



ESP/PM/MP5

SUPPLEMENT TO ESP MP4 FOR

**THE DESIGN OF INDUSTRIAL AND COMMERCIAL
METERING INSTALLATIONS
(INLET PRESSURES NOT EXCEEDING 7 BAR GAUGE)**

October 2022

Document and version control

Date	By	Notes	Version number (after changes)
June 2006	Alan Smith	Document created & approved	V1.0
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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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FOREWARD

ES Pipelines Limited's documents are reviewed and revised, when necessary, by the issue of new editions. Users should ensure that they are in possession of the latest edition by referring to the ES Pipelines Limited Register of Engineering Documents.

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

This document is a supplement to ESP MP4 (which is the Specification for ES Pipelines Limited's Industrial and Commercial Meter Installations (Inlet pressures not exceeding 7 bar gauge) and gives guidance on the determination of the design parameters for the Company's Industrial and Commercial Meter Installations in accordance with the ESP MP4 specification.

Reference should also be made to the IGEM/GM/8** 'Non-domestic meter installations. Flow rate exceeding 6m³/h and inlet pressure not exceeding 38 bar' suite of documents, in addition to this supplement before finalising the design of a meter installation that falls within the scope of ESP MP4.

****more specifically:** IGEM/GM/8 Part1: Design; Part 2: Location, housings and compounds; Part 3: Installation and commissioning MOP less than 38bar; Part 4: Operation and Maintenance MOP less than 38bar, and Part 5: Notices and Labels.

BRIEF HISTORY

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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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SUPPLEMENT TO ESP/PM/MP4 FOR

THE DESIGN OF INDUSTRIAL AND COMMERCIAL METERING INSTALLATIONS (INLET PRESSURES NOT EXCEEDING 7 BAR GAUGE)

1. INTRODUCTION

- 1.1 These Requirements have been prepared to provide an ES Pipelines Limited (ESP) standard covering the design of meter installations, including their associated filters and regulators, serving industrial and commercial end user premises where the meter(s) are used for billing purposes.
- 1.2 These Requirements specify the minimum normative standards which shall be applied such that installations will operate safely and reliably, providing appropriate downstream pressure, whilst ensuring that the gas consumption is metered as accurately as possible commensurate with the costs and practicable means of achieving that accuracy.
- 1.3 At the time of publication, it is believed that these procedures when competently applied satisfy the regulations currently in force relating to metering/pressure regulating installations.

2. SCOPE

- 2.1 These Requirements apply to all metering installations in industrial and commercial premises, where the inlet pressure is less than 7 bar gauge, and the meter readings are used to render an account for gas used.

When a domestic sized meter supplied from a low-pressure system is fitted in industrial and commercial premises the design of the installation should be in accordance with established procedures for domestic meter installations and ESP Procedure ESP/PM/MP3. Such installations are the subject of BS 6400: 'Specification for the installation, exchange, relocation, maintenance and removal of gas meters (2nd family gases) Part 1: Low Pressure 2nd family gases', and Part 2: Medium Pressure (2nd family gases) which cover meters up to 6 m³/h rating.

3. PHILOSOPHY

- 3.1 The prime objectives when designing a metering installation are to ensure, as far as is practicable: -
 - 3.1.1 Continuous accurate measurement, including the reduction of both random and systematic metering errors, where this can be justified economically.
 - 3.1.2 Reliability of operation, including the required level of security of the gas supply.

- 3.1.3 The safety of persons and plant.
- 3.2 The meter installation and its pressure regulating installation should be designed not in isolation, but as a single unit. Both should be sized for the same load, and consideration must be given to the effect that each may have on the other.
- 3.3 The meter selected should be capable of matching the characteristics of the load with the required degree of accuracy.
- 3.4 The pressure regulating equipment should be selected so as to provide the necessary performances required by the meter and by the load being supplied.
- 3.5 The standard of filtration provided for the pressure regulating equipment shall be selected so as to provide suitable filtration standards for metering and other associated equipment and with consideration given to the requirements of appliances and plant controls.
- 3.6 The requirements for any housing of the equipment will depend upon the supply pressure, the location, the equipment being installed, the need for safety, safe access and safe egress, security, the provision of adequate ventilation and similar considerations.

