

**Annex A to Resolution 22 October 2008, No. ARG/gas 155/08 “Instructions for the obligatory commissioning of gas metering units meeting minimum functional requirements and having remote reading and remote management functions, for all redelivery points on natural gas distribution networks”**

**Article 1**

*Definitions*

1.1 For the purpose of interpreting and applying the provisions contained in the present Resolution the definitions set forth in the Quality and Tariff Code for the gas distribution and metering services for regulatory period 2009-2012 shall be applied.

- **remote management centre** shall mean all the centralised equipment used to govern metering unit remote reading and remote management functions as referred to in the present provision, and to govern communication with these metering units and with data concentrators;
- **data concentrators** shall mean peripheral devices used to gather the local withdrawal data recorded by metering units; the devices shall also be capable of transmitting these data to the remote management centre;
- **standard pressure condition** shall mean absolute pressure of 1.01325 bar;
- **standard temperature condition** shall mean a temperature of 15°C;
- **electrovalve** shall mean the device used to intercept the flow of gas; it can be commanded *in situ* and/or remotely, from the remote management centre;
- **commissioning** shall mean all those activities required to bring gas metering units into line with minimum functional requirements, make full use of these units and provide data for the purposes of this provision;
- **remote management system** shall mean the system comprising the remote management centre, data concentrators, metering units and relative communication systems;
- **remote management** shall mean the remote reading and remote control of the electrovalve referred to at Art. 6 paragraphs 3 and 4;
- **remote reading** shall mean the reading and recording, through communications systems, of withdrawal data recorded by metering units, and the other functions referred to at Articles 4 and 5 and Article 6 paragraphs 2 and 3 of the present provision.

**Article 2**

*Scope*

2.1 The present provision introduces an obligatory requirement, to be phased in gradually over time, for the commissioning of metering units meeting the minimum functional requirements established for each category, for all redelivery points on natural gas distribution networks.

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**Article 3**

*Purpose*

- 3.1 With the present provision the Authority shall pursue the following aims:
- a) to create the functional and technological conditions for the introduction of mechanisms to develop a market system for natural gas, to support the definition of the regulated market for natural gas and the new balancing service;
  - b) to make it easier to eliminate any inefficiencies and discriminatory features by improving the process of recording and accounting for the natural gas withdrawn by consumers and introducing technological innovations to metering units;
  - c) to improve the quality of natural gas metering, sales and distribution services, while ensuring the same functional and service levels irrespective of the operator responsible for the metering service and fostering greater awareness of consumption levels.

**Article 4**

*Minimum functional requirements for metering units of all categories*

- 4.1 Without prejudice to the obligatory standardisation and certification requirements applicable to gas metering units in matters concerning legal metrology, electromagnetic compliance (EMC) and safety under the laws and provisions currently in force, the present Article establishes minimum functional requirements common to all gas metering units, irrespective of category.
- 4.2 *Metering units’ clock/calendar.* Metering units shall be equipped with a clock/calendar function that is capable of managing seconds and of being synchronised with a frequency that entails a maximum monthly drift that shall not exceed the limits expressed at Articles 5.3 and 6.2. They shall each have a unique reference for which the gas metering service operator shall be responsible.
- 4.3 *Temperature adjustment.* Metering units shall be able to measure the gas withdrawn at standard temperature conditions.
- 4.4 *Withdrawal totaliser register.* Metering units shall enable the gas withdrawn to be measured and this measurement to be recorded in a single incremental totaliser register.
- 4.5 *Time of use withdrawal totaliser registers.* Metering units shall enable the gas withdrawn to be measured and this measurement to be recorded in at least three separate totaliser registers. The registers shall be enabled alternatively in at most five daily time bands. The activation schedule for the different totaliser registers shall include at least three co-existing time-band categories, corresponding to:

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- a) weekdays;
- b) Saturdays; and
- c) Sundays and holidays.

The schedule shall be up-datable at least twice each calendar year. Local Saints’ days shall be treated in accordance with the day on which they fall (i.e. weekday, Saturday, etc).

The metering units shall also provide information indicating in which totaliser register the gas withdrawn should be accounted for in the event of the unique time reference referred to at Article 4.2 being lost.

