گواهی نامه کالیبراسیون

CERTIFICATE OF CALIBRATION

آزمایشگاه کالیبراسیون پارس صحت آزمون

NACI/LAB/223
ISO/IEC 17025

CERT NO:	**970309/110-433**
CUSTOMER NAME:	**Hogller**
CUSTOMER ADDRESS:	---
REQUESTED DATE:	**1397/03/09**
DATE OF TEST&CALIBRATION:	**1397/04/02-05**
DATE OF ISSUE:	**1397/04/05**
REQUESTED INTERVAL:	**---**

1.CALIBRATED INSTRUMENT DESCRIPTION:

NOMENCLATURE:	***Pressure Transmitter***
MODEL:	**HOTH0010FGCK**
SERIAL NUMBER:	**1634301128041**
DEFINED ID:	**---**
RANGE:	**0…10 bar (4…20 mA)**
REQUESTED RANGE:	**---**
RESOLUTION:	**---**
MANUFACTURER:	**HOGLLER**
SEATING:	**---**

2.CALIBRATION&TEST METHOD:

The calibration was performed in comparison method according to calibration procedure DKD R 6-1

3.ENVIRONMENTAL CONDITIONS:

AMB. Temp: 20±1°C Relative Humidity: Max 55 %R.H Barometric Pressure: 872hPa

4.REFERENCE EQUIPMENTS & TRACEABILITY:

THERMAL ENVIRONMENTAL CHAMBER ,S.N:6260000620842 ,Cert.No:95-112/32 ,Traceable To UKAS
MULTI FUNCTION CALIBRATOR MICROCAL2000+ ,S.N:5435 ,Cert.No:97-112/11,Traceable To Fluke USA
DIGITAL PRESSURE TEST GAUGE, S.N:918636, Cert NO:95-111/5, TRACEABLE TO DKD
DIGITAL PRESSURE TEST GAUGE, S.N:921607, CERT. NO: 9506149001, TRACEABLE TO DKD
Oscilloscope ,S.N:NEU00002140493, Cert. No:358-93014, Traceable To FLUKE USA

5.UNCERTAINTY:

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%.The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Glossary:

UUC: Unit Under calibration Error: Absolute error Ref.: Reference value of contract MPE: Maximum Permissible Error

1- User shall take measures to recalibrate the unit within the specified intervals.
2-Any copy taking of this certificate shall be complete and of full page
3-This certificate is invalid unless signed & sealed the LAB.
4- According to paragraph 4-410-5 of ISO 1705, expire date will be mentioned only upon client's request.

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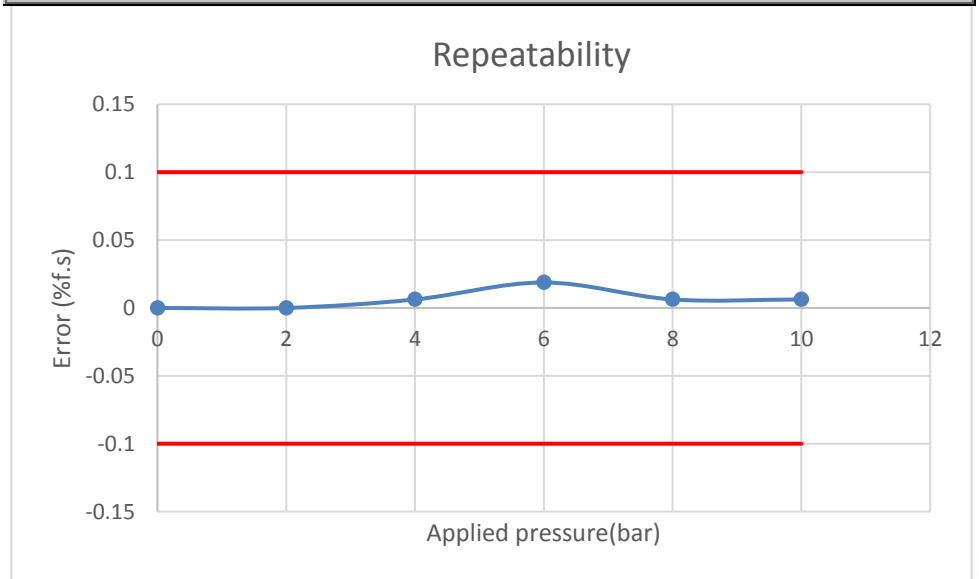
TEST&CALIBRATION RESULT

1. Warming Time

The warm-up time and start-up time are 3'40 ",so it is recommended that the waiting time would be at least 4'.

