



ESP/PM/MP7

PROCEDURE FOR:

THE DESIGN, INSTALLATION, EXCHANGE,
RELOCATION OR REMOVAL OF MEDIUM PRESSURE
GAS METERING INSTALLATIONS NOT EXCEEDING 6
M³/H WITH INLET PRESSURES AT THE ECV
EXCEEDING 75MBAR BUT NOT EXCEEDING 2BAR
GAUGE

October 2022

Document and version control

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Audience

ESP staff and Service Providers who have responsibility for the design, installation, and commissioning of gas meter installations.

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FOREWORD

Registration with REC (Retail Energy Code Company) as an Approved Meter Installer (AMI) and/or a Meter Asset Manager (MAM) places obligations on persons and organisations undertaking meter work. Working on meter installations, in accordance with this ESP/PM/MP7 (which is a supplement to ESP/PM/MP3, which is ES Pipelines Limited's Procedure for the Installation, Exchange, Relocation or Removal of Low-Pressure Gas Meters not exceeding 6m³/h), will ensure compliance with BS6400: 2018 (Specification for the installation, exchange, relocation and removal of gas meters with a maximum capacity not exceeding 6m³/h Part 2. Medium Pressure (2nd family gases)).

Compliance with this document does not confer immunity from prosecution for breach of statutory or other legal obligations.

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BRIEF HISTORY

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DISCLAIMER

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MANDATORY AND NON-MANDATORY REQUIREMENTS

In this document:

must: indicates a mandatory requirement.

should: indicates best practice and is the preferred option. If an alternative method is used then a suitable and sufficient risk assessment must be completed to show that the alternative method delivers the same, or better, level of protection.

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DESIGN, INSTALLATION, EXCHANGE, RELOCATION OR REMOVAL OF MEDIUM PRESSURE GAS METERING INSTALLATIONS NOT EXCEEDING 6 M³/H WITH INSTALLATION INLET PRESSURES AT THE ECV EXCEEDING 75MBAR BUT NOT EXCEEDING 2BAR GAUGE

1. INTRODUCTION

This Management Procedure ESP/PM/MP7 provides details of the Pressure Regulating unit (“**the Unit**”) to be installed to provide an inlet pressure of 21mbar gauge at the U6 or G4 meter located within a standard domestic meter box, where the inlet pressure to the Emergency Control Valve (“**ECV**”) is within the pressure range above 75mbar but not exceeding 2bar gauge, i.e., Medium Pressure. The supply to the meter is regulated at Low Pressure, i.e., 21mbar gauge meter inlet pressure.

The Unit was developed jointly by ES Pipelines Limited (ESP) and Meter Provida Limited to comply with the requirements of BS6400:2 and incorporates two stage pressure reduction by a single regulator, excess flow valve and relief valve, upstream of the meter. The Unit is provided pre-assembled in a standard Multibox meter box. Each Unit is supplied with a test certificate confirming that the Unit has been tested to 3bar gauge where appropriate, see Appendix C.

Notes:

[1] The above Unit (conforming to BS6400: Part 2 2018 Fig 1 a) Installation incorporating a regulator with an excess flow valve and relief valve (IGEM/GM/PRS/29)) was introduced by ESP during 2009 to replace the existing MP unit set up for all new sites that incorporated an additional LP regulator.

[2] ES Pipelines Limited installs a Service Excess Flow Valve (SEFV) within the MP service pipe at the tapping tee connection to the gas main as this is considered best practice when installing Medium Pressure supplies to **domestic properties only**.

2 SCOPE

This ESP/PM/MP7 details procedures for the safe installation, exchange, relocation, or removal of low-pressure primary gas meters not exceeding 6m³/h capacity, installed in domestic and industrial or commercial premises, when gas is supplied to the emergency control at a pressure exceeding 75mbarg but not exceeding 2barg and with a design Maximum Incidental Pressure (MIP) of 2.7barg.

