

## SenNet DL 170 / 171 / 172

### General features

**DL 170** → GPRS / RF / RS485 / RS232 / RS232 (console) / 4 digital outputs / 3 digital inputs, 2GB internal memory / external micro-SD

**DL171** → All the general features of DL170 + 9 single-phase meters or 3 three-phase for use with CT (0.33Vac) or Rogowski coils.

**DL172** → All the general features of DL170 + 18 single-phase meters or 6 three-phase for use with CT (0.33Vac) or Rogowski coils.

### Warnings

Please, read carefully the technical specifications and the recommendations before connecting the device. This is a precision electronic device; do not install it near heat/cold sources, radiating sources, corrosive environments or explosive atmospheres that could damage the device. For security reasons, the cover of the equipment has to be grounded, preferably through DIN rail.

Operating temperature range	-20°C..+60°C
Storage temperature range	-30°C..+85°C

### Warranty

Any internal modification of the device or the seal will void the warranty.

### Access to the management platform

Access to the web server: <http://192.168.1.35:8080>  
 User: *admin* Password: *owasat*

Embedded management platform (**All-in-One**) <http://192.168.1.35:8000>  
 User: *Administrador* Password: *sennet85*

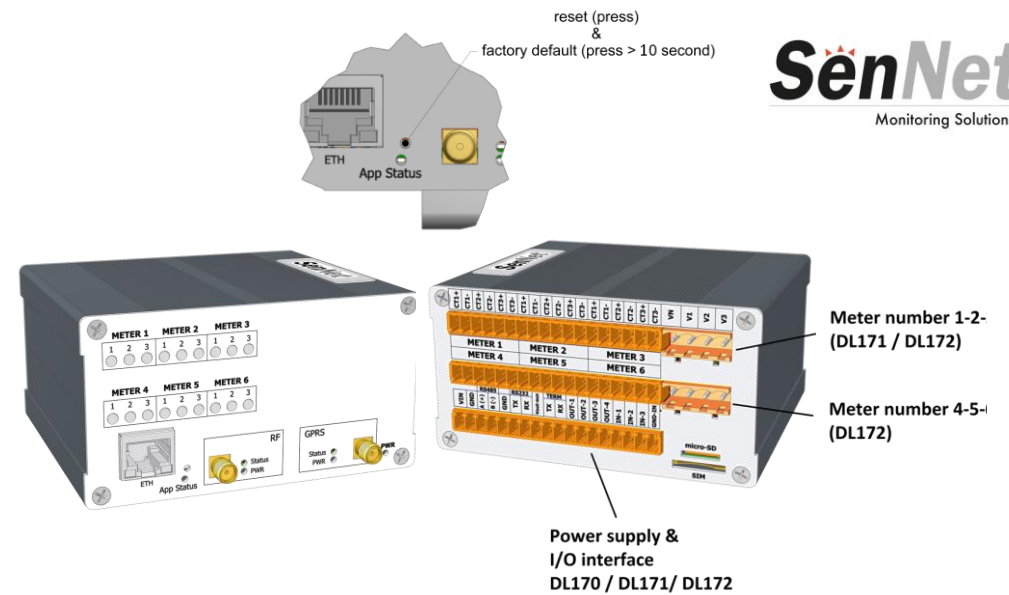
Management platform for the **Z-Wave** network <http://192.168.1.35:8083>  
 User: *admin* Password: *sennet*

### Antennas

The GSM/GPRS and RF antennas should be installed following the ESD protections to prevent damage to the device. Both connectors are SMA-male. See the figure to identify which connector corresponds to each antenna.

### USB – WiFi

The USB - WiFi may be used only with devices provided by Satel Spain.



### Connexion

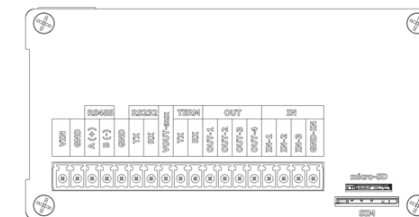
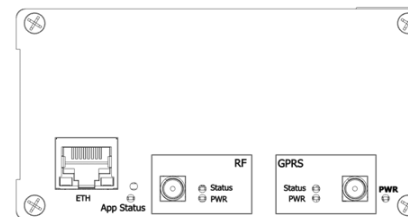
The device can be powered with a battery or with a stabilized power source. For greater safety it is recommended to use a 2A fuse in the power supply line.

