

# Manual

## for Operation



## CNA 200 series

### Coupling network

- CNA 200B
- CNA 200B2, B3, B4, B5
- CNA 200BS4

Testing of electronic modules in 12V/24V or 42V supply systems.

With the CNA 200B all pulses from the Generator models EFT200, MPG 200 and Load Dump LD 200 can be coupled to the EUT (pulses 1, 1a, 3a/ 3b, 4, 5, 6 and 7).

The CNA 200 can is controlled from the connected generators of the series 200.

- Burst
- Micropulse
- Load Dump



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## 1. Operating Functions

### 1.1. Front view

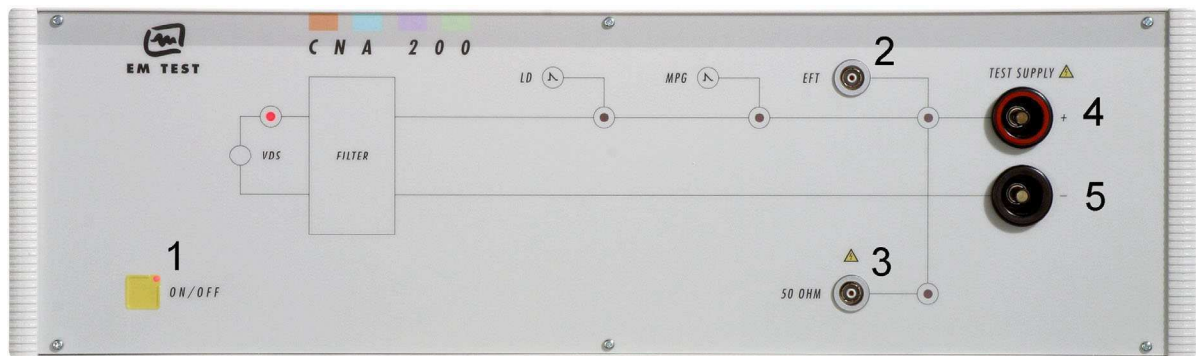


Figure 1 : Frontplate CNA 200

- |   |                          |   |                 |
|---|--------------------------|---|-----------------|
| 1 | "TEST ON"                | 4 | + output to DUT |
| 2 | Burst input from EFT 200 | 5 | - output to DUT |
| 3 | Burst output to ACC      |   |                 |

### 1.2. Rear view



Figure 2 : rearside CNA 200

- |   |                            |   |                            |
|---|----------------------------|---|----------------------------|
| 1 | Battery power from VDS     | 5 | Control input from MPG 200 |
| 2 | Load dump input from LD200 | 6 | Control input from LD 200  |
| 3 | Pulse input from MPG 200   | 7 | Control input from EFT 200 |
| 4 | Ground reference connectio | 8 | Mains Supply               |
|   |                            | 9 | Fuse                       |

## 2. Coupling Network CNA200B / B2 / B3 / B4 / B5 / BS4

The coupling network CNA200B superposes all interference pulses to the lines of a vehicle battery supply system, according to ISO 7637 as well as DIN VDE 40839.

The coupling mode, capacitive coupling to the +/- lines or via capacitive coupling clamp to signal lines, is selected via the connected pulse generators, Load Dump LD 200 or micropulse generator MPG 200, or by ISMISO software.

### 2.1. Technical data

	CNA 200B2	CNA 200B3	CNA 200B4	CNA 200B5	CNA 200BS4
DC supply	max. 60V	max. 60V	max. 60V	max. 60V	max. 60V
current	50A	100A	150A	200A	100A
Inrush current	100A 500ms	150A 500ms			

#### Behaviour of the inrush current

The behavior of the inrush current is similar to the curve in figure 3.

The curve shows approximately the switch off time for the overcurrent duration.