2. Test Results @ 25°C with 24V Power Supply

Item	REF. (bar)	U.U.C					
		First		Second		Third	
		Rising (mA)	Falling (mA)	Rising (mA)	Falling (mA)	Rising (mA)	Falling (mA)
1	0.000	3.999	3.999	3.999	3.999	3.999	3.999
2	2.000	7.195	7.201	7.195	7.201	7.195	7.201
3	4.000	10.401	10.405	10.401	10.406	10.401	10.405
4	6.000	13.601	13.599	13.598	13.598	13.598	13.597
5	8.000	16.794	16.796	16.795	16.796	16.795	16.796
6	10.000	20.006	20.006	20.006	20.006	20.006	20.005



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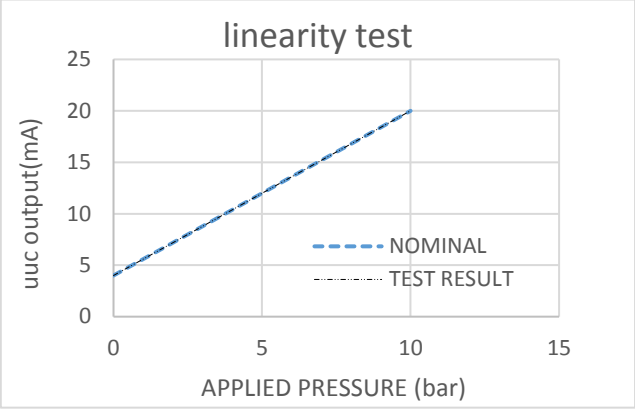
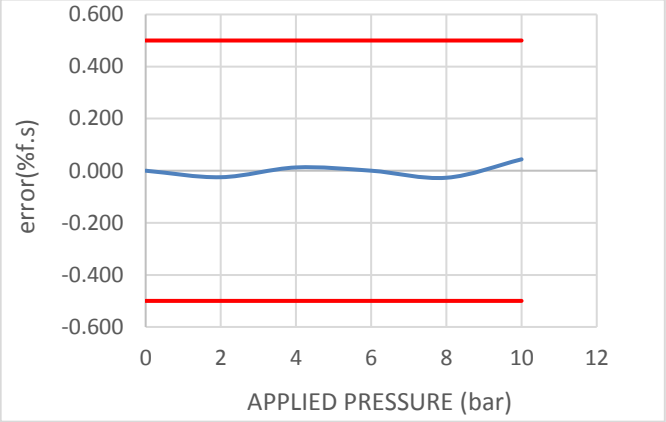
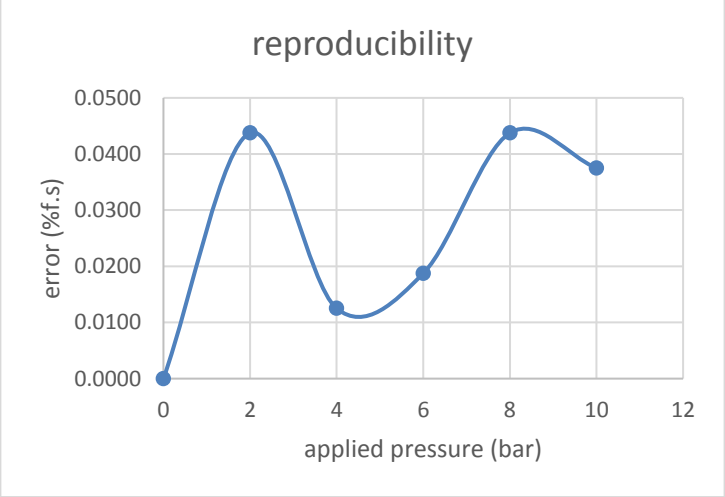




3. Reproducibility (Test Results @ 25°C with 24v Power Supply)

Item	REF. (bar)	U.U.C	
		Falling (mA)	Rising (mA)
1	0.000	4.005	3.997
2	2.000	7.207	7.192
3	4.000	10.407	10.405
4	6.000	13.606	13.598
5	8.000	16.807	16.795
6	10.000	20.008	19.998



