

GP 15-10-01	Instrument Transmission Systems	November 2002
-------------	---------------------------------	---------------

Instrument Transmission Systems

GP 15-10-01

Scope

- 1) [I] This Global Practice (GP) covers the design, installation and testing of transmission systems for process instruments.
 - 2) [I] An asterisk (*) indicates that a decision by the Owner's Engineer or Purchaser is required, that additional information is to be furnished by the Owner's Engineer, or that information for approval by the Owner's Engineer is to be supplied by the Vendor or Purchaser.
-

Downstream, Chemical, Downstream Imperial Oil	For ExxonMobil Use Only	Version 1.2.0
Page 1 of 18	©ExxonMobil Development Company	



Documents

Document Sharing Hub

GP 15-10-01	Instrument Transmission Systems	November 2002
-------------	---------------------------------	---------------

Table of Contents

1. Required References	4
1.1. Global Practices–ExxonMobil Engineering Practices	4
1.2. API–American Petroleum Institute	4
1.3. ASTM–American Society for Testing and Materials	4
2. Additional Requirements	4
2.1. Global Practices–ExxonMobil Engineering Practices	4
2.2. API–American Petroleum Institute	5
2.3. CENELEC–European Comm for Electrotechnical Standardization	5
2.4. CSA–Canadian Standards Association	5
2.5. ISA–Instrumentation, Systems and Automation Society.....	5
2.6. NEMA–National Electrical Manufacturers Association	6
2.7. NFPA–National Fire Protection.....	6
2.8. UL–Underwriters Laboratories, Inc.	6
3. Definitions	6
4. Wiring Systems.....	7
5. Routing	8
6. Segregation of Wiring Systems.....	10
7. Connections to Instruments	10
8. Junction Boxes	10
9. Terminal Boxes	11
10. Control House / Local Panel Entry.....	12
11. Grounding	12
12. Lightning Protection.....	13
13. Labeling and Color Coding.....	13
14. Spares and Redundant Cable Requirements.....	14
15. Inspection and Testing.....	15

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 1.2.0
Page 2 of 18	©ExxonMobil Development Company	



Documents

Document Sharing Hub

GP 15-10-01	Instrument Transmission Systems	November 2002
-------------	---------------------------------	---------------

Record of Change 17

Attachment: Purpose Codes Definitions 18

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 1.2.0
Page 3 of 18	©ExxonMobil Development Company	

GP 15-10-01	Instrument Transmission Systems	November 2002
-------------	---------------------------------	---------------

1. Required References

This Section lists Practices and Standards that are generically referenced and assumed to be a part of this document. Unless otherwise specified herein, use the latest edition.

1.1. Global Practices–ExxonMobil Engineering Practices

GP 14-03-01	Fireproofing
GP 15-06-01	Electronic and Pneumatic Instruments
GP 15-06-02	Environmental Protection for Instrumentation
GP 15-07-02	Protective Systems
GP 15-11-01	Instrument Control Panels
GP 15-12-01	Instrument Wire and Cable
GP 16-03-01	Wiring Methods and Material Selection
GP 16-04-01	Grounding and Overvoltage Protection
GP 16-13-01	Field Installation and Testing of Electrical Equipment

1.2. API–American Petroleum Institute

API RP 552	Transmission Systems
------------	----------------------

1.3. ASTM–American Society for Testing and Materials

ASTM A 123/A 123M	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
-------------------	--

2. Additional Requirements

The following Practices and Standards shall be used with this Practice as specified by Purchaser.

2.1. Global Practices–ExxonMobil Engineering Practices

GP 15-02-01	Temperature Instruments
GP 19-06-01	Facilities for Corrosion Monitoring in Process Equipment

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 1.2.0
Page 4 of 18	©ExxonMobil Development Company	



Documents

Document Sharing Hub

GP 15-10-01	Instrument Transmission Systems	November 2002
-------------	---------------------------------	---------------

2.2. API–American Petroleum Institute

API RP 14F	Recommended Practice for Design and Installation of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Division 1 and Division 2 Locations
API RP 500	Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2
API RP 540	Electrical Installations in Petroleum Processing Plants

2.3. CENELEC–European Comm for Electrotechnical Standardization

CENELEC EN 50014	Electrical Apparatus for Potentially Explosive Atmospheres General Requirements
CENELEC EN 50016	Electrical Apparatus for Potentially Explosive Atmospheres Pressurized Apparatus 'P'
CENELEC EN 50018	Electrical Apparatus for Potentially Explosive Atmospheres: Flameproof Enclosure 'D'
CENELEC EN 50020	Electrical Apparatus for Potentially Explosive Atmospheres Intrinsic Safety 'I'
CENELEC EN 50039	Electrical Apparatus for Potentially Explosive Atmospheres: Intrinsically Safe Electrical Systems 'I'
CENELEC EN 60529	Degrees of Protection Provided by Enclosures (IP Code)

2.4. CSA–Canadian Standards Association

CSA C22.1HB-02	CE Code Handbook - An Explanation of Rules of the Canadian Electrical Code, Part 1
----------------	--

2.5. ISA–Instrumentation, Systems and Automation Society

ISA 12.12.01	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
ISA RP12.4	Pressurized Enclosures
ISA RP12.6	Wiring Practices for Hazardous (Classified) Locations Instrumentation Part 1: Intrinsic Safety

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 1.2.0
Page 5 of 18	©ExxonMobil Development Company	



Documents

Document Sharing Hub

GP 15-10-01	Instrument Transmission Systems	November 2002
-------------	---------------------------------	---------------

2.6. NEMA–National Electrical Manufacturers Association

NEMA 250	Enclosures for Electrical Equipment (1000 Volts Maximum)
----------	--

2.7. NFPA–National Fire Protection

NFPA 70	National Electrical Code
NFPA 493	(Withdrawn) Intrinsically Safe Apparatus in Division 1 Hazardous Locations
NFPA 496	Standard for Purged and Pressurized Enclosures for Electrical Equipment (National Fire Codes, vol. 7)

2.8. UL–Underwriters Laboratories, Inc.

UL 913	UL Standard for Safety Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division I, Hazardous (Classified) Locations
UL 1424	UL Standard for Safety Cables for Power-Limited Fire-Alarm Circuits

3. Definitions

Term	[I] Description
signal wiring	Signal wiring covers wiring systems dedicated to measurement and control of process facilities. It may include the following types of circuits, among others: a) High level analog (4–20 mA or 10–50 mA) b) Low level analog (thermocouple, magnetic flow meters) c) Discrete (controls, alarms and protective systems up to 120 volts DC) d) Network communications (data highways, field bus, vendor-specific digital protocols, LAN's) e) Pulse trains (turbine meters, densitometers) f) Fiber optic

DNST, CHEM, DIOL	For ExxonMobil Use Only	Version 1.2.0
Page 6 of 18	©ExxonMobil Development Company	



Documents

Document Sharing Hub