

# Product

## ZEN 90 TBI-D

 MOTEURS  
**Baudouin****Liquid cooling****50 Hz****Three-phase****Diesel**

DIESEL GENERATOR ZEN 90 TBI-D	STANDBY POWER (ESP)	PRIME POWER (PRP)
Power (kVA)	90	81
Power (kW)	72	65
Speed (rpm)	1500	
Voltage (V)	400 / 230	
Power factor (cos phi)	0,8	
Amperage (Amp)	117	

**Endress Zenessis Group S.R.L. certifications:**  
ISO 9001: 2008, ISO 14001: 2005, ISO 18001 : 2008.

**ZENESSIS generators are CE compliant, and are tested according to the EU legislation on noise levels 2000/14 / EC.**

Reference ambient conditions: 1000 mbar; 25° C; 30% relative humidity; power according to ISO 3046 / ISO 8528 standards.

### **Prime power (PRP) – ISO 8528**

Prime power (PRP) – represents the continuous power a generator is able to provide continuously while supplying a variable electrical load when operating for an unlimited number of hours per year, under the agreed operating conditions, maintenance intervals and procedures being performed as prescribed by the manufacturer.

### **Standby Power (ESP) – ISO 8528**

Standby Power (ESP) is the maximum power available at a variable load, under the operating conditions provided, that a generator is able to provide in case of power failure or under test conditions, maintenance intervals and procedures being performed as prescribed by the manufacturer.

**Endress Zenessis Group S.R.L.**

### **Offices:**

Bucharest: km 16 A1 – Ciorogarla, Sos. Bucuresti, Nr. 108

D38486 Apenburg - Winterfeld, In Altensalzwedel 49

### **Production:**

Romania, Bocsa, Str. Medresului, Nr. 17, Caras-Severin County.

### 1. DIESEL ENGINE

ENGINE SPECIFICATIONS	
Type	BAUDOUIN
Model	4M10G4D0/S
No. of cylinders & arrangement	4 in line
Induction system	Turbocharged
Cooling system	Liquid cooling
Standby power (kWm)	80
Speed (rpm)	1500
Displacement (l)	4,1
Bore & Stroke (mm)	105 x 118
Compression factor	17,5:1
Regulator	Electronic
Total oil capacity (l)	13
Coolant capacity of engine (l)	18
Fuel consumption at 75% load in prime mode (l / h)	13,7

### 2. ALTERNATOR

ALTERNATOR SPECIFICATIONS	Strathon
Model	ECO 90 KW - standard
Frequency (Hz)	50
Concept	Brushless, 4 poles
Phases	3 + n
Voltage (V)	400 / 230
Protection class	H
Excitation system	Electronic
Performance	93%
Protection	IP23
Certification test	EN 10204 : 2001

### 3. CONTROL PANEL

Made in metal box, IP54 degree, with lock. The control panel is equipped with the DEIF SGC 120 control module, with the possibility of starting and stopping the generator, both in automatic and in electric mode. The control panel monitors the power grid and can command and control the ATS panel (automatic transfer switch).



1. **Navigation** button
2. **Stop** button
3. **Display**
4. **Alarm** LED
5. **Start** button
6. **Mode Selection** button

Digital inputs:

- 5 x switch-to-ground. You can configure 4 switch-to-ground inputs through analogue inputs
- Negative switching
- Maximum input voltage: 32 V
- Minimum input voltage: 24 V
- Current source: 2.42 mA to 7.27 mA (depends on the battery voltage)
- Digital outputs: 6 x 0.5 A, configurable
- Analogue inputs:
  - 3 x resistive inputs, configurable
  - 3 x 0 to 5000 Ω
  - 1 x 4 to 20 mA, configurable



### ◆ Control panel standard specifications:

The command and control panel is mounted inside the casing, in a metal box with IP 54, equipped with a viewing glass, equipped with:

- DEIF SGC 120 command module
- Display Size 75 mm x 50 mm
- Communication USB or RS485
- Storing 100 events with date and time
- Heater control based on temperature
- Static battery charger
- Emergency stop button & circuit breaker fuses
- Overcurrent protection
- Protection relays

- AAR Transfer panel (can be optional)

### ◆ Configuration:

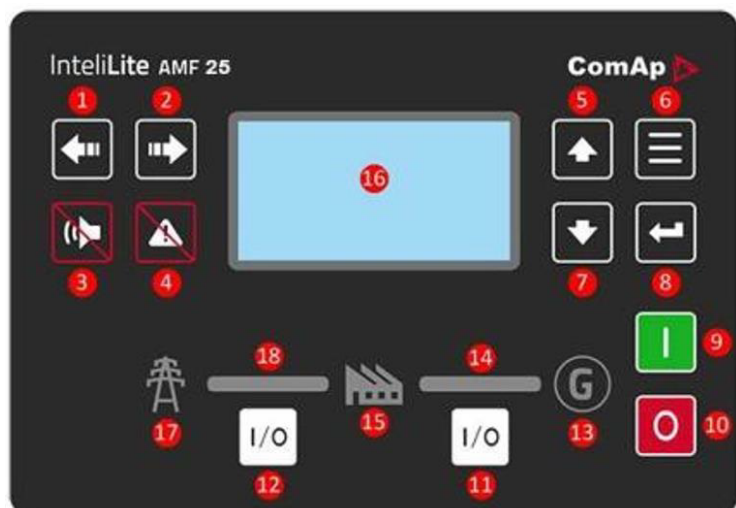
1. DEIF SGC 120 command module
2. Circuit Breaker protection
3. Locks
4. Alarm
5. START button ON/OFF
6. Hinges
7. Maintenance schedule
8. Metal box
9. AAR Transfer panel



