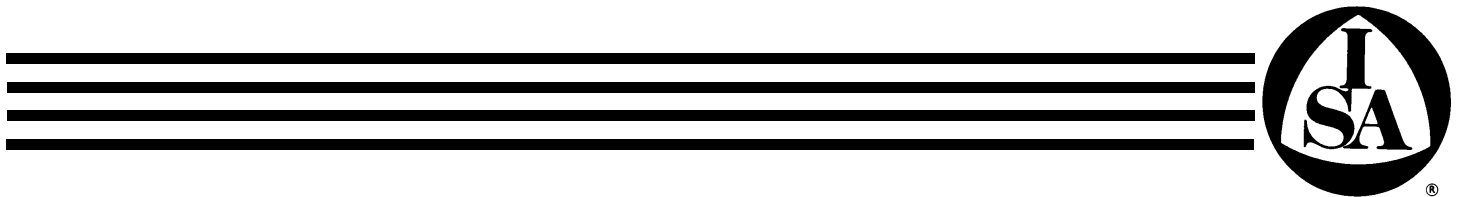


ISA-RP92.02.02, Part II-1998

Approved October 15, 1997

Recommended Practice

Installation, Operation, and Maintenance of Carbon Monoxide Detection Instruments (50-1000 ppm Full Scale)



ISA-RP92.02.02—Part II, Installation, Operation, and Maintenance of Carbon Monoxide
Detection Instruments (50 - 1000 ppm Full Scale)

ISBN: 1-55617-655-4

Copyright © 1998 by the Instrument Society of America. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the prior written permission of the Publisher.

ISA
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, North Carolina 27709

Preface

This preface, as well as all footnotes and annexes, is included for informational purposes and is not part of ISA-RP92.02.02, Part II.

This recommended practice has been prepared as part of the service of ISA, the international society for measurement and control, toward a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Secretary, Standards and Practices Board; ISA; 67 Alexander Drive; P. O. Box 12277; Research Triangle Park, NC 27709; Telephone (919) 990-9228; Fax (919) 549-8288; E-mail: standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to USA users of ISA standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavor to introduce SI-acceptable metric units in all new and revised standards, recommended practices, and technical reports to the greatest extent possible. *Standard for Use of the International System of Units (SI): The Modern Metric System*, published by the American Society for Testing & Materials as IEEE/ASTM SI 10-97, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

It is the policy of ISA to encourage and welcome the participation of all concerned individuals and interests in the development of ISA standards, recommended practices, and technical reports. Participation in the ISA standards-making process by an individual in no way constitutes endorsement by the employer of that individual, of ISA, or of any of the standards, recommended practices, and technical reports that ISA develops.

CAUTION—THE USE OF THIS STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT MAY INVOLVE HAZARDOUS MATERIALS, OPERATIONS OR EQUIPMENT. THE STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT CANNOT ANTICIPATE ALL POSSIBLE APPLICATIONS OR ADDRESS ALL POSSIBLE SAFETY ISSUES ASSOCIATED WITH USE IN HAZARDOUS CONDITIONS.

THE USER OF THIS STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT MUST EXERCISE SOUND PROFESSIONAL JUDGMENT CONCERNING ITS USE AND APPLICABILITY UNDER THE USER'S PARTICULAR CIRCUMSTANCES. THE USER MUST ALSO CONSIDER THE APPLICABILITY OF ANY GOVERNMENTAL REGULATORY LIMITATIONS AND ESTABLISHED SAFETY AND HEALTH PRACTICES BEFORE IMPLEMENTING THIS STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT.

ADDITIONALLY, IMPLEMENTATION OF THE STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT MAY REQUIRE USE OF TECHNIQUES, PROCESSES, OR MATERIALS COVERED BY PATENT RIGHTS. ISA TAKES NO POSITION ON THE EXISTENCE OR VALIDITY OF ANY PATENT RIGHTS WHICH

MAY BE INVOLVED IN IMPLEMENTING THE STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT. ISA WILL NOT BE RESPONSIBLE FOR IDENTIFYING ALL PATENTS THAT MAY REQUIRE A LICENSE BEFORE IMPLEMENTATION OF THE STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT OR FOR INVESTIGATING THE VALIDITY OR SCOPE OF ANY PATENTS BROUGHT TO ITS ATTENTION. THE USER SHOULD CAREFULLY INVESTIGATE RELEVANT PATENTS BEFORE USING THE STANDARD, RECOMMENDED PRACTICE, OR TECHNICAL REPORT FOR THE USER'S INTENDED APPLICATION.

The following members of ISA Committee SP92 developed this document:

NAME	COMPANY
J. Thomason, Chairman	Omni Industrial Systems, Inc.
D. Bishop, Managing Director	Chevron Production Technology Company
W. Alexander	Mine Safety Appliances Company
D. Alpha	Detcom, Inc.
K. Burden	Sensidyne, Inc.
J. Chang	Motorola SPA
M. Coppler	Ametek Inc.
T. Donkin	Enmet Corporation
C. Gropetti	Detector Electronics Corporation
B. Holcom	Gas Tech, Inc.
K. Johnson	KWJ Engineering, Inc.
D. Li	Canadian Standards Association
A. Maynard	Gas Measurement Instruments Ltd.
R. Mease	City of St. Johns
*F. McGowan	Factory Mutual Research Corporation
R. Menot	Factory Mutual Research Corporation
D. Mohla	Union Carbide Chemicals & Plastics
G. Naujoks	Keithley Instruments
B. Northam	Munro Electronics
R. Novack	Ametek Inc.
M. Schaeffer	Control Instruments Corporation
W. Shao	Canadian Standards Association
A. Spataru	The Adept Group, Inc.
M. Stryker	NCASI
P. Stupay	Keithley Instruments
D. Wagner	Industrial Scientific Corporation
R. Warburton	Industrial Scientific Corporation