4. DESIGN

- 4.1 When considering the design of an Industrial and Commercial meter installation the location of the installation shall be given careful consideration with particular attention being given to ensuring that the chosen location will provide both safe access to and safe egress from the installation and is compliant with the requirements of IGEM/GM/6 'Non-domestic meter installations. Standard designs' and IGEM/GM/8 'Non-domestic meter installations.'; Part 2: Location, housings and compounds.

The proposed location for a meter installation on an end users' premises shall be assessed by ES Pipelines Limited prior to agreement for the location of the installation being made with the end user. This assessment shall take in to account the requirements of both IGEM/GM/6 and IGEM/GM/8 Part 2 and the recommendations of IGEM/SR/25 shall also be considered with regard to any hazardous areas that may be associated with the meter installation. All relevant information and precautions identified at the design stage as required associated with the installation shall be provided to the gas consumer, and to the meter installer (AMI).

- 4.2 Where appropriate the design of a meter installation shall be in accordance with the recommendations of IGEM/GM/6.
- 4.3 Where the design of a meter installation falls outwith the scope of IGEM/GM/6, i.e., meter installations with capacities in excess of 1076m³/h and/or where the inlet pressure to the meter installation exceeds 75mbar gauge, then the duty requirements for the installation shall be established by ES Pipelines Limited by direct liaison with the end user or their representative(s) and where appropriate by the use of the 'Site Works Request Pro-forma' detailed in Appendix B of this

document. The responsibility for the design of the meter installation shall then be assigned to a reputable industry manufacturer(s) of pre-assembled meter modules. Such manufacturers must be registered in accordance with the requirements of BS EN/ISO 9001/9002 as appropriate. The design provided by the manufacturer(s) shall be assessed and approved by the Operations Director or a designated competent person of ES Pipelines Limited for compliance with the requirements of both ESP/PM/MP4 and IGEM/GM/8 Part 1 prior to the procurement and subsequent installation of the pre-assembled module.,

- 4.4 Where meter capacities in excess of 65m³/h are required consideration should be given to the use of a Rotary Displacement meter in preference to a Diaphragm meter as this may prove to be a more economical alternative and may also offer advantages where the available space for the installation is constrained in any way.
- 4.5 Where process loads are supplied, or continuity of supply is a primary requirement of the end user then the provision of a meter by-pass shall be considered. It is the responsibility of ESP to agree the circumstances in which a meter by-pass may be installed in accordance with the Company's management procedure ESP/PM/GT3.
 - 4.5.1 After the commissioning of an installation including a meter by-pass has been completed the by-pass shall be labeled and properly sealed in a closed position.
- 4.6 Meter Correction shall be considered where the requirements of 'The Gas (Calculation of Thermal Energy) (Amendment) Regulations 1997' will apply to the meter installation. If appropriate, then the provision of a Full PTZ Volume Conversion System shall be incorporated into the design of the meter installation in accordance with the requirements of ESP/PM/CONV1.

APPENDIX A

REFERENCES

A.1 Statutes and Regulations

The Gas (Calculation of Thermal Energy) (Amendment) Regulations 1997

A.2 Publications

- | | |
|--------|--|
| COP/1a | Code of Practice for Low Pressure Diaphragm and Electronic Meter Installations with Badged Meter capacities not exceeding 6m ³ /h (212 ft ³ /h)
<i>Note: Ofgas CoP1/a and other Ofgas CoP are now obsolete, containing references to CORGI, etc.</i> |
| COP/1b | Code of Practice for Low Pressure Diaphragm and Rotary Displacement Meter Installations with Badged Meter capacities exceeding 6m ³ /h (212 ft ³ /h) but not exceeding 1076 m ³ /h (38,000 ft ³ /h) <i>Note: Ofgas CoP1/b and other Ofgas CoP are now obsolete, containing references to CORGI, etc.</i> |
| COP/1c | Code of practice for all higher pressure and all other low pressure meter installations not covered by COP/1a and COP/1b <i>Note: Ofgas CoP1/c and other Ofgas CoP are now obsolete, containing references to CORGI, etc.</i> |