- 4.6 *Withdrawal curve (interval metering).* Metering units shall enable withdrawal data to be recorded on a parameterisable time basis, as specified at Article 5.4 and Article 6.3, in a circular buffer with a 70-day capacity.
- 4.7 *Saves and backups of withdrawal totaliser register.* Metering units shall enable the withdrawal totaliser registers referred to at Article 4.4 and Article 4.5 to be saved in registers that cannot be altered until the next save, with a parameterisable frequency of at least six-monthly and at most monthly. The totaliser registers shall also be saved as set forth in this Article whenever a new hourly activation schedule as referred to in Article 4.5 comes into operation. The withdrawal data referred to in Article 4 paragraphs 4, 5 and 6, and in the present paragraph, shall be stored after the battery has been replaced or has run out.
- 4.8 *Withdrawal data security.* Metering units shall be equipped with mechanisms to protect and monitor the withdrawal data as referred to in Article 4 paragraphs 4, 5 and 6. In the event that the data held in these registers are corrupted and cannot be recovered from back-up copies, the metering units shall record the alarm and transmit it to the remote management centre at the first query or, if the communication system so enables, automatically and spontaneously.
- 4.9 *Diagnostics.* The metering units shall be able to carry out self-diagnosis checks to verify that they are functioning properly, including a check on whether they have exceeded their maximum monthly drift. They shall record the result of these operations in a status word for transmission to the remote management centre when the centre so requests. Any anomalies recorded must be reported to the remote management centre at the first query or, if the communication system so enables, automatically and spontaneously.
- 4.10 *Display.* Metering units shall be equipped with displays that visualise the following information at the customer’s request:
  - a) date and time;
  - b) value of the current totaliser register as referred to at Article 4.4;

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- c) value of the totaliser register as referred to at Article 4.4 with respect to the latest save carried out;
  - d) if the time-band schedule as referred to at Article 4.5 is activated, the value of the current totaliser registers as referred to at Article 4.5;
  - e) if the time-band schedule as referred to at Article 4.5 is activated, the value of the current totaliser registers as referred to at Article 4.5 with respect to the last save made;
  - f) if the time-band schedule as referred to at Article 4.5 is enabled, the register active at the time of display;
  - g) any alarm showing that the metering unit has recorded an anomaly after performing the withdrawal data protection and monitoring function as referred to at Article 4.8 or the diagnostic function referred to at Article 4.9.
- 4.11 *Up-dating of the metering unit software programme.* Metering units shall have a software programme up-date function that meets the following minimum requirements:
- a) the current values and those relating to the last save of the totaliser register as referred to at Article 4.4 and, if the time-band schedule is enabled, those referred to at Article 4.5, must be preserved and stored;
  - b) during the software programme up-date, the metering unit shall manage the clock-calendar function referred to at Article 4.2, continue to measure and record the gas withdrawn in the totaliser register as referred to at Article 4.4 and, if the time band schedule is enabled, in the totaliser registers as referred to at Article 4.5;
  - c) if, during the software up-date, the metering units are not able to use the activation schedule referred to at Article 4.5 correctly, they must have access, again under Article 4.5, to the information indicating in which totaliser register the gas withdrawn should be accounted for.
- 4.12 *Remote transactions.* Metering units shall be able to perform the following remote transactions:
- a) reading the value of the current totaliser register as referred to at Article 4.4 and that of the totaliser record referred to at Article 4.4 with respect to the last save, in accordance with Article 4.7;
  - b) activating and amending the hourly schedule as referred to at Article 4.5;
  - c) reading the values of the current totaliser registers as referred to at Article 4.5 and those of the totaliser records as referred to at Article 4.5 with respect to the last save in accordance with Article 4.7;
  - d) synchronising the clock/calendar as referred to at Article 4.2; once commissioned the metering units shall be synchronised with at least the same readings frequency as the withdrawal data;
  - e) alarm to be activated whenever the withdrawal data as referred to at Article 4.7 are unreliable, even if only in part;
  - f) reading the status word as referred to at Article 4.8;
  - g) software programme up-dates as referred to at Article 4.11.

