[I-21/9/2024-W&M Section]
GOVERNMENT OF INDIA/भारत सरकार
MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION
उपभोता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय
DEPARTMENT OF CONSUMER AFFAIRS/ उपभोक्ता मामले विभाग
LEGAL METROLOGY DIVISION/ विधिक मापविज्ञान प्रभाग

Krishi Bhawan/कृषि भवन, नई दिल्ली
Dated/दिनांक:- 19.01.2024

Certificate of Approval of Model/ मॉडल का अनुमोदन प्रमाणपत्र

Whereas the Central Government, after considering the report submitted to it by the prescribed authority along with the OIML certificate no. **R137/2012-A-NL1-20.11 revision 6** issued by NMi Certain B.V. Netherland, is satisfied that the model described in the said report (see the figure given below), is in conformity with the provisions of the Legal Metrology Act 2009(1 of 2010) and the Legal Metrology (Approval of Models) Rules, 2011 and the said model is likely to maintain its accuracy over periods of sustained use and to render accurate service under varied conditions;

Now, therefore, in exercise of the powers conferred by section 22 of the Legal Metrology Act, 2009 (1 of 2010) read with sub-rule (6) of rule 8 and sub-rule (4) of rule 11 of the Legal Metrology (Approval of Models) Rules, 2011 and as per OIML R137, the Central Government hereby issues the certificate of approval of the model of Ultrasonic Gas Meter, Type: "FSN-4P" of accuracy class: 1 (hereinafter referred to as the said model), manufactured by M/s Pietro Fiorentini S.p.A. Via E. Fermi, 8/10, 36057 Arcugnano (VI), Italy and imported & marketed in India without any alteration before or after sale by M/s Pietro Fiorentini DB India Private Limited, Gat No. 43, Navlakh Umbre, Talegaon MIDC, Taluka- Maval, District- Pune, Maharashtra- 410507 which is assigned the approval mark IND/09/24/26(the picture of the model is given below as Figure 1);

Figure 1

Table 1 General characteristics

Destined for the measurement of	Gas volume		
Environmental classes	M1 / E2 for class 0,5 M2 / E2 for class 1,0		
Accuracy class	See table 2		
Maximum pressure	153 bar(a)		
Ambient temperature range	-25 ... +55 °C		
Gas temperature range	-25 ... +55 °C		
Designed for	Condensing humidity		
Orientation	All orientations		
Power supply voltage	18..28 V DC		
Transducer type	USM 3" & 4" (V2): Type FSN-L3-25 USM nominal size ≤12": Type UIM-U2 USM nominal size >12": Type UIM-U5		
Software identification	Part	Software version	Checksum
	Main version / FPGA version	1.0.4 / 1.0.1	77A54A9D
	Main version / FPGA version	1.0.6 / 1.0.4	43F6D289
	Main version / FPGA version	1.0.7 / 1.0.4	544882BB
	Main version / FPGA version	2.0.1 / 2.0.1	67D31506
	Main version / FPGA version	2.3.1 / 2.3.0	3C12C30A
	Main version / FPGA version	2.4.1 / 2.3.0	B87E9BB9
	Main version / FPGA version	2.5.0 / 2.3.0	94AC0AE9
	Main version / FPGA version	2.7.0 / 2.3.0	2A8D6FB7
	Main version / CFPGA version/ DFPGA version	3.0.1 / 2.0.0.20 / 2.0.0.11	440DC1CC

Table 2 General characteristics of the family of instruments

Diameter		**Class 0,5 or 1,0** Depending on installation conditions			**Class 1,0**	
		Unidirectional or Bidirectional meter			Unidirectional meter	
Nominal size [-]	Inner diameter [mm]	V_{max} [m/s]	V_{min} [m/s]	V_t [m/s]	V_{min} [m/s]	V_t [m/s]
3"/ DN80 (V2)[1]	70 ~ 80	35,00			0,51	1/10 V_{max}
4"/ DN100 (V2)[1]	80 ~ 105	33,50				
3" / DN80 (V1)[1]	70 ~ 80	35,00	0,51	1/10 V_{max}	-	-
4" / DN100(V1)[1]	80 ~ 105	33,50	0,51		-	-
6" / DN150	130 ~ 155	30,00	0,40		0,24	1/10 V_{max}
8" / DN200	180 ~ 210	30,00	0,30			
10" / DN250	230 ~ 260	30,00				
12" / DN300	270 ~ 320	30,00				
14" / DN350	300 ~ 345	30,00				
16" / DN400	350 ~ 390	30,00				
18" / DN450	380 ~ 440	30,00				
20" / DN500	450 ~ 490	30,00				
24" / DN600	520 ~ 590	29,00				
30" / DN750	680 ~ 740	28,00				