Persons carrying out the installation shall be competent. This requires the individual to hold a certificate of gas competence acceptable to Gas

Safe, which includes the Accredited Certificate Scheme (ACS) and the Gas Services S/NVQ that has been aligned with ACS. The organisation who install MP meter installations shall be registered as a REC Approved Meter Installer (AMI) for Work Category 2 installations. (see Work Category Table in Code of Practice for Meter Asset Managers and Approved Meter Installers (MCoP))

3 PROCEDURE

The procedures detailed in Clause 4 are those to be completed by the Service Laying team at the time of the service installation and accordingly Gas Safe accreditation is not a requirement for this part of the installation works. The Unit forms a part of the service laying operation at this point and must be fitted to enable the service to be completed to a suitable meter inlet point.

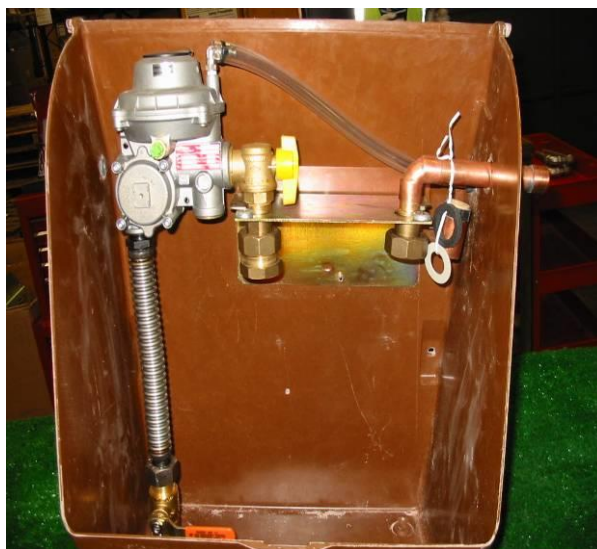
The philosophy behind this is that by virtue of the Unit being pre-assembled and pre-tested to 3bar gauge then the meter installation which will be completed subsequent to the completion of the service works can then be completed as a normal Low Pressure U6/G4 meter install (Work Category 1 MCoP) by an appropriately qualified Gas Safe registered installer.

*Note: Before commencing any service or meter installation or commissioning procedure, the location of the meter box and vent tip MUST be confirmed as meeting the dimensional limitations shown in Section 7 Figure 3 of this document. **If these are not met, do not continue work and refer back to ESP.** For clarification, a building opening is any window, door, airbrick, balanced flue terminal or any other breach of the building fabric that may permit gas to enter.*

4 INSTALLATION PROCEDURE

Preassembled Unit mounted in Multibox meter box (Stage 1 Kit)

Figure 1



Steps:

1. Remove lid assembly
2. Position meter box against wall and mark the fixing points adhering to proximity limitations (Section 7, Fig 3)
3. Drill and plug wall and fit meter box.
4. If regulator vent outlet is required on LHS: remove sealing cap from LHS hole (Picture 1), remove vent outlet elbow from RHS hole and replace the components and sealing cap in reverse order. (Pictures 2 and 3)



Picture 1 – sealing cap on LHS of box



Picture 2 – vent outlet elbow on outside of box



Picture 3 – vent outlet elbow on inside of box



Picture 4 – vent elbow assembly with Regulator in-situ

5 COMMISSIONING PROCEDURE

For Preassembled Multibox MP Installations

Flow Limiter Check (SEFV)

1. Test, purge, and commission Service in accordance with IGEM/TD/4 (note: when pressurising a domestic service to carry out test through the tapping tee and when purging the service, please be aware this process may take a few minutes due to the Flow Limiter (SEFV) being fitted).
2. Disconnect flexible connection at ECV and connect test gauge / purge equipment (Commodity Code – **METESPPURGEKIT**) to the ECV.