### ◆ Command module standard specifications:

- Microprocessor control
- LCD display
- Programming on front panel as well as through PC software
- Control buttons and soft touch navigation
- Remote communication via USB or with optional modules via RS485
- Store 100 events with date and time
- Engine heater control (optional)

### 3.1 CONTROL PANEL AMF 25 - OPTIONAL



1. Left button
2. Right button
3. HORN RESET button
4. FAULT RESET button
5. UP button
6. PAGE button
7. DOWN button
8. ENTER button
9. START button
10. STOP button
11. GCB button. Works in MAN and TEST modes only
12. MCB button. Works in MAN and TEST modes only
13. GENERATOR status indicator
14. GCB ON. Green LEDs are on if GCB is closed and Gen-set is healthy.
15. LOAD
16. Graphic B/W display, 132x64 pixels
17. MAINS status indicator
18. MCB ON. Green LEDs are on if MCB is closed and Mains is healthy

### •Displays:

**Engine:** engine speed; oil pressure; coolant temperature; running time; battery voltage; maintenance data.

**Alternator: voltage** (L – L, L – N); current (L1 – L2 – L3); frequency; kW; Pf; kVA; kWh, kVAh, kVarh; phase sequence.

**Main network:** voltage (L – L, L – N); frequency, mains ready; mains off; generator set ready, generator set disconnected, active power kW, apparent power kVA, reactive power kVA r, power factor, phase sequence.

**•Warning:** battery faulty charging, low battery voltage, fail to stop, low fuel level, overload, phase reversing, speed sensor failure.

**•Alarms:** low oil pressure, high engine temperature, under / over voltage, under /over frequency, under /overvoltage, ECU fault -optional.

**•Status displays:** missed start, emergency stop, low oil pressure, high engine temperature, under /overspeed, under / over frequency, under / overvoltage, oil sensor, phase rotation, overload, overcurrent group, phase reversal.

♦ **Static battery charger:** Made with TSD technology, with high efficiency. Protected for short-circuit currents, it can be used as a current source, input voltage 196-264 V, output voltage 27.6 V / 5A or 13.8 V / 5A.

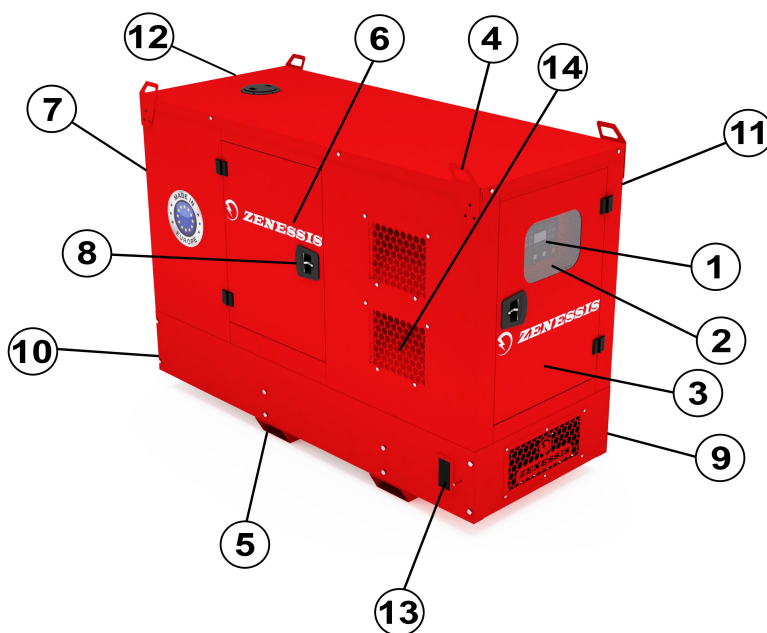
### ♦ Standards:

Electrical safety / EMC, BS EN 60950; BS EN 60950 – 6 – 2 EMC; BS EN 61000 – 6 – 4 EMC.

