to be tested against Lightning Strikes.

Standards for Solar Panels

IEC61730-2 Photovoltaic Modules
IEC60664-1 classic Lightning pulses

The Panels have to be tested between the Frame and the Foil at the same time.



MIG1203 SOLAR

Hi

Lo

SOLAR PANEL



- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

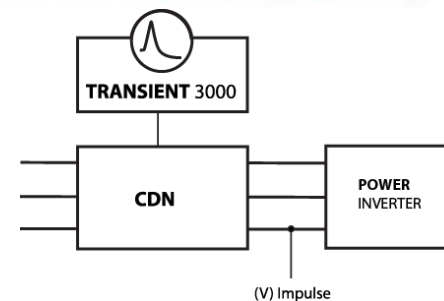
Product Overview Test Equipment for Power Inverters



Converts Energy from DC to AC Voltage.
(AC is required for the Grid)
- High Voltage (1000V AC/DC until now)
- High Current (up to 200A until now)

Standards & Applications

- IEC6209-1 Safety on Power Inverters
- IEC60664 -1 Lightning Pulses until 12kV
- UL1741 Product Standard for Power Inverters
- IEC61000-4-5 Surge Immunity / CWG up to 6kV



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

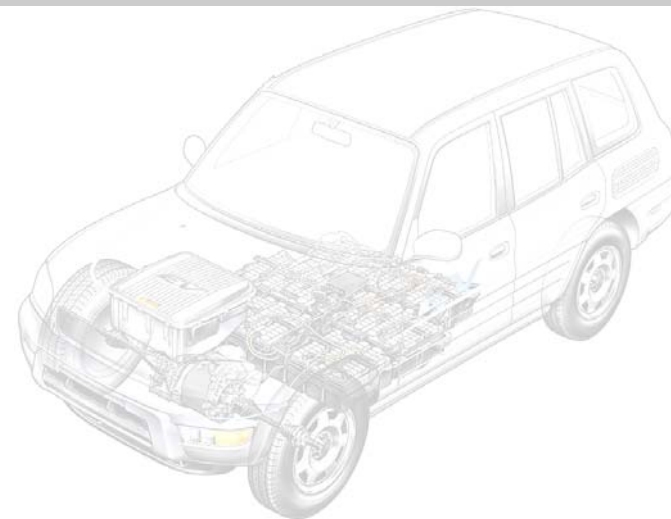
Product Overview

EV & Charging Stations Standards



Charging Stations

- EV Charging Systems
- Based on IEC61851-21 and IEC61851-22



EV / HEV Standards

- IEC 61000-4-4 (EFT/Burst)
- IEC 61000-4-5 (Surge)
- IEC 61000-4-11 (Dips/Interruptions)
- IEC 61000-4-13 (Harmonics / Interharmonics)



- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

Product Overview EV Charging Stations



Charging Station

- **EV Charging Systems**
- **Based on IEC61851-21* and IEC61851-22***
- Electric vehicle conductive charging system –
- Part 21 electric vehicle requirements for conductive connection to an ac/dc supply
- Part 22 AC electric vehicle charging station
- Three options are proposed for output voltage and current. All three can be met with EMC PARTNER test equipment.

*IEC61851-21 + 22 contains

- IEC 61000-4-4 (EFT/ Burst)
- IEC 61000-4-5 (Surge)
- IEC 61000-4-11 (DIPS / Interrupts)
- IEC 61000-4-6 (Conducted RF Immunity)**
- IEC 61000-4-13 (Harmonics & Interharmonics)
- IEC 61000-3-2 (Harmonics)
- IEC 61000-3-3 (Flicker)

CDN Demands

3 phase 480V/32A and up to 100A

Text in Red

no equipment from EMC Partner



Output Option	AC output	EMCP Equipment
A	Single-phase 230V / 32A	As for IEC testing with external CDN
B	Three-phase 400V / 32A	As for IEC testing with external CDN
C	Three-Phase 500V / 250A	Special equipment from EMC PARTNER

- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News

Product Overview

EV Charging Stations with Metering



If the charging station is fitted with metering equipment to measure the use of electricity, the IEC61036 standard applies. This in turn refers to IEC62052-11.

1	Tests of insulation properties	
1.1	Impulse voltage tests 7.3.2	MIG0603OS2 for Class I MIG1203CWG +NWC1 +NWC2 for Class II
1.2	AC voltage tests 7.3.3	No EMC Partner equipment
2	Tests of accuracy requirements	No EMC Partner equipment
3	Tests of electrical requirements	
3.1	Test of power consumption	No EMC Partner equipment
3.2	Test of influence of supply voltage 7.1.2	TRA3000+see note 1
3.3	Test of influence of short-time overcurrents	No EMC Partner equipment
3.4	Test of influence of self-heating	No EMC Partner equipment
3.5	Test of influence of heating 7.2	No EMC Partner equipment
3.6	Test of immunity to earth fault 7.4	No EMC Partner equipment
4	Tests for electromagnetic compatibility (EMC)	
4.1	Radio interference suppression 7.5.8	No EMC Partner equipment
4.2	Fast transient burst test 7.5.4	TRA3000+CDN2000-06-25
4.3	Damped oscillatory waves immunity test 7.5.7	MIG-OS-OS1+CDN2000-06-25
4.4	Test of immunity to electromagnetic RF fields 7.5.3	No EMC Partner equipment
4.5	Test of immunity to conducted disturbances, induced by radio-frequency fields 7.5.5	No EMC Partner equipment
4.6	Test of immunity to electrostatic discharges 7.5.2	TRA3000+EXT-TRA3000 E
4.7	Surge immunity test 7.5.6	TRA3000+CDN2000-06-25
5	Tests of the effect of the climatic environments	No EMC Partner equipment
6	Mechanical tests	No EMC Partner equipment