*One vote per company

The following members of ISA Subcommittee SP92.02 developed this document:

NAME	COMPANY
J. Thomason, Acting Chairman	Omni Industrial Systems, Inc.
D. Bishop, Managing Director	Chevron Production Technology Co.
W. Alexander	Mine Safety Appliances Company
D. Alpha	Detcon, Inc.
J. Chilton	NIOSH PRC
M. Coppler	Ametek Inc.
S. Day	Foxboro Company
T. Donkin	Enmet Corporation
C. Groppetti	Detector Electronic Corporation
B. Holcom	Gas Tech, Inc.
K. Johnson	KWJ Engineering, Inc.
D. Li	Canadian Standards Association
B. Matheson	Sensidyne, Inc.
A. Maynard	Gas Measurement Instruments, Ltd.
R. Menot	Factory Mutual Research Corporation
J. Miller	Detector Electronics Corporation
C. Nakata	Motorola, Inc.
B. Northam	Munro Electronics
R. Novack	Ametek Inc.
M. Schaeffer	Control Instruments Corporation
W. Shao	Canadian Standards Association
P. Stupay	Keithley Instruments
R. Warburton	Industrial Scientific Corporation
J. Zabrenski	Air Products & Chemicals, Inc.

This recommended practice was approved for publication by the ISA Standards and Practices Board on October 15, 1997.

NAME	COMPANY
R. Webb, Vice President	Pacific Gas & Electric Company
H. Baumann	H. D. Baumann & Associates, Ltd.
D. Bishop	Chevron Production Technology Co.
P. Brett	Honeywell, Inc.
W. Calder III	Calder Enterprises
M. Cohen	Flexonics, Inc.
H. Dammeyer	Ohio State University
R. Dieck	Pratt & Whitney
W. Holland	Southern Co. Services, Inc.
H. Hopkins	Utility Products of Arizona
A. Iverson	Ivy Optiks
K. Lindner	Endress + Hauser GmbH + Company
V. Maggioli	Feltronics Corporation
T. McAvinew	Instrumentation & Control Engineering, LLC
A. McCauley, Jr.	Chagrin Valley Controls, Inc.
G. McFarland	Honeywell, Inc.
J. Mock	Consultant
E. Montgomery	Fluor Daniel, Inc.

D. Rapley	Rapley Engineering Services, Inc.
R. Reimer	Allen-Bradley Company
J. Rennie	Factory Mutual Research Corporation
W. Weidman	Consultant
J. Weiss	Electric Power Research Institute
J. Whetstone	National Institute of Standards & Technology
M. Widmeyer	Carnegie Mellon University
R. Wiegler	Canus Corporation
C. Williams	Eastman Kodak Company
G. Wood	Graeme Wood Consulting
M. Zielinski	Fisher-Rosemount Systems, Inc.

Contents

Preface	3
Contents	7
1 Scope	9
2 Purpose	9
3 General requirements	9
4 Unpacking	10
5 Storage	10
6 User record keeping	11
7 Maintenance	11
8 Preparing instruments for use	11
9 Installation of stationary instruments	12
9.1 Installation in hazardous (classified) locations.....	12
9.2 Detector head locations.....	12
10 Equipment checkout procedures	14
10.1 Portable instruments.....	14
10.2 Stationary instruments.....	14
11 General considerations	15
11.1 General.....	16
11.2 Atypical mixtures.....	16
11.3 Desensitizing agents.....	17
11.4 Entering atmospheres potentially containing carbon monoxide.....	17
11.5 Use of appropriate accessories.....	17
11.6 Electromagnetic interference (EMI).....	18
11.7 Maintenance schedule.....	18
12 Operational checks	18
13 Maintenance procedures	19
13.1 General.....	19
13.2 Preliminary checkout.....	20
13.3 Detector head.....	20
13.4 Flow system.....	21
13.5 Readout devices.....	21
13.6 Alarms.....	22
13.7 Calibration test.....	22
14 External power supply systems	23
14.1 General.....	23

14.2 AC supplies	23
14.3 DC supplies	23
Annex A— Environmental and application checklist for carbon monoxide detectors (typical)	25
Annex B— Instrument maintenance record for carbon monoxide detectors (typical)	27
Annex C: Reference publications.....	29

1 Scope

1.1 This recommended practice applies to all carbon monoxide gas detection instruments that satisfy the performance requirements in ISA-S92.02.01, Part I.

1.2 Reference Clause 3 of ISA-S92.02.01, Part I, for definitions of terms as used herein.

1.3 References useful in the installation, operation, and maintenance of carbon monoxide gas detection instruments are listed in Annex C. These references are not considered to be part of this document, except for those specific sections of documents referenced elsewhere in this recommended practice.

2 Purpose

ISA-RP92.02.02, Part II establishes user criteria for the installation, operation, and maintenance of carbon monoxide gas detection instruments.

Its companion standard, ISA-S92.02.01, Part I, "Performance Requirements for Carbon Monoxide Detection Instruments," has been prepared to provide minimum requirements for the performance of carbon monoxide gas detection instruments.

3 General requirements

3.1 To assure that the instrument is suitable for the application and is compatible with its operating environment:

- a) the user should provide the potential supplier with detailed information on the conditions that exist in the area(s) in which the instrument is to be used;
- b) the instrument must meet the requirements of the applicable regulating agency having jurisdiction; and
- c) the instrument must be compatible with the environmental conditions; e.g., relative humidity, temperature, atmospheric contaminants, etc., in which the instrument is to operate. A typical "Environmental and Application Checklist" is included as [Annex A](#) and is intended to aid users in properly specifying requirements for their specific applications.