### Description of the common terminals for models DL170-DL171-DL172

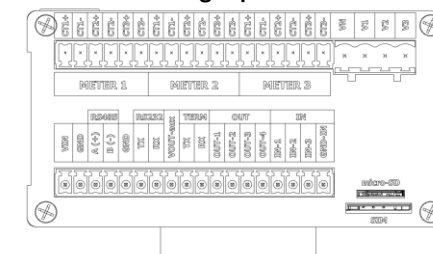
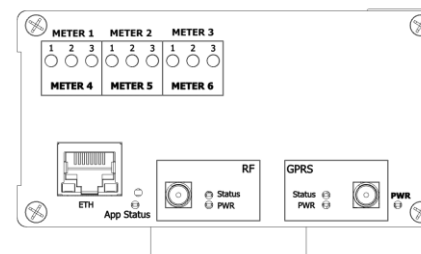
Terminals		Description
1	+	Power supply 8 a 30Vdc (it is recommended to place a 2A fuse)
2	-	
3	A	RS485 port
4	B	
5	GND	GND
6	TX	Puerto RS232
7	RX	
8	Vout-aux	Auxiliary digital output 5V @ 300mA
9	TX	RS232 port (console)
10	RX	
11	Out-1	Digital outputs 8-30Vdc @ 100mA (max.)
12	Out-2	
13	Out-3	
14	Out-4	
15	IN-1	Digital inputs With range 8- 30Vdc
16	IN-2	
17	IN-3	
18	GND-IN	GND input (the digital inputs can be isolated)

Power supply	8...30Vdc			
Conectivity	Ethernet	GSM-GPRS (2G) (3G) optional	WIFI (USB port) (optional). Only for DL170 and DL171	HDMI (optional). Only for DL170 and DL171
Communications	RS485	RS232	RS232(terminal)	
Inputs / outputs	(x1)digital output aux. (5V @ 300mA)	(x3) digital output (Vinput @100mA)	(x4) digital inputs	
SO / processor	Linux 3.8.13		ARM® Cortex®-A8-based (300MHz to 1GHz )	
RAM Memory	512MB			
eMMC (SO) memory	2GB / 4GB			
External micro-SD	4GB (optional)		Needed for the platform <b>All-In-One</b>	
Battery	Internal backup battery (45 min. approx.)			
RTC	Real Time Clock			
RF	SenNet RF 868MHz		Z-Wave (optional)	
Internal energy meter	Current metering. Compatible with CT 0,33Vac or with Rogowski coils		Energy (reactive - active -apparent)	
			Power (reactive - active -apparent)	
DL171 (x3)	3-phase voltage metering		Power Factor	
DL172 (x6)			Current (intensity)	
			Voltage (electric tension)	
			Frequency	

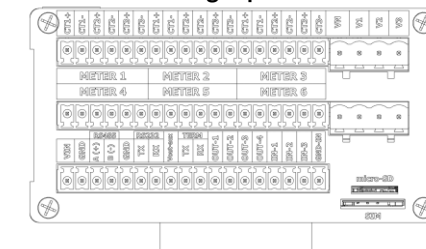
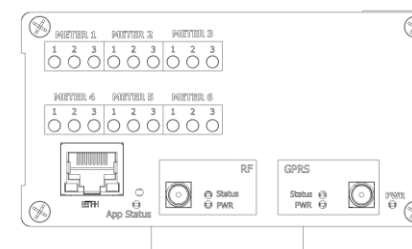
DL 170



DL 171 3 internal three-phase meters or 9 single-phase



DL 172 6 internal three-phase meters or 18 single-phase



**Terminals of the energy meters (only for models DL171 y DL172)**

DL172	DL171	Intensity reference level Meter 1						Intensity reference level Meter 2						Intensity reference level Meter 3						Voltage reference level meters 1-2-3			
		(1) I1+	(2) I1-	(3) I2+	(4) I2-	(5) I3+	(6) I3-	(7) I1+	(8) I1-	(9) I2+	(10) I2-	(11) I3+	(12) I3-	(13) I1+	(14) I1-	(15) I2+	(16) I2-	(17) I3+	(18) I3-	(19) Vn	(20) V1	(21) V2	(22) V3
	Intensity reference level Meter 4						Intensity reference level Meter 5						Intensity reference level Meter 6						Voltage reference level meters 4-5-6				
	(23) I1+	(24) I1-	(25) I2+	(26) I2-	(27) I3+	(28) I3-	(29) I1+	(30) I1-	(31) I2+	(32) I2-	(33) I3+	(34) I3-	(35) I1+	(36) I1-	(37) I2+	(38) I2-	(39) I3+	(40) I3-	(41) Vn	(42) V1	(43) V2	(44) V3	