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**Article 5**

*Minimum functional requirements for metering units in category G10 or higher*

- 5.1 This articles establishes the minimum functional requirements, in addition to those envisaged in Article 4, for metering units in category G10 or higher.
- 5.2 *Pressure adjustment.* Metering units shall measure the gas withdrawn at standard pressure conditions.
- 5.3 *Maximum monthly drift of the clock/calendar.* For metering units as referred to in this Article the maximum monthly drift of the clock-calendar as referred to at Article 4.2 shall be  $\pm 3$  minutes.
- 5.4 *Withdrawal curve time base.* The time base used to record the withdrawal curve as referred to at Article 4.6 shall be parameterisable and set at the hourly minimum.

**Article 6**

*Functional requirements for metering units in categories lower than G10*

- 6.1 This articles establishes the minimum functional requirements, in addition to those envisaged at Article 4, for metering units in categories lower than G10.
- 6.2 *Maximum monthly drift of the clock/calendar.* For metering units as referred to in this Article the maximum monthly drift of the clock-calendar as referred to at Article 4.2 shall be  $\pm 5$  minutes.
- 6.3 *Withdrawal curve time base.* The time base used to record the withdrawal curve as referred to at Article 4.6 shall be parameterisable and set at the daily minimum.
- 6.4 *Electrovalve.* Metering units shall be equipped with an electrovalve that cannot be opened remotely. During any power-supply failures the electrovalve shall remain in the state it was in immediately before the power-supply failure.
- 6.5 *Remote transactions.* For metering units as referred to in this Article the following remote transactions, in addition to those envisaged at Article 4.12, shall be possible:
- a) closure of the electrovalve as referred to Article 6.4;
  - b) activation of the manual opening of the electrovalve as referred to Article 6.4.

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**Article 7**

*Communication protocols and security of withdrawal data*

- 7.1 *Communication sub-network linking the remote management centre with metering units and with data concentrators.* The communication protocols to be used in this communication sub-network shall be those envisaged by the UNI/CIG (Italian Organization for Standardisation/ Italian Gas Committee) technical standards.
- 7.2 *Communication sub-network linking data concentrators with metering units.* The communication protocols to be used in this communication sub-network shall be those envisaged by the UNI/CIG technical standards.
- 7.3 The communication protocols referred to in this Article shall include data protection and monitoring mechanisms to ensure that the withdrawal data cannot be altered.

**Article 8**

*Functional requirements activated at customers' request*

- 8.1 *Pulse emitter output for customers with commissioned metering units of category G10 or higher.* At the request of customers with metering units that meet the requirements set forth at Articles 4 and 5 the metering service operator shall provide them with a pulse emitter output signal; customers shall pay the metering service operator the charge referred to at Article 8.3.
- 8.2 Except where otherwise agreed by the parties, the function referred to at Article 8.1 shall be made available once the metering unit has been commissioned as envisaged by the present provision, within 60 (sixty) days of the date of the application submitted by the customer. By this deadline at the latest the metering service operator shall inform the customer of the technical characteristics of the pulse emitter output signal.
- 8.3 By 31 March 2009 each metering service operator shall inform the Authority of the amount they intend to charge final customers requesting the function referred to at Article 8.1, and shall specify and quantify the different cost headings. After 90 (ninety) days from the deadline referred to above, in the absence of any comment or ruling by the Authority, the charges shall be considered approved.
- 8.4 *Additional communication gate for customers with commissioned metering units of categories lower than G10.* At the request of final customers with commissioned metering units that comply with the requirements set forth at Articles 4 and 6, the metering service operator shall provide an additional physical or logical communication gate on the metering unit, if necessary by replacing the unit itself.

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- 8.5 In a subsequent provision the Authority shall define the arrangements, timescale and technical conditions for providing final customers with the communications gate referred to in the previous paragraph, as well as the allowance to be made for the cost incurred by the metering service operator and its transfer to the customer.
- 8.6 The technical features of the communications gate referred to at Article 8.5, the arrangements for access to the withdrawal data and any communications protocols required to export the withdrawal data, shall be defined by the UNI/CIG technical standards..

