4.3.6 Equipment from Enel Distribuzione S.p.A.

4.3.6.1 Meter

60 CERM1 meters have been delivered to the OPEN meter project to be tested. The CERM1 meter is shown in the picture below:

Figure 4-12: ENEL CERM1 Meter

CERM1 performs bi-directional measurement of active and reactive energy; main functionalities are listed below. The meter is located in the customer building and is the slave node of the powerline carrier communications system (PLC). The CERM1 supports Meters and More technology, and the delivered devices are already programmed. The CERM1 meter version is 06.02.07.

The table below summarizes the CERM1 Meter specifications:

Type ID	CERM1
Manufacturer	ENEL Distribuzione S.p.A.
Dimensions:	195 x 125 x 92 (height x width x depth)
Firmware version:	06.02.07
Type of entrance electrical connection	Terminal block for cable from 6 to 25 mm^2
Type of exit electrical connection	Terminal block for cable from 6 to 25 mm^2
Operating Temperature / Humidity	-25°C / +70°C (-40°C / -25°C without being damaged). / Humidity: Not specified.

IP Code (International Protection rating)	IP53
Approvals / Compliances:	- EN 50470-1 - EN 50470-3 - EN 62052-11 - EN 62053-23 - EN 50065-1 - MID 2004/22/EC
Max Current (A)	60
Metrological data: (class)	Active energy: class B. Reactive energy: class 2.
PLC Protocol support	Meters and More Physical, Data Link. Frequency per EN 50065-1 CENELEC-A band (3 kHz to 95 kHz) using B-PSK modulation.
Other interfaces:	Optical Port, EN 62056-21
Meter Application layer support	Meters and More application layer
Storage Capabilities:	Energy, power and quality data are stored in a non-volatile memory. Metrological registers related to positive and negative active energy, positive-inductive, positive-capacitive, negative-inductive and negative-capacitive reactive energy (4 quadrants). Measurement management: instantaneous active and reactive power, voltage, current, power factor, quarter-hourly value. 6 load configurable profiles (1 - 60 minutes) for positive and negative energy and for quadrant of reactive energy. Using the default value of 15 minutes the meter can store up to 38 days data. 3 measure configurable profiles with a configurable period from 1 minute to 24 hours. Each profile can store 800 samples.
Breaker properties	Remote on/off switching latching relay (I_n = 80 A).
Tamper detection	Tamper detection at terminal cover removal. Parameter adjustment only possible through secured authentication channel.
Additional Features	- Self diagnosis of main functionalities. - Date/time programming, including management of summer time. - Battery power available for clock and tamper detection.

Table 4-11: Specification of ENEL CERM1 Meter