3. Once the service has been commissioned, record the standing pressure on the gauge fitted to the purge point.
4. To check the operation of the Flow Limiter
 - Ensure ECV is closed.
 - Quickly depressurize the service through the purge hose by 'slamming open' the ECV to simulate an excess flow scenario (suitable purge hose - without restrictor or similar should be fitted as per step 2) – the Flow Limiter should shut off which will be confirmed by the gauge on test equipment reducing towards reading zero.
 - Close purge tee and allow pressure to equalize in service. This could take a few minutes.
 - Monitor gauge until pressure recorded is the same as Step 3.
 - Remove all test equipment and re make inlet flex/ECV joint, soap test joint for soundness.
5. Record test information on relevant paperwork

6 PROCEDURE FOR REPLACING EXISTING OLD TYPE REGULATORS IN ESP MP METER BOXES

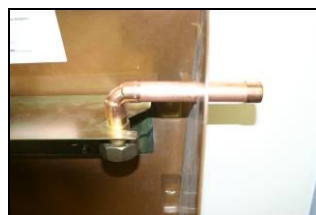
For Replacing existing Regulators in ESP MP Multibox

Exchange Kit Commodity Code - METESPSCMPCONV



Previous/Existing MP Multibox assembly

1. Check proximity requirements and if acceptable remove lid assembly from existing unit as show above
2. Remove existing outlet flex and replace with new solid pre-made copper outlet using knockout in side of box, as shown below



3. Disconnect union and remove both of the existing regulators



4. Unscrew purge valve followed by hexagonal fabrication and adaptor from ECV, after ensuring ECV does not let-by.



5. Apply suitable thread sealant and tighten spherical adaptor from new kit into ECV



6. Attach new pre-assembled regulator and inlet flex from new MP Exchange kit to spherical connector previously installed



7. Decide which side vent is to exit, drill box and fit vent outlet connection and elbow to point downwards. Fit flexible vent tube between regulator and vent outlet connection.



8. Commission service and regulator as per Commissioning Guidance Note below. Refit meter and test, purge, and commission outlet pipework

9.

For Replacing existing OLD TYPE Regulators in ESP MP Surface Mounted Box

Exchange Kit Commodity Code – METESPSMMPCONV



Previous/Existing MP Surface Mounted assembly

1. Check proximity requirements and if acceptable remove cover assembly from existing unit as show above
2. Disconnect union and remove both of the existing regulators from the inlet fabrication



- Cut through inlet fabrication above ECV and unscrew remaining section from ECV



- Apply suitable thread sealant and tighten spherical adaptor from Exchange kit into ECV



- Attach new pre-assembled regulator and inlet flex from Exchange kit to Sphere-conical connector previously installed
-



- Install vent pipework and tip to exit at base of box, adhering to minimum proximity criteria (Section 7 Fig 3).

8. Commission service and regulator as per commissioning instructions below. Refit meter and test, purge, and commission outlet pipework
9. Replace existing meter box outer cover and door with new cover and door supplied in Exchange kit using existing fixing points on back plate (New cover is slightly larger to accommodate regulator)



