



Offshore Design Section  
Engineering Services  
ISO – 9001:2008

FUNCTIONAL  
SPECIFICATION FOR  
“CURRENT TO PNEUMATIC  
CONVERTER”

Spec. No.	3404
Rev. No.	0
Discipline	Instt
Page: 1 OF 5	

**FUNCTIONAL SPECIFICATION**  
**FOR**  
**“CURRENT TO PNEUMATIC CONVERTER”**

Prepared / Revised By	Reviewed By	Approved By	Total No. of Pages	Date	Rev. No.
<i>Mulhas</i> 21/12-10	<i>me</i> 21/12/10	<i>AKR</i>			
AK	SSK	AKR	5	21-12-2010	0

FORMAT No. ODS/SOF/004	Ref. PROCEDURE No. ODS/SOP/023	ISSUE No. 01	REV. No. 00	REV. DATE: 21.07.2010
---------------------------	-----------------------------------	-----------------	----------------	--------------------------



**CONTENTS**

Clause No.	ITEM	Page No.
1.0	Scope of This Document	3
2.0	<b>Reference Documents and Specifications</b>	3
	2.1 Scope of Supply	3
3.0	General	3
4.0	P to I converter	3
	4.1 Converter Type	3
	4.2 Material	3
	4.3 Accuracy	3
	4.4 Reading scales	3
	4.5 Enclosure class	3
	4.6 <b>Hazardous area certifications</b>	3
Annexure I	Data Sheet Format	4



**FUNCTIONAL  
SPECIFICATION FOR  
“CURRENT TO PNEUMATIC  
CONVERTER”**

**1.0 SCOPE OF THIS DOCUMENT:**

- 1.1 This functional specification describes the essential design considerations for the selection of Current to Pressure converter for the intended service.

**2.0 Reference Documents and Specifications**

- a) Instrumentation Design Criteria
- b) Basic Bid Work
- c) Project P & IDs
- d) Instrument Process Data Sheets
- e)

**2.1 SCOPE OF SUPPLY:**

- 2.2 The quantity to be supplied and installed shall be as per the requirements indicated in the Basic Bid Work, and the P & IDs.
- 2.3 The vendor shall be responsible for the selection of the I to P converter suitable for its intended application, its procurement, tagging, packing, testing & calibration, preparation for shipment, along with accessories, spares, and assistance where required for its installation & commissioning at site. This FS shall be read in conjunction with the Instrument Design Criteria.

**3.0 Current to Pressure Converter:**

**3.1 General**

A “current to pressure” converter (I/P) converts an analog signal (4 to 20 mA) to a proportional linear pneumatic output (3 to 15 psig). Its purpose is to translate the analog output from a control system into a precise, repeatable pressure value to control pneumatic actuators/operators, pneumatic valves, dampers, vanes, etc.

**3.1.1 The input signal shall be 4-20 mA, 2 wires.**

- 3.1.1.1 The I/P converter shall be provided with two No. ½”NPT cable entries, with one will be plugged.


- 3.1.1.2 The output signal shall be 3-15 psi. The output signal shall be linear in relation to input signal.

- 3.1.1.3 The change in out put due to 10 degree Celsius change in ambient temperature (Max-40<sup>0</sup>C, Min-16<sup>0</sup>C) should be very minimum.

- 3.1.1.4 I/P shall have externally adjustable zero and span.

**3.2 Material:**

- 3.2.1 Instrument parts shall be resistant to the corrosive properties of the process fluid and ambient conditions to which they are exposed.

	<b>Offshore Design Section Engineering Services ISO – 9001:2008</b>	<b>FUNCTIONAL SPECIFICATION FOR “CURRENT TO PNEUMATIC CONVERTER”</b>	<b>Spec. No.</b>	<b>3404</b>
			<b>Rev. No.</b>	<b>0</b>
			<b>Discipline</b>	<b>Instt</b>
			<b>Page: 4 OF 5</b>	

- 3.2.2 **Housing material** -Die-cast low copper aluminum alloy body and cover, with an epoxy powder finish.
- 3.2.3 Mounting accessories: shall be SS316.
- 3.3 **Accuracy: better than**  $\pm 0.5\%$  of span.
- 3.4 **Reading Scales:** Units for I/P converter shall be in PSI.
- 3.5 **Enclosure Class:** The I/P converter shall be weatherproof to NEMA-4X (IP-65) and shall be intrinsically safe.
- 3.6 **Hazardous area certifications:** By third party agencies like IEC/UL/ATEX/CMRE/FM/BASEEFA/CENELEC/CSA/PTB for use in hazardous area (Class 1, Division.1, Groups C and D, T3).

FORMAT No.	Ref. PROCEDURE No.	ISSUE No.	REV. No.	REV. DATE:
ODS/SOF/004	ODS/SOP/023	01	00	21.07.2010



Offshore Design Section  
Engineering Services  
ISO – 9001:2008

**FUNCTIONAL  
SPECIFICATION FOR  
“CURRENT TO PNEUMATIC  
CONVERTER”**

**Spec. No.** 3404  
**Rev. No.** 0  
**Discipline** Instt  
**Page:** 5 OF 5

**ANNEXURE-I -TYPICAL DATA SHEET**

**CURRENT TO PNEUMATIC CONVERTER.**

UNITS :- Flow Liquid – M3/HR Gas – NM3/HR Steam – Kg/hr Pressure – kg/cm2 Temperature – deg C Level/length -mm

1	Type		10	Accuracy	
2	Mounting		11	Actuation	
3	Ambient Temperature		12	Housing Type	
4	Electric Supply		13	Accessories	
5	Input		14	Intrinsically safe	
6	Out Put		15	Body material	
7	Pneumatic connection				
8	Area Classification				
9	Conduit Connection				
	Electrical				
	Pneumatic				

**NOTE :-**

**VENDER SEAL AND SIGNATURE**

FORMAT No. ODS/SOF/004	Ref. PROCEDURE No. ODS/SOP/023	ISSUE No. 01	REV. No. 00	REV. DATE: 21.07.2010
---------------------------	-----------------------------------	-----------------	----------------	--------------------------