

Corrigendum AC

System control diagram

This NORSOK standard is developed with broad petroleum industry participation by interested parties in the Norwegian petroleum industry and is owned by the Norwegian petroleum industry represented by the Norwegian Oil and Gas Association and The Federation of Norwegian Industries. Please note that whilst every effort has been made to ensure the accuracy of this NORSOK standard, neither the Norwegian Oil and Gas Association nor The Federation of Norwegian Industries or any of their members will assume liability for any use thereof. Standards Norway is responsible for the administration and publication of this NORSOK standard.

Standards Norway
P.O. Box 242, 1326 Lysaker
NORWAY
Visiting address
Mustads vei 1, 0283 Oslo
Copyrights reserved

Telephone: + 47 67 83 86 00
Fax: + 47 67 83 86 01
Email: petroleum@standard.no
Website: www.standard.no/petroleum

Foreword

NORSOK I-005:2013/AC:2016 was adopted in October 2016.

Corrections in the text, figures and tables are marked in the main document and identified in the following pages:

- The list of references has been revised and errors corrected (no new references introduced in the text), and clause 2 has been updated. Some errors in the references are also updated in the text.
- Requirements in A-001N:2016 regarding wording and production format is included in the updated complete standard, such as correction of the wording of the terms can, may, shall and should (ISO/IEC aligned).
- Editorial corrections such as minor print errors are not marked or identified.
- There were some mistakes in the Annexes to I-005. These have been corrected.
- Correction of chapter numbering has not been listed as corrections, but it should be noted that in Annex A, numbering was only correct including chapter A.4.3.3.5. From A.4.4 to A.4.19.3.5 it was erroneously numbered from A.4.1 to A.4.16.3.5. Both numbers are shown below for the paragraphs with other corrections.
- Four numbering errors in subchapters were corrected in Annex C to G (not shown in the list).

Clause	Corrections/new text are shown within these brackets AC AC
2.1	AC ANSI/ISA-5.1, <i>Instrumentation Symbols and Identification</i> IEC 61131-3, <i>Programmable controllers - Part 3: Programming languages</i> IEC 61508 all parts, <i>Functional safety of electrical/electronic/programmable electronic safety-related systems</i> ISO 128-20, <i>Technical drawings -- General principles of presentation -- Part 20: Basic conventions for lines</i> ISO 3511, (all parts), <i>Process measurement control functions and instrumentation – Symbolic representation – (all parts)</i> ISO 5457, <i>Technical drawings -- Sizes and layout of drawing sheets</i> Norsk olje og gass 070, <i>Guidelines for the Application of IEC 61508 and IEC 61511 in the petroleum activities on the continental shelf</i> AC
2.2	AC ANSI/ISA-18.2, <i>Management of Alarm Systems for the Process Industries</i> API RP 14 C, <i>Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms</i> EEMUA Publication 191, <i>Alarm systems - a guide to design, management and procurement</i> ISO 10418, <i>Petroleum and natural gas industries – Offshore production platforms – Analysis, design, installation and testing of basic surface safety systems</i> ISO 10628, <i>Flow diagrams for process plants -- General rules</i> IEC 60848, <i>GRAFCET specification language for sequential function charts</i> ISO 81714-1, <i>Design of graphical symbols for use in the technical documentation of products -- Part 1: Basic rules</i> IEC 81714-2, <i>Design of graphical symbols for use in the technical documentation of products -- Part 2: Specification for graphical symbols in a computer sensible form, including graphical symbols for a reference library, and requirements for their interchange</i> ISA-5.5, <i>Graphic Symbols for Process Displays</i> NAMUR NA102, <i>Alarm Management</i> NS 1438–1, <i>Process measurement control functions and instrumentation – Symbolic representation – Part 1: Basic requirements</i> AC
3.1.10	can AC expression in the content of a document conveying expected or conceivable material, physical or causal outcome AC
3.1.32	may AC expression in the content of a document conveying consent or liberty (or opportunity) to do something Note 1 to entry: Permissions are expressed using the verbal forms specified in ISO/IEC Directives Part 2 clause 7.4 Table 5. AC
3.1.45	shall AC expression in the content of a document conveying objectively verifiable criteria to be fulfilled and from which no deviation is permitted if compliance with the document is to be claimed
3.1.46	should AC expression in the content of a document conveying a suggested possible choice or course of action deemed to be particularly suitable without necessarily mentioning or excluding others Note 1 to entry: Recommendations are expressed using the verbal forms specified in ISO/IEC Directives, Part 2 clause 7.3 Table 4.