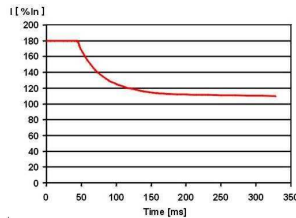


Figure 3 : Behavior inrush current CNA 200

#### Installation:

The following connections between generators and coupling network has to be made:

##### Pulse output

MPG +/- (rear part)  
EFT 200 coax OUT  
VDS +/- (rear part)  
LD +/- (rear part)

##### CNA input

→ CNA +/- (rear part)  
→ CNA coax IN (front panel)  
→ CNA +/- (rear part)  
→ CNA +/- (rear part)

#### Control signals to CNA :

##### Device

##### Control signals

from MPG polarity, trigger battery switch, interlock, coupling  
from LD polarity, trigger battery switch, interlock, pulse onto the + potential  
from EFT interlock, coupling

All control cables between LD, MPG and EFT to CNA shall be plugged in. (see 4.2. Test set-up )

### 3. Design Coupling matrix CNA

Depends on the CNA model different generator types can be connected and controlled.

CNA Model	EFT 200	MPG 200	LD 200
CNA 200B2, B3, B4, B5	1	1	1
CNA 200BS4	1	3	3

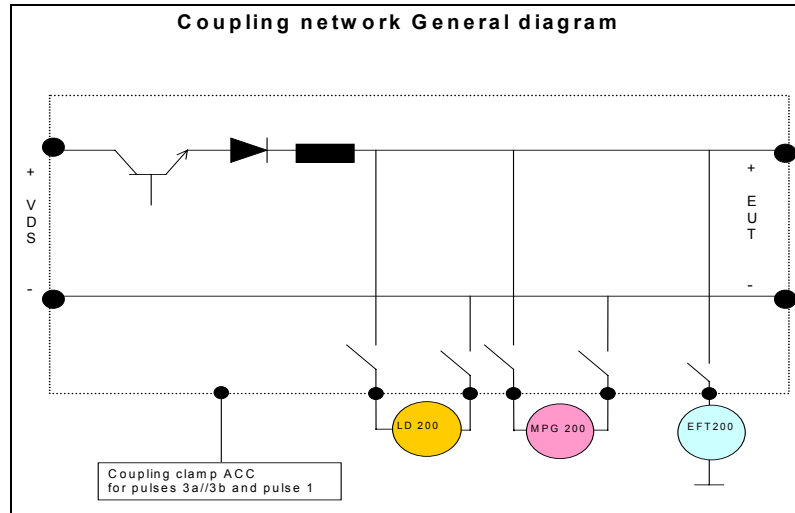


Figure 4 : Coupling matrix

#### 3.1. Input / output of the coupling network

Input:

Pulse	Pulse Simulator Typ	Bemerkung
DC power supply +/- and pulse	VDS or external	all CNA
Pulse 1, 1a, 2, 6 (ISO)	MPG 200B(1)	all CNA
Pulse B2, C8, C50, C 300 (Nissan)	MPG 200S7	CNA 200BS4
Pulse A2, B2 und D2 (Jaso)	MPG 200S13	CNA 200BS4
Pulse 3a, 3b	EFT	all CNA
Pulse 5, 7 (ISO, Ford, Chrysler)	LD 200B(1)	all CNA
Pulse A1, A2 und B1 (Nissan)	LD 200S3	CNA 200BS4
Pulse A1, B1 und D1 (Jaso)	LD 200S16	CNA 200BS4

Output:

- +/- power supply lines for the EUT or DUT according ISO 7637 part 1
- Coaxial output for connecting a capacitive coupling clamp according ISO 7637 part 3

#### 3.2. Control functions

All functions of the coupling network are controlled via the keyboard of the connected pulse generators. All test pulses are available at the central output of the CNA200B.

Additionally the coupling network may also be controlled fully automatic via ISMISO. All coupling modes and test pulses are then controlled by the computer.

Before starting a test procedure the coupling matrix shall be switched on. Therefore the button TEST ON shall be pressed and the related LED is alighted.

Please take care that, within a fully automatic test setup which is supported by the ISMISO software, all units of the setup must be switched on. This is necessary to support all necessary communication between the instruments.

## 4. Maintenance

### 4.1. General

The CNA 200 is absolutely maintenance-free by using a solid state semiconductor as battery switch .

### 4.2. Test set-up



When setting up the test national and international regulations regarding human safety have to be guaranteed.

