

NORSOK STANDARD

SYSTEM REQUIREMENTS

FLARE GAS MEASUREMENT

I-SR-103

Rev. 1, January 1995

Please note that whilst every effort has been made to ensure the accuracy of the NORSOK standards neither OLF nor TBL or any of their members will assume liability for any use thereof.

1 FOREWORD

This standard has been developed by the NORSOK standardisation work group and agreed by the Norwegian industry for the widest possible national and international application.

2 SCOPE

The scope of this standard is to establish the system requirements for the design of flare gas measurement system.

3 NORMATIVE REFERENCES

AGA 8 Natural Gas density and compressibility factor executable program and Fortran code. Committee Report No. 8.

NORSOK standards.

4 DEFINITIONS AND ABBREVIATIONS

4.1 Definitions

None.

4.2 Abbreviations

SAS Safety and Automation System

5 FUNCTIONAL REQUIREMENTS

5.1 General

The system shall measure flowrate of and totalise quantities in Sm^3 of flare gas in accordance with governmental regulations. The calculation can either be done in a dedicated flow computer or in SAS.

5.2 Products/Services

Not applicable

5.3 Equipment/schematic

The measurement method should be an ultrasonic transit time flowmeter (USM), see schematics of the system in fig. 1.

The gas density shall be calculated according to AGA 8.

5.4 Performance

5.4.1 Capacity

Operating velocity range: 0.2 - 100 m/s

5.4.2 Accuracy

Max. uncertainty $\pm 5 \%$ of accumulated volume (95 % confidence level)

5.4.3 Lifetime

Application specific

5.5 Regularity

The regularity for the flare meter system shall be 98 %.

5.6 Process/Ambient Conditions

Not applicable

5.7 Operational Requirements

If dedicated computer concept, there shall as a minimum be regular transmission to SAS of:

- Standard volume flowrate and totals.
- Molecular weight of gas.
- Mass flowrate and totals.
- Pressure and temperature.

For high/low alarm there shall be transmission of:

- Pressure and temperature.
- Standard volume flowrate.
- Molecular weight of gas.

The system shall provide access and space for maintenance, calibration and gas sampling.

5.8 Maintenance Requirements

The stream computers shall have calibration mode.

5.9 Isolation and Sectioning

Not applicable.

5.10 Layout Requirements

Minimum distances to upstream and downstream disturbance are 20 and 8 nom. diameters respectively.

5.11 Interface Requirements

Communication to SAS (if dedicated flow computer).

5.12 Commissioning Requirements

None.

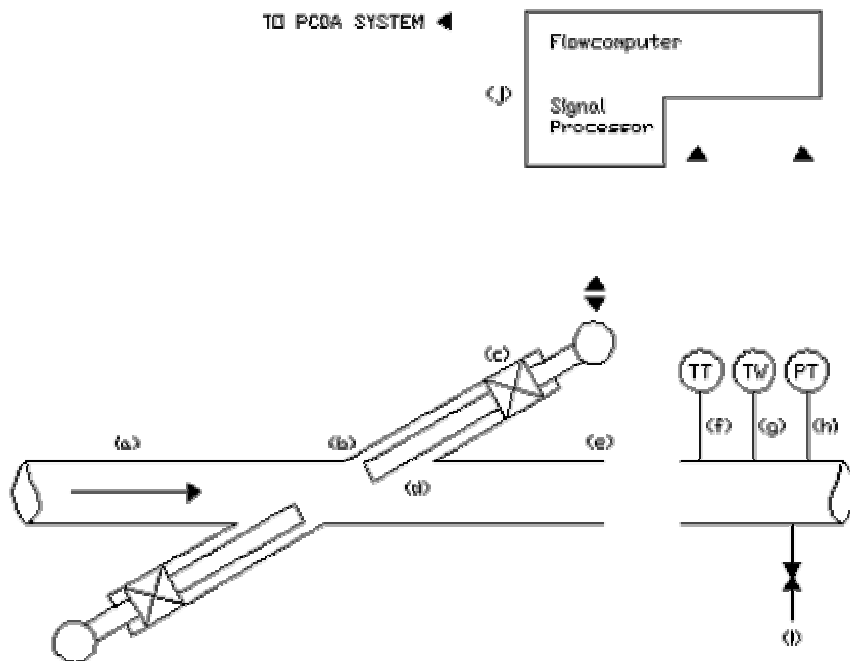


Fig. 1 Simplified P&ID, fuel measurement system.

Explanation to symbols in fig. 1:

- | | |
|-----|---------------------------------|
| (a) | Upstream section of pipe |
| (b) | Transducer holders |
| (c) | Valve and packing gland |
| (d) | Ultrasonic transducers |
| (f) | Temperature transmitter |
| (g) | Thermowell |
| (h) | Pressure transmitter |
| (i) | Sampling point |
| (j) | Signal processor / flowcomputer |
| (k) | A drain |