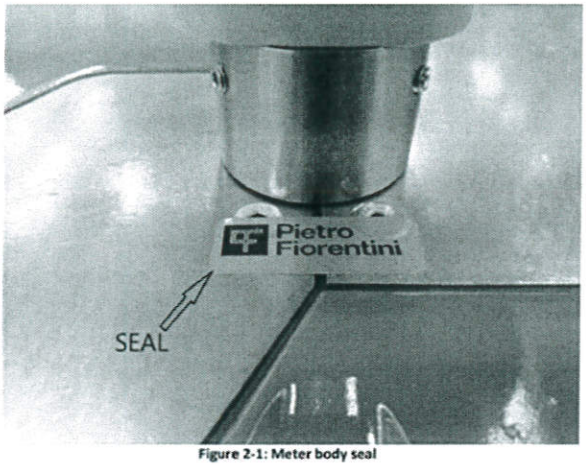

Figure 2-1: Meter body seal

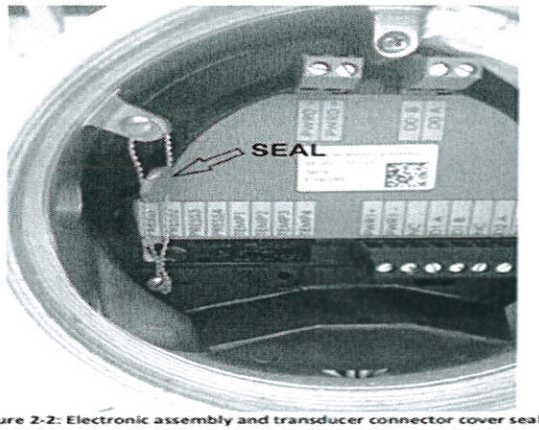

Figure 2-2: Electronic assembly and transducer connector cover seal

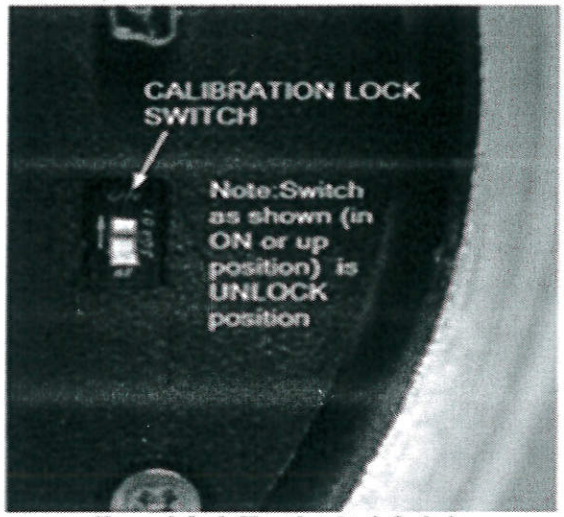

Figure 2-3: Calibration Lock Switch

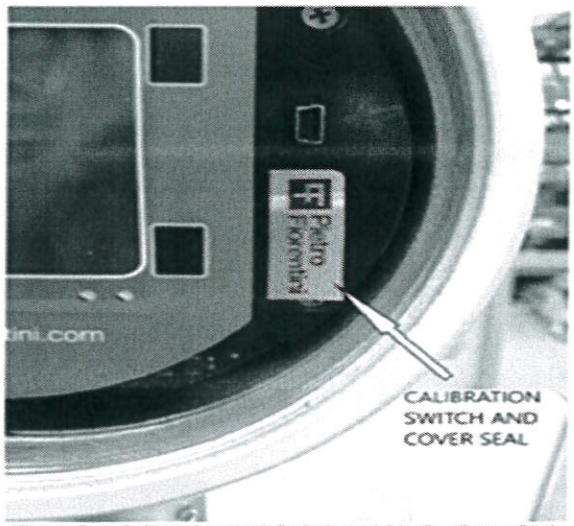

Figure 2-4: Calibration Lock Switch and Display Cover Seal

Sealing System write up:

Sealing of Flowbody: The Flowbody and access to the transducers is sealed by means of a seal wire thorugh the cover bolts/ hexscrews as shown in Figure 2-1. Tampering with seal will invalidate the calibration.

Sealing of electronic components: The electronics assembly and cover to the transducer connectors is sealed by means of a seal wire as shown in figure 2-2.

Sealing of Software: Sealing of software is provided by means of a "calibration lock" switch behind the front cover, right of the LCD. When the locks switch is in LOCK position the firmware does not allow any legally relevant parameter to be changed. It also does not allow any firmware to be upgraded over any of the interfaces as shown in figure 2-3.

Note that the "ON" position of the switch is the UNLOCKED position for failsafe operation.

The lock switch is sealed with a tamper proof sticker, which also covers one screw of the display bracket to prevent removal of the bracket as shown in figure 2-4. A typical schematic diagram of sealing provision to prevent the fraudulent practices of the model is given above as Figures.

[F.No.I-21/9/2024-W&M Section]

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