**Article 9**

*Further minimum functional requirements*

- 9.1 The data concentrator shall be equipped with mechanisms to protect and monitor the withdrawal data originating from the metering units linked to it for onwards transmission to the remote management centre.
- 9.2 The remote management centre shall be equipped with mechanisms to protect and monitor the data originating from the metering units and data concentrators linked to it.

**Article 10**

*Metering unit commissioning obligations*

- 10.1 The metering service operator shall commission metering units that comply with the functional requirements set out in the previous articles at redelivery points on the natural gas distribution network on which it operates, in accordance with the following schedule at least:
- a) for redelivery points with metering units in categories higher than G40:
    - i. by 31 December 2010: 100% of redelivery points existing at 31 December 2009;
  - b) for redelivery points with metering units in categories higher than or equal to G16 and less than or equal to G40:
    - i. by 31 December 2011: 100% of redelivery points existing at 31 December 2010;
  - c) for redelivery points with metering units in categories lower than G16 and higher than G6:
    - i. by 31 December 2011: 30% of redelivery points existing at 31 December 2010;

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- ii. by 31 December 2012: 100% of redelivery points existing at 31 December 2011;
  - d) for redelivery points with metering units in categories lower than or equal to G6:
    - i. by 31 December 2012: 5% of redelivery points existing at 31 December 2011;
    - ii. by 31 December 2013: 20% of redelivery points existing at 31 December 2012;
    - iii. by 31 December 2014: 40% of redelivery points existing at 31 December 2013;
    - iv. by 31 December 2015: 60% of redelivery points existing at 31 December 2014;
    - v. by 31 December 2016: 80% of redelivery points existing at 31 December 2015.
- 10.2 Metering units of categories higher than G40 commissioned after 31 December 2010 shall comply with the minimum functional requirements set out in the present provision.
- 10.3 Metering units of categories higher than or equal to G16 and lower than or equal to G40 commissioned after 31 December 2011 shall comply with the minimum functional requirements set out in the present provision.
- 10.4 Metering units of categories higher than G6 and lower than G16 commissioned after 31 December 2012 shall comply with the minimum functional requirements set out in the present provision.

**Article 11**

*Authority Notification requirements*

- 11.1 With effect from 2011, metering service operators shall be required to provide the Authority with the following information by 30 June of each year:
- a) the total number of redelivery points existing at 31 December of the year preceding that of the obligatory commissioning, broken down by category of metering unit, in accordance with Article 10.1 above;
  - b) the total number of redelivery points fitted with metering units and activated in accordance with the present provision, broken down by metering unit category, in accordance with Art. 10.1 above;
  - c) with effect from 2013, information on the adoption, if applicable, of the pressure adjustments for metering units belonging to categories lower than or equal to G6.



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**Article 12**

*Notification to final customers*

- 12.1 Metering service operators shall inform final customers on the natural gas distribution network in which they operate:
- a) of the metering unit adaptation or replacement period, with advance notice of no less than three months and no more than nine months;
  - b) of the date on which the works to adapt or replace the metering unit will be carried out with advance notice of not less than ten calendar days.
- 12.2 In the notification referred to at the previous paragraph the metering service operator shall also inform customers:
- a) of any arrangements of interest to final customers, as introduced through the present provisions;
  - b) of the meaning and significance of the information shown on the metering unit display as referred to at Art. 4.10;
  - c) that the adaptation or replacement of the metering unit, its activation and any change in its position that may be required by the metering service operator will not entail any charge on final customers

They shall also inform only those customers equipped with metering units of categories higher than or equal to G10, of the right they may exercise under Art. 8.1, the timescale for the function to be become available in accordance with Art. 8.2, and the charge, approved by the Authority, which the customer will have to pay the metering service operator for providing the function referred to at Art. 8.3.

**Article 13**

*Interim Provisions*

- 13.1 The metering service operator shall ensure that the functions of the metering units in service at the date of publication of the present provision shall continue operating until such time as the same metering units are commissioned in accordance with the present provision.
- 13.2 Metering units of categories higher than G40 commissioned with effect from 1 January 2010 for new redelivery points shall comply with the minimum functional requirements set forth in the present provision.