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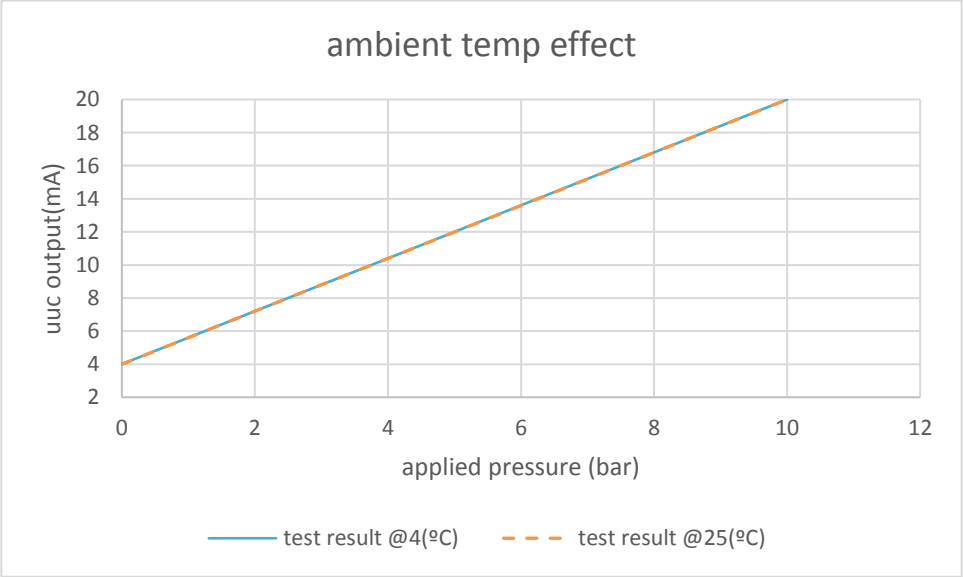
4. Ambient Temp. Effect (Test Results @ 4°C With 24v Power Supply)

Item	REF. (bar)	U.U.C	
		Falling (mA)	Rising (mA)
1	0.000	4.005	4.005
2	2.000	7.204	7.205
3	4.000	10.404	10.405
4	6.000	13.603	13.604
5	8.000	16.803	16.804
6	10.000	20.003	20.004



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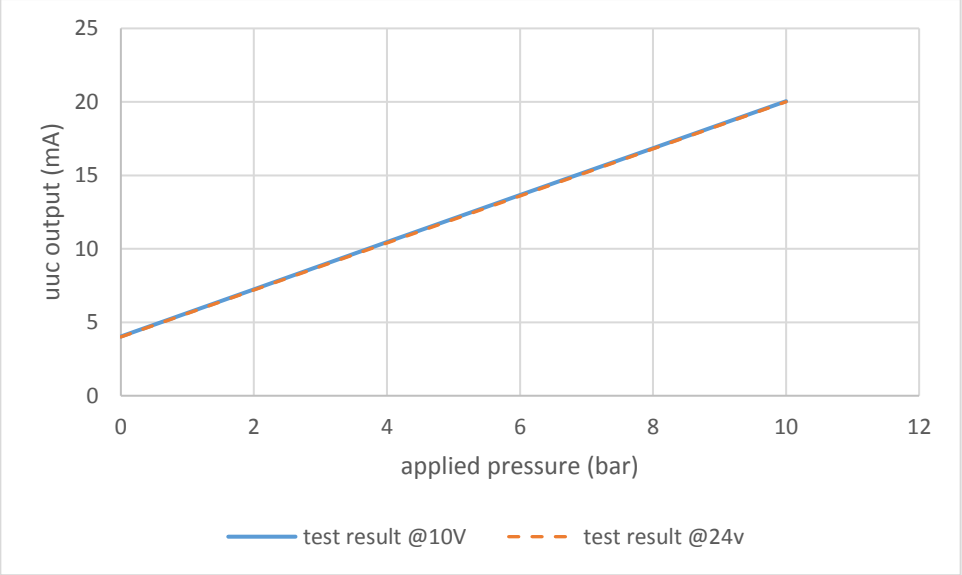
5. Supply Voltage Effect (Test Results @ 25°C With 10v Power Supply)

Item	REF. (bar)	U.U.C	
		Rising (mA)	Falling (mA)
1	0.000	4.031	4.031
2	2.000	7.246	7.245
3	4.000	10.456	10.458
4	6.000	13.654	13.652
5	8.000	16.846	16.845
6	10.000	20.046	20.046