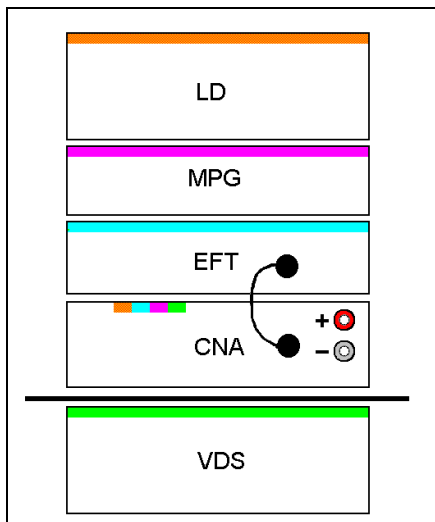
The test setup must be conform to the national and international regulations.

It is recommended to connect the simulator to the ground reference plane of the test set-up.

The generators of the series 200, EFT, MPG, LD, PFS, VDS and CNA, can be linked together to a fully automotive test set-up.

The set-up communicates via the IEEE/GPIB bus and is controlled by ISM ISO software. For setting up the system see the following figures:

Each generator can be operated individual as a single equipment.

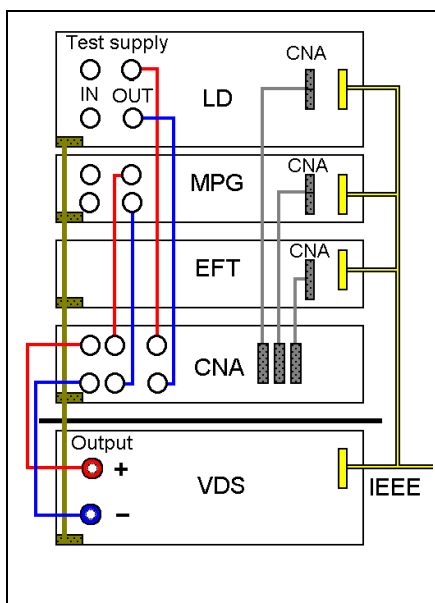


#### Front view

Connect EFT output  
Coaxial output EFT to coaxial input CNA

Central +/- output for the DUT is the output of the CNA

Ground reference plane. Connect all units and the chassis of the rack to this plane.



#### Rear view

Connect dc supply

- output VDS  $\pm$  to input CNA +/-
- output LD +/- to LD input CNA
- output MPG +/- to MPG input CNA

Connect control lines CN

- EFT-CN to CNA EFT input
- MPG-CN to CNA MPG input
- LD-CN to CNA LD input

Connect the GPIB

- Connect all units

All units must be connected very good to the ground reference system. Very important is this or the CNA under the aspect of pulse 3a / 3b

## **5. Delivery Groups**

### **5.1. Basic equipment**

- Simulator CNA 200B
- Power supply cable
- Safety laboratory cables
- Manual

### **5.2. Accessories and options**

- Capacitive coupling clamp ACC as per ISO 7637

## 6. Appendix

### 6.1. Declaration of CE-Conformity

Manufacturer : **EM TEST AG**  
 Address: Sternenhofstr. 15  
 CH 4153 Reinach  
 Switzerland

declares, that under is sole responsibility, the product's listed below, including all their options, are conformity with the applicable CE directives listed below using the relevant section of the following EC standards and other normative documents.

Product's name: Coupling Network  
 Model Number(s) CNA 200B, CNA 200BS1, CNA 200BS3

Low Voltage Directive 73/23/EEC

Standard to which conformity is declared:  
 EN 61010-1:1993 Safety

#### **EMC Directive 89/336/EEC**

Standard(s) to which conformity is declared:

Emissions: EN 50022:1987, Class A Conducted and radiated.  
 EN 50081-2 : 1992 EN 61000-2-3 Harmonics

Immunity: EN 50082-2: 1995 EN 61000-4-2:1995 Electrostatic Discharges  
 EN 50413:1993 RF Electromagnetic Field  
 EN 61000-4-6:1997 Conducted RF  
 EN 61000-4-4: 1995 Electrical Fast Transient / Burst  
 EN 61000-4-5: 1996 Surge  
 EN 61000-4-11: 1994 DIPS & Voltage Variations

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