## Connexion of the electricity meters (DL171 y DL172)

The configuration of the terminals for the energy meters 1-2-3 is analogous to the configuration of terminals for the meters 4-5-6. Depending on the model the possible configurations are:

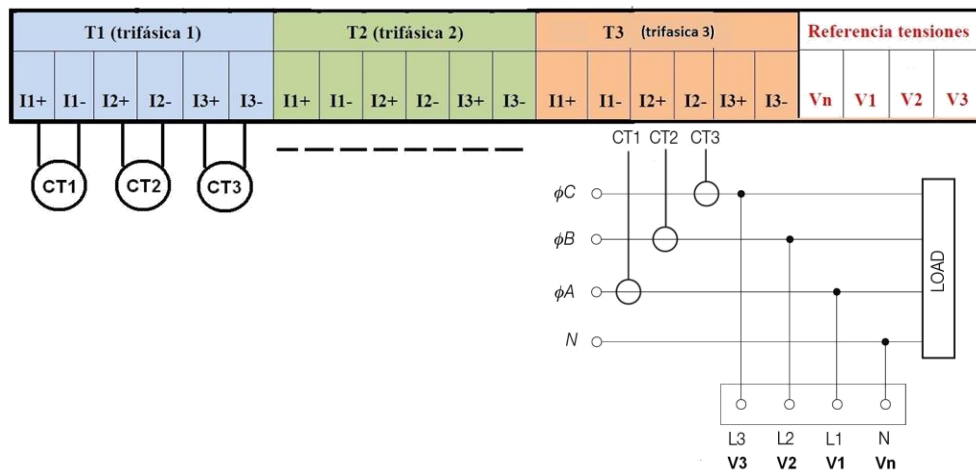
DL171 (terminals 1-22)	DL172 (terminals 1-22 / terminals 23-44)
3 three-phase meters	6 three-phase meters
Or 9 single-phase meters	Or 18 single-phase meters
Or a combination of single-phase and three-phase meters	Or a combination of single-phase and three-phase meters

The device needs to be connected to a reference level of voltage and intensity of each load. For this purpose, the terminals located in the upper part of the datalogger are used.

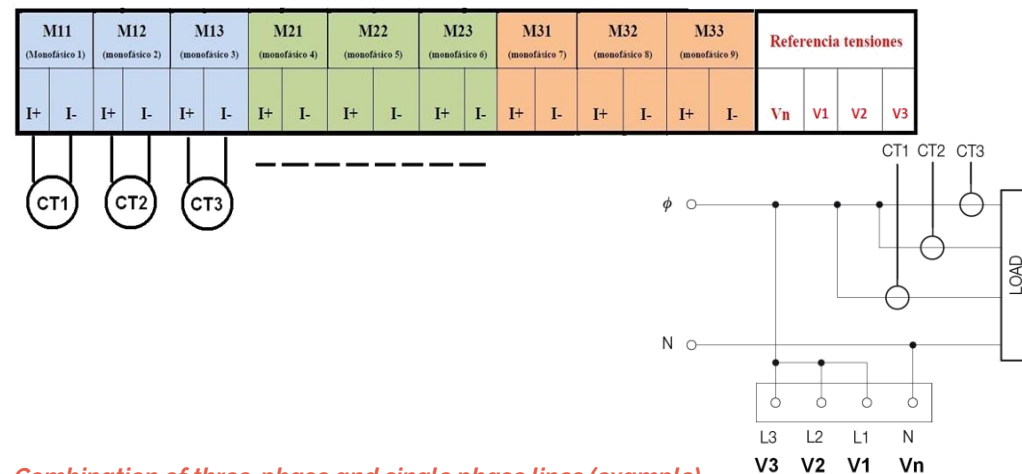
- Intensity reference level (terminals 1-18): CT (0.33Vac) or Rogowski coils can be used. (Rogowski coils need factory setting).
- Voltage reference level (terminals 19-22): connexion to the phase with electrical protection taking into account the right order of the phases.
- In case you CT SenNet (0.33Vac) are used, take into account that the label has to be oriented in the direction of the load, and the black cable has to be connected to 'I-' and the white one to 'I+'.

**WARNING:** Use a cable with a maximal cross section of 1.5 mm<sup>2</sup> for CT and 2.5 mm<sup>2</sup> for the intensity reference terminals

## Connexion to 3-phase lines (example)



## Connexion to single phase lines (example)



## Combination of three-phase and single phase lines (example)

Taking into account the intensity reference levels of each meter, it is possible to meter both single-phase and three-phase loads. For instance:

