

Australian Standard™

**Petroleum liquids and gases—Fidelity
and security of dynamic measurement—
Cabled transmission of electric and/or
electronic pulsed data**

This Australian Standard was prepared by Committee ME-049, Oil and Gas Measurement. It was approved on behalf of the Council of Standards Australia on 14 July 2002 and published on 12 August 2002.

The following are represented on Committee ME-049:

Australian Gas Association
Australian Institute of Petroleum
Australian Liquefied Petroleum Gas Association
Australian Petroleum Production and Exploration Association
CSIRO Telecommunications and Industrial Physics
East Australian Pipeline
National Association of Testing Authorities, Australia
National Standards Commission

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PREFACE

This Standard was prepared by the Standards Australia Committee ME-049, Oil and Gas Measurement to supersede AS 2707—1984, *Petroleum liquids and gases—Fidelity and security of dynamic measurement—Cabled transmission of electric and/or electronic pulsed data*.

In this revision the number of security levels have been reduced to three, i.e. levels A, B and C.

Basic principles of ensuring that the data are either sound (level C), can be identified as faulty (level B) or can be corrected (level A), have been applied throughout.

The objective of the Standard is to ensure the integrity of the primary indication of the measurement for the petroleum industry.

This Standard is based on but not equivalent to sections of the Institute of Petroleum's *Petroleum measurement manual*, Part XIII, *Fidelity and security of measurement data transmission systems*, Section 1: *Electrical and/or electronic pulsed data cabled transmission for fluid metering systems* (ISBN 085 293 235 9).

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STANDARDS AUSTRALIA

Australian Standard

Petroleum liquids and gases—Fidelity and security of dynamic measurement—Cabled transmission of electric and/or electronic pulsed data

1 SCOPE

This Standard provides guidelines for ensuring the fidelity and security of transmitter signals and data transmission systems utilized for the metering of fluids.

In order to achieve different levels of security which can be applied to such systems, criteria and recommendations for the design, installation, use and maintenance of the relevant equipment are laid down.

For the majority of applications, the lower levels are considered to be adequate and there is no known system for which Level A security is considered to be a necessity.

This Standard does not define which levels of security are to be used for a particular system application.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

Institute of Petroleum

Petroleum measurement manual

Part XIII Fidelity and security of measurement data transmission systems, Section 1:
Electrical and/or electronic pulsed data cabled transmission for fluid metering systems

AS/NZS

3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)

3 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

3.1 Accuracy

The measure of the closeness of a measurement to the conventional true value.

3.2 Analogue

The continuous current or voltage signal whose amplitude represents the measured variable, e.g. a 4 mA–20 mA signal from a pressure transducer proportional to the pressure being measured, a resistance measurement of a RTD made proportional to the temperature being measured.

3.3 Digital data

The data transmitted by pulsed codes. Data may be transmitted either in serial form along a single pair of conductors, e.g. RS232-C, or alternatively be presented as sets of d.c. levels on a number of parallel wires, e.g. Binary Coded Decimal (BCD) data.

3.4 Frequency signal

The signal in the form of continuous waveform where the measured quantity is represented by the waveform, or its period, e.g. from the vibrating element of a density meter.