## 4. CANOPY

Made of zinc plate steel, painted in electrostatic field, soundproofed, fire protect. It is modularly designed with in-door access doors on all sides of the generator. The exhaust pan is residential type, mounted inside the casing. The carcasses are designed to optimize the cooling of the engine and alternator assembly, and can be mounted outdoors, providing protection against weathering and low noise levels

1. Command module
2. View window
3. Access door for control module
4. Crane lifting eyes (optional)
5. Galvanized pockets for forklift handling
6. Engine and alternator access door
7. Hot air outlet grills
8. Handles provided with locks
9. External fuel cap (optional)
10. Chassis made of galvanized steel sheet painted electrostatically
11. Emergency button
12. Exhaust Gas Valve
13. Cable access space



### 5. DIMENSIONS & WEIGHT

Closed generator sizes & weight	
Sizes (length x width x height) (mm)	2660 x 920 x 1580
Weight (kg)	1350
Fuel tank capacity (liters)	150
Noise level (from distance of 7m)	69 db

### 6. STANDARD FEATURES

Control & comand panel with indicators and measuring devices, IP 54 protection



Thermostatic heater for cooling liquid



AAR panel included (can be optional)



Oversized starting battery



Stating charger for charger



Emergency stop button



Dinamic alternator for battery charging



Metal hinges



Chassis with fuel tank dimensioned for an 14 hours autonomy



Access doors provided with locks



Vibration dampers



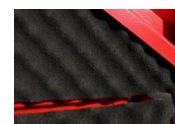
System for manipulation with crane or forklift



Device for measuring fuel level



Fireproof antiphonic pillow



Electric lines protected by tubing and seal



Galvanized pockets for forklift handling



Residential exhaust pipe



## 7. OPTIONAL FEATURES

Anti-condensation  
embedding system  
for electric panels



Liquid retention tray



Heating system for fuel/ oil



Liquid leak detection sensor



Circulation pump for heating  
cooling liquid



Exterior fuel filler cap with lock



Oil evacuation pump



Fire extinguisher with internal  
housing support



Motorized AAR, patented  
invention ENDRESS-Patent  
OSIM 00048/2015



Super soundproof housing



3/4 poles differential  
protection



Intake air heating  
spark plug



Sockets 400V/ 230V



Grounding electrodes



Fuel filter with  
water detection



Fuel transfer  
automatic pump



Bypass panel-petented  
invention ENDRESS-Patent  
OSIM 00010/ 2012



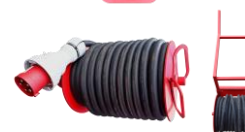
Mobile distribution panel  
with 4 sockets



Auto trailer



Cable reel



Remote control start



Fire detector with automatic  
shutdown generator set



Lack of grounding protection



Fire extinguishing system  
with inert gas



Interior lighting with  
switches operated at  
door opening

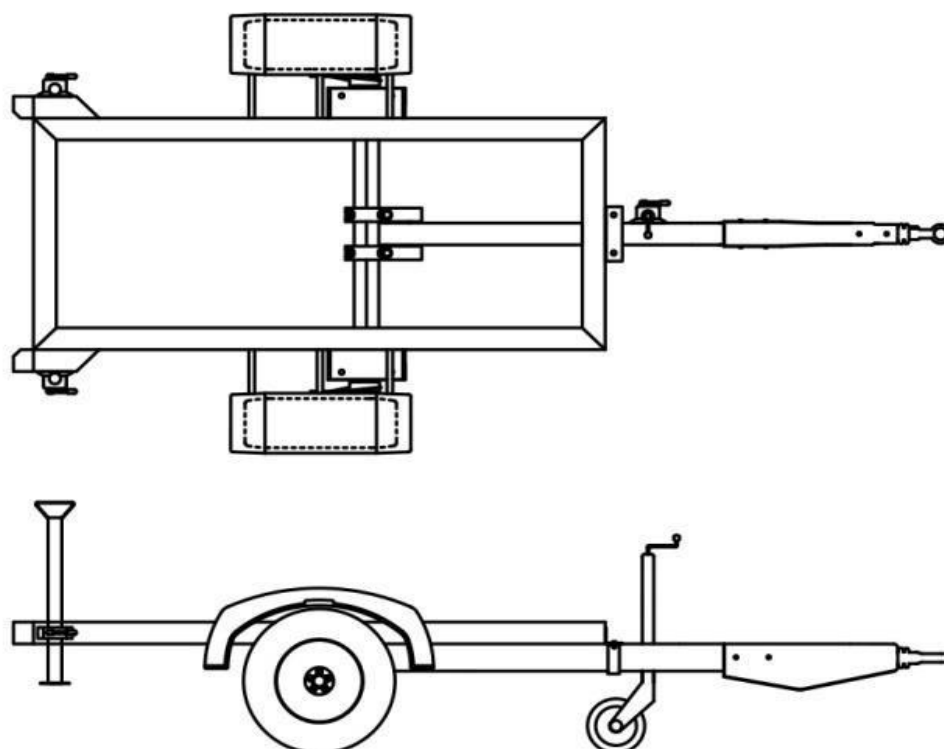




**Optional:**

RAR homologated auto trailer

Model: EGR 2000



**Created in Germany – Assembled in Romania**  
**Warranty: 24 months or 3000 operating hours**



**ENDRESS PRODUCTS ARE IN A CONTINUOUS DEVELOPMENT AND  
IMPROVEMENT PROCESS. FOR THIS REASON, ENDRESS ZENESSIS  
GROUP PRESERVES THE RIGHT TO MODIFY THE INFORMATION FOUND IN  
THESE LEAFLETS WITHOUT PRIOR NOTIFICATION**