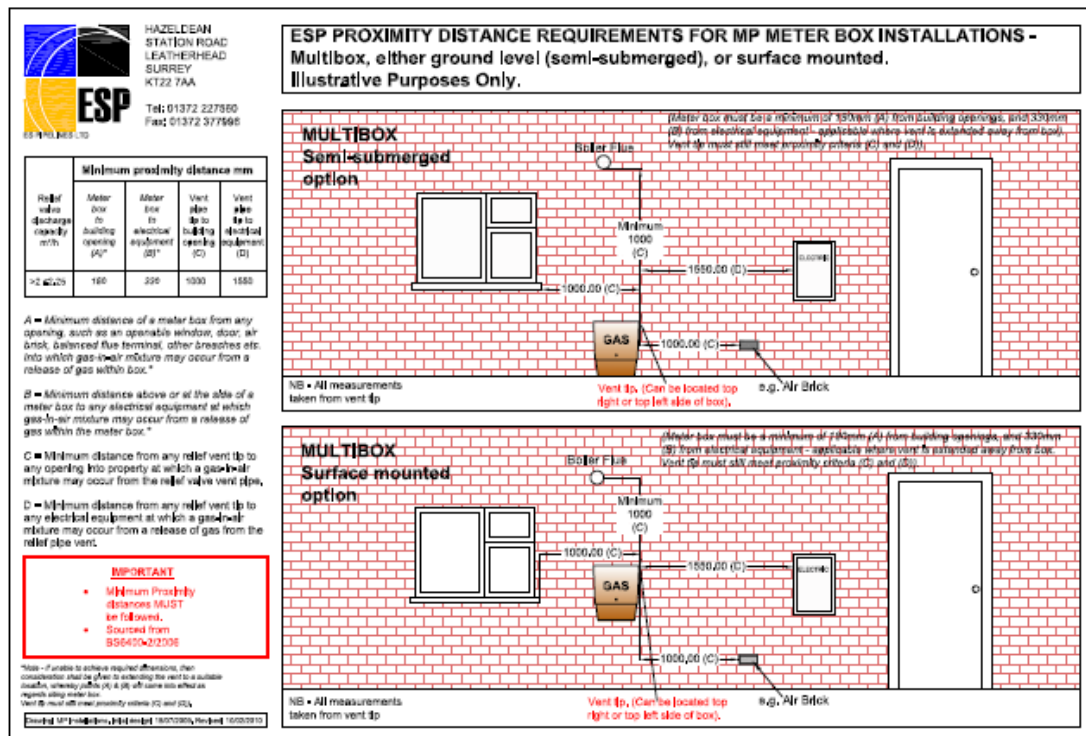
7. MINIMUM PROXIMITY DISTANCES

Service Installation Teams AND Meter Fitting Operatives should ensure that the following Minimum Proximity distances are achieved, as per BS6400-2:2018. **If in doubt ASK!!!!**

Meter Box to nearest building opening 180mm
 Meter Box to nearest Electrical Equipment* 330mm
 Vent pipe tip to nearest building opening 1000mm
 Vent pipe tip to nearest Electrical Equipment* 1550mm

* this includes such things as outside lights, security proximity lights, etc.

Figure 3: Proximity Distance Requirements



8 SIZING OF METERS

The capacity of the meter shall be large enough to provide sufficient supply of gas to meet the needs of all connected appliances. A meter of 6 m³/h capacity will meet the majority of domestic gas installations. Further details of meter sizing are contained within Annex A of BS6400-2:2018. If calculation in Annex A shows that a meter with a capacity of > 6 m³/h is required refer to IGEN/GM/8 for the method of designing and installing the meter.

The size of the meter is established by the given hourly consumption rate (intended load) of all the appliances to be installed taking into account any accepted diversity values. This intended load will then allow ES Pipelines Design team to calculate the size of the service pipe required and the correct meter installation.

BS 6400-2:2018 provides additional information on Diversity factors and the method to calculate the size of a meter given the gas load.

Diversity Factor: Typical Values:

Appliance	Diversity Factor
Central Heating Boiler	X 1.0
Room Heater	X 0.6
Tumble Dryer	X 0.6
Cooker	X 0.4

Example Calculation:

	Heat Input (KW)	Diversity Factor	Gas Load (Kw)
Central Heating Boiler	30	X 1.0	30.0
Gas Fire	6	X 0.6	3.6
Cooking appliance	23.5	X 0.4	9.4
Total Gas Load =			43 Kw
Convert to m ³ /h: $43 \times 3.6 \div 39 =$			3.97 m ³ /h

For this example, a meter with a maximum capacity of 6 m³/h is correctly sized.

9 TEST CERTIFICATE

For each MP meter unit that is issued Meter Provida attach a test certificate to the equipment that confirms that all components between the ECV outlet connection and the outlet of the MIV have been factory assembled and appropriate tests completed. When the installation is completed, the operative will complete the address details on the test certificate and return with the meter form to the ESP SPA team.

A copy of the test certificate is provided in Appendix C.