6. Output Stability after 5 Minutes Time (Warming Time)

@ zero point	$\pm 0.001mA$
@ span	$\pm 0.001mA$

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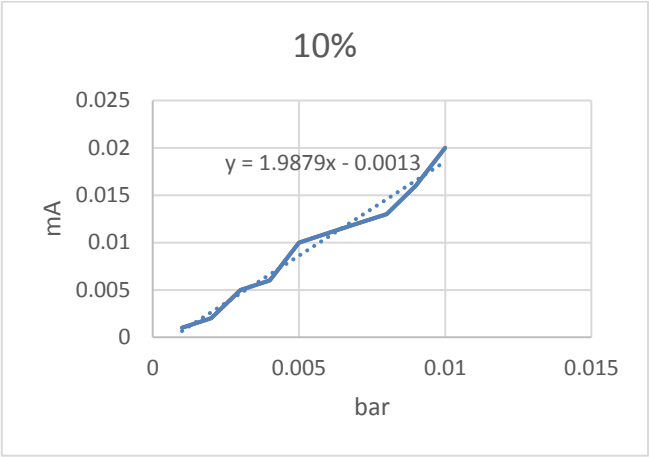
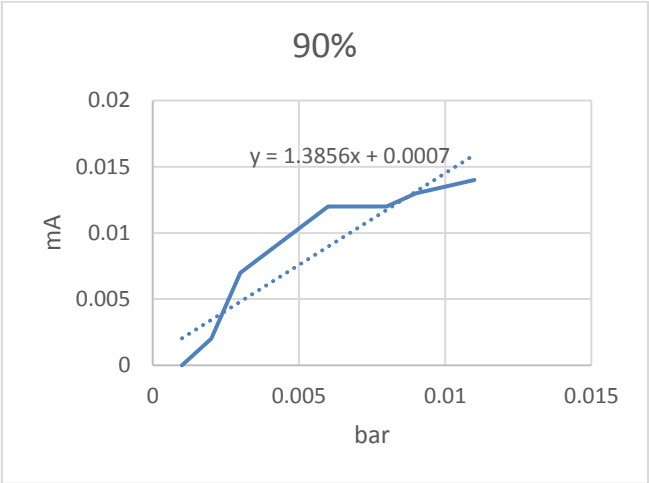
7. Sensitivity

Item		REF. (bar)	U.U.C
1	10%	1.000	5.600
2		1.001	5.601
3		1.002	5.602
4		1.003	5.605
5		1.004	5.606
6		1.005	5.610
7		1.006	5.611
8		1.007	5.612
9		1.008	5.613
10		1.009	5.616
11		1.010	5.620
12	90%	9.000	18.393
13		9.001	18.393
14		9.002	18.395
15		9.003	18.400
16		9.006	18.405
17		9.008	18.405
18		9.009	18.406
19		9.011	18.407





8. Power Consumption.

@ zero point	$V = 24.065\ V$
	$I = 4.005\ mA$
@ span	$V = 23.698\ V$
	$I = 20.033\ mA$
Current consumption	9.3 mA

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9. Insulation Resistance

@Voltage=250	**No leakage has been observed**

10. Over pressure limit (120%)

Item	REF. (bar)	U.U.C	
		Rising (mA)	Falling (mA)
1	0.000	3.998	3.962
2	2.000	7.204	7.202
3	4.000	10.403	10.402
4	6.000	13.599	13.597
5	8.000	16.793	16.793
6	10.000	19.998	19.998

11. Burst pressure limit (500%)

@ 50 bar	**After applying the 50 bar pressure in 3 minutes, the equipment is not damaged In addition, no transducer failure is detected.**

12. Water hammer limit & rise time test

Rise time: 1.2 mS	
@ 10 bar	**Equipment after sudden maximum pressure is still functioning properly.**

13. Mounting Position Effect

Item	REF. (bar)	U.U.C (mA)	POSITION
1	10.002	20.000	90°(normal)
2		20.009	0°
3		20.008	180°

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	Item	*RESULT*
1	*Warming time **	*3':40"* **(conditional)**
2	*Non-Linearity (<0.5%)*	*0.044%F.S (Accept)*
3	*Repeatability 3 Times (<0.10%)*	*0.019%F.S(Accept)*
4	*Reproducibility*	*0.044%F.S(---)*
5	*Ambient Temp. Effect (<0.3%)*	*0.056%F.S(Accept)*
6	*Supply Voltage Effect*	*0.34%F.S(---)*
7	*Output stability*	*0.012%F.S(---)*
8	*Creep(after 2 minutes)*	*0.006%F.S(---)*
9	*Hysteresis*	*0.038%F.S(---)*
10	*Zero stability*	*0.012%F.S(---)*
11	*Zero error*	*0.19 %F.S(---)*
12	*Accuracy (<0.5%)*	*0.2%F.S(Accept)*
13	*Sensitivity*	*0.012%F.S(---)*
14	*Power consumption (10mA)*	*According to table 8(Accept)*
15	*Insulation resistance*	*According to table 9(---)*
16	*Over pressure limit*	*According to table 10(---)*
17	*Burst pressure limit*	*According to table 11(---)*
18	*Water hammer limit*	*According to table 12(---)*
19	*Mounting position effect*	*According to table 13(---)*

* **CONDITIONAL** (***The warm-up time and start-up time are 3'40 ", so it is recommended that the waiting time would be at least 4'.)***

<<END OF CALIBRATION REPORT>>

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