	Note 2 to entry: In the negative form, a recommendation is the expression that a suggested possible choice or course of action is not preferred but it is not prohibited. AC			
4.5	AC ANSI/ISA-18.2 AC			
Annex A				
A.1.5	AC Norsk olje og gass 070 AC .			
A.4.3.2.2	Input FU	Binary input	Force suppression	Alarm annunciation is suppressed, WH,WL,WV, YF = 0 and statuses AC XF AC , XGL and XGH are neglected as long as FU=1.
	Output BCH	Binary output	Output position high confirmed	If the open limit switch is enabled, the output Y is compared to the high limit switch feedback and validated as true (BCH = 1) if Y within "limit confirmed state opened" and XGH = 1. AC If the open limit switch is disabled, BCH = 1 AC when Y is within "limit confirmed state opened".
A.4.3.2.3	Analogue		Minimum range input	Minimum range value in. AC (Display range) AC
	Analogue		Maximum range input	Maximum range value in. AC (Display range) AC
A.4.3.3.2	Modes Function		Tracking	Tracking mode has only effect in auto mode. The controller output Y is equal to the XT input. Switching in and out of tracking should be bumpless. The tracking mode shall be possible to AC set at any time. AC
	Control function		Set point	Set to stored setpoint when switching from auto external to auto internal by logic AC (LI). AC
A.4.4.2.2	Input FU	Binary input	Force suppression	Alarm annunciation is suppressed, AC WV, YF = 0 AC and statuses XF and XGL are neglected as long as FU = 1.
A.4.1.2.2				
A.4.4.3.5	Function fault		When XGL goes high, position feedback from flow element (XGL) will be compared with the position read (XG< (Closed position) %). It shall be possible to generate function failed alarm AC and set YF=1 AC , if mismatch is detected.	
A.4.1.3.5	Travel monitoring		Shall be possible to generate a warning deviation AC alarm and set YF=1 AC when the valve does not travel to the expected position (set point) within a calculated time. The time shall be calculated for every command as a percentage of the warning deviation timer based on the commanded change in position (setpoint).	
A.4.5.2.3	Analogue input	Ramp time external value (EU/sec)	Specifies the ramping of the external value AC both when switched from manual to auto mode and while in auto mode. AC The ramp time is specified in engineering unit per second. If the ramp time is set to zero, this means the ramping is disabled.	
A.4.2.2.3				
A.4.6.2.1	<u>Operator station</u>			
A.4.3.2.4	Auto/Manual Set AC function AC on(high)/off(low)			
A.4.6.2.2	Binary input	Force disable transition low	Permissive to set output off when FDL = 0 and prevents transition to off when FDL = 1. AC FDL has no effect when the HB block is configured with pulsed output. AC	
A.4.3.2.2				
A.4.8.3.1	General			
A.4.5.3.4	This template has latched and/or unlatched inputs. The unlatched input AC (XS) AC shall be used when the shutdown originates from a higher shutdown level.			

A.4.10.2.3 A.4.7.2.3	Parameter name		Supplementary description	Default	
	Maximum range		Maximum display range value	[AC] - [AC]	
	Minimum range		Minimum display range value	[AC] - [AC]	
	[AC] Substitute value of XQHH		If XAHH is in use, XQHH not used.	- [AC]	
	[AC] Substitute value of XQWH		If XWH is in use, XQWH not used.	- [AC]	
	[AC] Substitute value of XQWL		If XLW is in use, XQWL not used.	- [AC]	
	[AC] Substitute value of XQLL		If XALL is in use, XQLL not used.	- [AC]	
A.4.12.2.2 A.4.9.2.2	XGH	Binary <u>input</u>	Position high feedback	[AC] Signal from limit switch high (optional). XGH = 1 is open flow element. Enabling the open limit switch feedback is done by Feedback configuration parameter. [AC]	
	XGL	Binary <u>input</u>	Position low feedback	[AC] Signal from limit switch low (optional). XGL = 1 is closed flow element. Enabling the closed limit switch feedback is done by Feedback configuration parameter. [AC]	
	WV	Binary <u>output</u>	Warning deviation	WV=1, If deviation between [AC] XG/XGL/XGH and Y is larger than given limit for a time that exceed alarm delay. If XGL and XGH appears at the same time the deviation alarm shall be given immediately. [AC]	
A.4.12.2.3 A.4.9.2.3	Time		Alarm delay	Deviation alarm [AC] XG/XGL/XGH [AC] compared to Y	30s
	Analogue		Limit confirmed state %	Compared to operating range high or low. The % value is calculated in relation to the full range [AC] (Ymax-Ymin) [AC]	2 %
A.4.12.3.3 A.4.9.3.3	Ramping		There are two ramps defined. One is for the transfer from manual to auto. When the value Y is equal to X [AC] (conditioned to the same scale), [AC] then the ramp value for normal operation will take over and will be used while in auto mode.		
	Feedback confirm high – BCH		Based on the feedback configuration this will be calculated via different algorithms. [AC] If XGH is connected only this value will be used. If only XG is connected, and XG is within the limit confirmed state, BCH=1. If there is no feedback for high the Y value is used and Y is within the limit confirmed state, BCH=1. [AC]		
	Feedback confirm low – BCL		Based on the feedback configuration this will be calculated via different algorithm [AC] If XGL is connected, only this value will be used. If only XG is connected, and XG is within the limit confirmed state, BCL=1. If there is no feedback for low the Y value is used and Y is within the limit confirmed state, BCL=1 [AC].		
	Warning deviation		Discrepancy between [AC] XG/XGL/XGH and Y is larger than a given limit for a time that exceed alarm delay. If XGL and XGH appears at the same time the deviation alarm shall be given immediately. [AC] Possibility for alarm annunciation, but no action.		
A.4.13.2.2 A.4.10.2.2	FQ	Binary input	Force totalizing	Forcing totalizer to [AC] accumulate [AC] when true.	