APPENDIX A

REFERENCES

A.1 Publications

- COP/1a Code of Practice for Low Pressure Diaphragm and Electronic Meter Installations with Badged Meter capacities not exceeding 6m³/h (212 ft³/h) *Note: Ofgas CoP1/a and other Ofgas CoP are now obsolete, containing references to CORGI, etc.*
- COP/1b Code of Practice for Low Pressure Diaphragm and Rotary Displacement Meter Installations with Badged Meter capacities exceeding 6m³/h (212 ft³/h) but not exceeding 1076 m³/h (38,000 ft³/h) *Note: Ofgas CoP1/b and other Ofgas CoP are now obsolete, containing references to CORGI, etc.*
- COP/1c Code of practice for all higher pressure and all other low pressure meter installations not covered by COP/1a and COP/1b *Note: Ofgas CoP1/c and other Ofgas CoP are now obsolete, containing references to CORGI, etc.*

A.2 British Standards

- BS 6400-2: 2018 Specification for the installation, exchange, relocation, and removal of domestic-sized gas meters (2nd and 3rd family gases). Part 2. Medium Pressure (2nd family gases)

A.3 Institution of Gas Engineers and Managers Publications

- IGEM/TD/4 Gas Services

A.4 ES Pipelines Limited Publications

- ESP/PM/MP3 The installation, exchange and removal of low-pressure gas meters not exceeding 6m³/h

APPENDIX B – Medium Pressure Meter Label

**THE GAS OPERATOR FOR THIS METER POINT IS:
ES Pipelines Limited**

IF YOU THINK YOU CAN SMELL GAS

Turn off supply at the Emergency Control Valve (ECV)-the ECV is the valve with the **AMBER** handle-when the handle is at right angles to the incoming pipe the valve is in the closed position

Open Windows

Do **NOT** use naked flames

Do **NOT** turn electrical switches on or off.

Do **NOT** smoke.

IMMEDIATELY CONTACT THE EMERGENCY SERVICE USING TELEPHONE NO: 0800 111999
Do **NOT** re-open the supply until remedial action has been taken by a competent person to prevent gas escaping.

IMPORTANT SAFETY WARNING

In order to comply with the Gas Safety (Installation and Use) Regulations 1998, the person connecting the internal installation pipework to the meter outlet shall be competent to do the work, shall ensure the installation is gas tight and shall also ensure that only fully commissioned gas appliances are left connected to the supply.

Failure to comply with this would be an offence under the Gas Safety (Installation and Use) Regulations 1998.

WARNING

The outlet of this meter has been sealed by the insertion of a disc in the outlet supply union which must only be removed, and the supply established, by a competent person.

Failure to comply with this would be an offence under the Gas Safety (Installation and Use) Regulations 1998.

To prevent damage, the gas meter must be removed prior to the soldering of any joints.

MEDIUM PRESSURE SUPPLY

The gas pressure to this supply point is **MEDIUM PRESSURE** to a maximum operating pressure of **2.0 bar gauge**
This meter installation is fitted with a Medium to Low Pressure regulator, the outlet pressure of the regulator is factory pre-set to **approx. 21 millibar gauge**
– the Outlet Pressure at the Meter is approx. **20.5 millibar gauge**

The Medium to Low Pressure regulator has a safety device which may be activated and shut-off the supply under the following conditions:-

- Low inlet pressure;
- Low outlet pressure;
- Excess Flow.

An Internal Relief Valve is also fitted (factory pre-set to relieve at **35 millibar gauge** which has a Maximum Accumulation Pressure of **40 millibar gauge**

AN EXCESS FLOW VALVE IS ALSO FITTED IN THIS SERVICE

HOW TO RE-SET THE MEDIUM TO LOW PRESSURE REGULATOR SAFETY BUTTON

This regulator has a safety device which, under certain conditions, can activate a shut-off valve. The shut-off valve can be re-set by following the procedure below:

1. Turn off all gas appliances.
2. Ensure that the emergency control valve is turned to the "ON" position.
3. Press the coloured re-set button and hold in for about 3 seconds – this will re-set the regulator to the "ON" position.
4. Release the re-set button.
5. The gas supply should now be safely restored.
6. If you are unable to restore your gas supply, after re-checking all appliances are turned off, then please turn off the gas at the emergency control valve and call the Emergency Service on

0800 111999