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product Overview

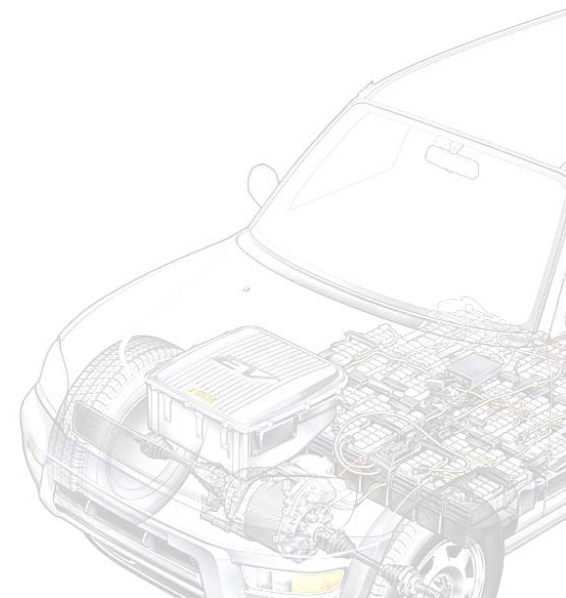
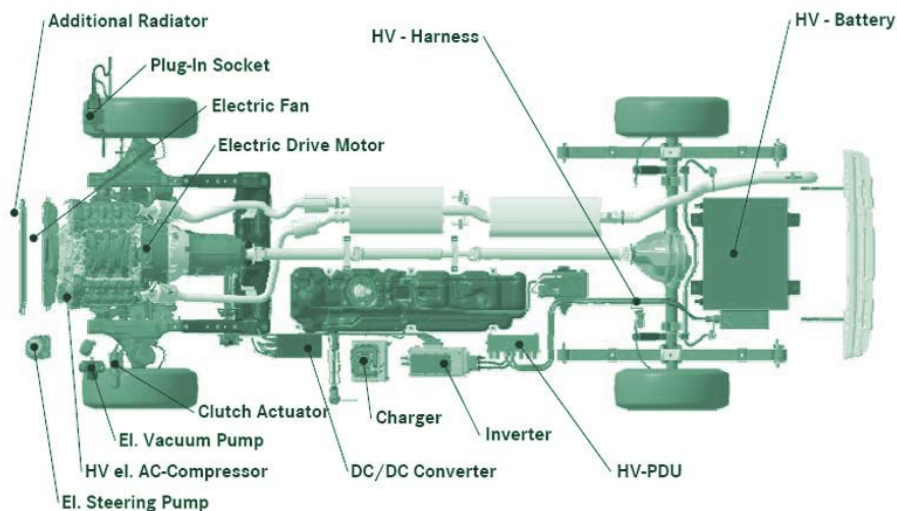
Electric Vehicle Technology

EV / HEV Standards

- IEC 61000-4-4 (EFT/Burst)
- IEC 61000-4-5 (Surge)
- IEC 61000-4-11 (Dips/Interruptions)
- IEC 61000-4-13 (Harmonics / Interharmonics)

CDN Demands

3-phase, 480V/16A to 32A
and 1000V DC



Product Overview
Electric Vehicle Technology

Company Profile
Product Range
Facilities
Quality
Representatives
Product News

Special Network for EV Testing CDN-A-3P-200 F-S

- **Three Phase CDN**
 - 200A per phase
 - 690V
 - EFT & SURGE
- **Accessory to**
 - TRA3000
 - TRA2006
 - MIG0603INx
- **Applications**
 - Electric Vehicles
 - Electric car charging stations



Company Profile

Product Range

Facilities

Quality

Representatives

Product News

Product Overview

Electric Vehicle Technology

Special Network for EV Testing PFS125A-DC-DIPS

DIPS / INTERRUPTS

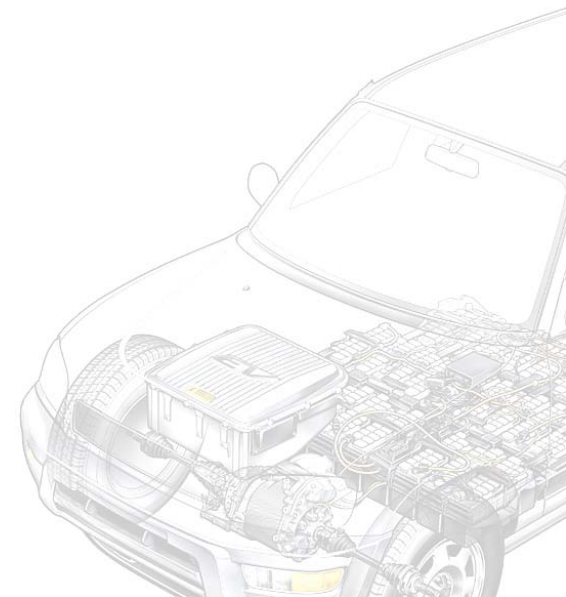
- DC Only
- 125A
- 600V

Accessory to

- TRA3000
- TRA2006

Applications

- Electric Vehicles
- Electric car charging stations



Product Overview
Electric Vehicle Technology

- Company Profile
- Product Range
- Facilities
- Quality
- Representatives
- Product News



Special Network for EV Testing PFS32 + SRC32

DIPS / INTERRUPTS

- AC only
- 32A
- 480V

Accessory to

- TRA3000
- TRA2006

Applications

- Electric Vehicles
- Electric car charging stations