A.3 Institution of Gas Engineers and Managers Publications

- | | |
|------------|---|
| IGEM/UP/2 | Installation Pipework on Industrial & Commercial Premises |
| IGEM/GM/5 | Electronic Gas Meter Volume Conversion Systems |
| IGEM/GM/6 | Non-domestic meter installations. Standard designs |
| IGEM/GM/7A | Electrical connections for gas metering equipment |
| IGEM/GM/7B | Hazardous area classification for gas metering equipment. |
| IGEM/GM/8 | Non-domestic meter installations. Flow rate exceeding 6m ³ /h and inlet pressure not exceeding 38 bar
Part1: Design
Part 2: Location, housings, and compounds
Part 3: Installation and commissioning MOP less than 38bar
Part 4: Operation and Maintenance MOP less than 38bar
Part 5: Notices and Labels |
| IGEM/SR/25 | Hazardous area classification for Natural Gas installations. |

A.4 ES Pipelines Limited Publications

ESP/PM/MP3	The installation, exchange, and removal of low - pressure gas meters not exceeding 6m ³ /h
ESP/PM/MP4	Industrial and Commercial Metering Installations (Inlet pressures not exceeding 7 Bar Gauge)
ESP/PM/GT3	Management procedure for the approval for the provision and use of a meter by-pass
ESP/PM/CONV1	Policy for the management of the conversion of the actual volume measured by a gas supply meter into the volume at standard conditions

APPENDIX B

SITE WORKS REQUEST PROFORMA

<u>Company</u>			
Company	<input style="width: 100%;" type="text"/>	Date of Request	<input style="width: 100%;" type="text"/>
Customer Organisation:	<input style="width: 100%;" type="text"/>	Tel. Number	<input style="width: 100%;" type="text"/>
Job Reference:	<input style="width: 100%;" type="text"/>	Fax Number:	<input style="width: 100%;" type="text"/>
Contact Name:	<input style="width: 100%;" type="text"/>	Signature:	<input style="width: 100%;" type="text"/>
<u>Site Details</u>			
Company Site Ref:	<input style="width: 100%;" type="text"/>		
Full Site Name:	<input style="width: 100%;" type="text"/>		
Site Address:	<input style="width: 100%;" type="text"/>		
	<input style="width: 100%;" type="text"/>		
	Post Code:	<input style="width: 100%;" type="text"/>	
<u>Description of Works</u>			
Brief Description of Work:	<input style="width: 100%;" type="text"/>		
	<input style="width: 100%;" type="text"/>		
	<input style="width: 100%;" type="text"/>		
Requested Completion Date:	<input style="width: 100%;" type="text"/>	Cost Required:	<input style="width: 100%;" type="text" value="Yes/No"/>
Type of Site (tick box):	Greenfield: <input type="checkbox"/>	Existing: <input type="checkbox"/>	Redevelopment: <input type="checkbox"/>
<u>Gas Loads</u>	<u>Existing</u>	<u>New</u>	<u>Total</u>
Peak Instantaneous Demand (kWh/h): Max:	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Min:	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Estimated Annual Consumption (kWh):	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>
Meter Inlet Pressure (millibar gauge):	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	
Type of Load: (eg modulating, constant, process, CHP)	<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	Compressor fitted (yes/no): <input type="checkbox"/>

Type of Work

Type of work to be carried out (tick one only):

- New (no existing connection equipment to site):
- Increase (via existing connection equipment or additional new equipment):
- Alter (relocate connection equipment and/or meter with no change in capacity):
- Increase / Decrease Pressure (no capacity change):
- Other (e.g. meter exchange):

If Other please specify:

NEW Meters

Brief description of proposed meter position(s):

Drawing number showing proposed meter(s) position:

EXISTING Meters

Meter(s) through which additional load is to be supplied:

	Meter point ref. number	Meter serial
Meter 1:	<input type="text"/>	<input type="text"/>
Meter 2:	<input type="text"/>	<input type="text"/>

Requirements of Work

Your requirements ones required):

- Works to be carried out without gas supply interruption:
- Twin (parallel) governor streams (if appropriate):
- E. S. Pipelines assistance in obtaining permission for the service pipe:
- Are costs for meter housing required:
- Additional conditions or rules and regulations (if yes please specify):

Additional conditions/ rules:

FOR E. S. PIPELINES USE

Site Works Request Reference Number: