Signal Processing, Transmission, and Installation

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue NW, Suite 1100, Washington, DC 20001, standards@api.org.

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Notice Regarding Communications Protocols

The following protocols are used as examples only, and their inclusion in this document is not intended to endorse them specifically or limit users from considering other applications:

- Common Industrial Protocol (CIP™)
- EtherNet/IP™
- FOUNDATION™ Fieldbus

Signal Processing, Transmission, and Installation

1 Scope

This document describes methods used to transmit process measurement and control commands as well as diagnostic information between field devices and control systems.

This document is limited to the transmission of measurements, diagnostic statuses, and control data between field devices and control systems or data acquisition systems. It does not cover communications within a control system. See API 554 for discussions of these systems.

The communication technologies included in this document are as follows.

a) Electronic signals that communicate values on an analog or discrete circuit.

b) Transmission of values using pneumatic signals.

c) Serial data transmission over wire, fiber optic cable, or wireless media.

d) Industry fieldbus systems that supply communications among devices using digital communications.

e) Measurements using wireless communication to control systems or data acquisition systems.

2 Normative References

No document is identified as indispensable or required for the application of this standard. A list of documents associated with API 552 are included in the Bibliography.

3 Terms, Definitions, and Acronyms

3.1 Terms and Definitions

3.1.1
8P8C modular connector
Used to install Ethernet four-pair cables according to ANSI/TIA-568. It is similar in appearance to an RJ-45 phone connector.

3.1.2
advance physical layer
An Ethernet-based loop power two-wire physical layer intended for data transmission up to 1000 m.

3.1.3
approved
Acceptable to the authority having jurisdiction (AHJ).

3.1.4
arcing device
A device during normal operation that produces an arc with enough energy to cause ignition.

3.1.5
associated apparatus
A device where the circuits are not necessarily intrinsically safe but affects the energy in the intrinsically safe circuits and is relied on to maintain intrinsic safety.