

IRTRACC - CERTIFICATE OF CALIBRATION

Test No. PCAL000361
Model No. IF-367-R2S
Serial No.
Displacement(mm) 72
Diffuser? Yes
Customer
ATD Type
Order number

Date 16/04/2015
Last Calibrated
Technician ABERISHA
Temp (C) 23,72
Hum. (%) 36,73
Calibration Standard DTC-CLP029
Excitation [V] 5.00

Displacement (mm)	Output V_{sensor}	Optimized Exponent			Nominal Exponent		
		V_{linear}	Calculated Displacement (mm)	% Error Linearity	V_{linear}	Calculated Displacement (mm)	% Error Linearity
0	0.0811						
5	0.0905	3.0387	4.9640	-0.0500	3.0746	4.9434	-0.0787
10	0.1018	2.8770	10.1239	0.1721	2.9093	10.1234	0.1714
15	0.1143	2.7269	14.9132	-0.1205	2.7560	14.9286	-0.0991
20	0.1290	2.5793	19.6237	-0.5227	2.6053	19.6520	-0.4834
25	0.1489	2.4131	24.9272	-0.1011	2.4357	24.9667	-0.0463
30	0.1725	2.2548	29.9790	-0.0292	2.2743	30.0254	0.0353
35	0.2027	2.0925	35.1610	0.2236	2.1089	35.2107	0.2926
40	0.2385	1.9408	40.0002	0.0003	1.9545	40.0491	0.0682
45	0.2902	1.7724	45.3763	0.5227	1.7831	45.4197	0.5829
50	0.3519	1.6211	50.2033	0.2824	1.6294	50.2371	0.3293
55	0.4384	1.4645	55.2004	0.2784	1.4704	55.2192	0.3045
60	0.5551	1.3130	60.0373	0.0519	1.3167	60.0363	0.0504
65	0.7260	1.1597	64.9290	-0.0986	1.1615	64.9019	-0.1363
70	0.9846	1.0072	69.7944	-0.2856	1.0073	69.7345	-0.3687
72	1.1290	0.9454	71.7669	-0.3237	0.9449	71.6917	-0.4282
				Max: 0.5227			
				Pass/Fail: Pass			

Optimized Sensitivity (Max Error 0.52%)	
Calibration Factor mm/volt	31.9134
Linearization exponent:	-0.46261
*Calculate displacement using the formula: $mm = (V_{\text{sensor}} \wedge -0.4626) * -31.9134 + 101.9382$	
*These values are unique to this IR-TRACC	

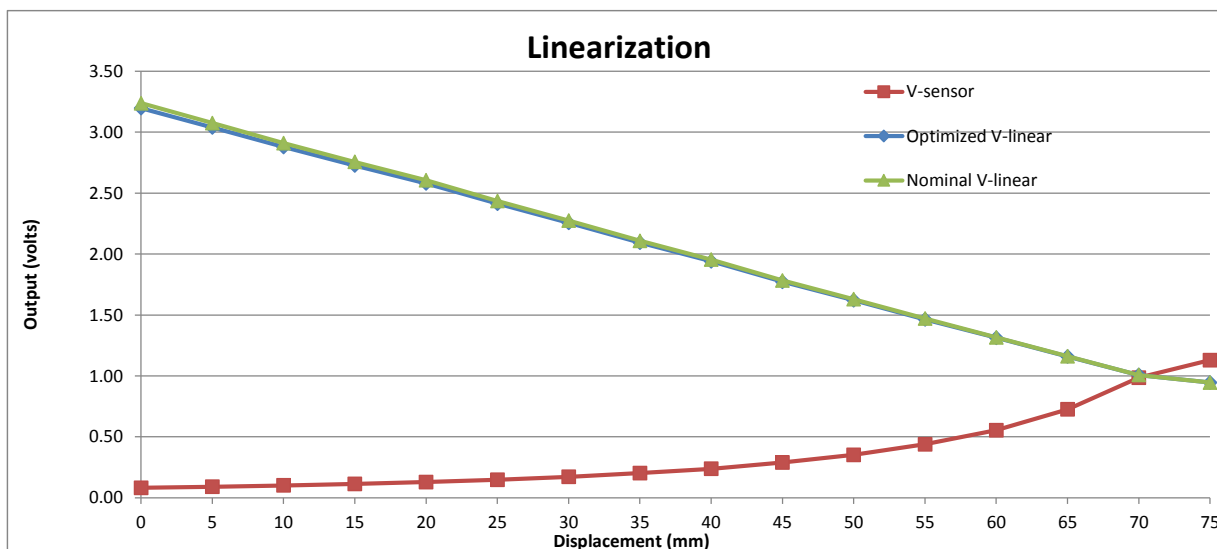
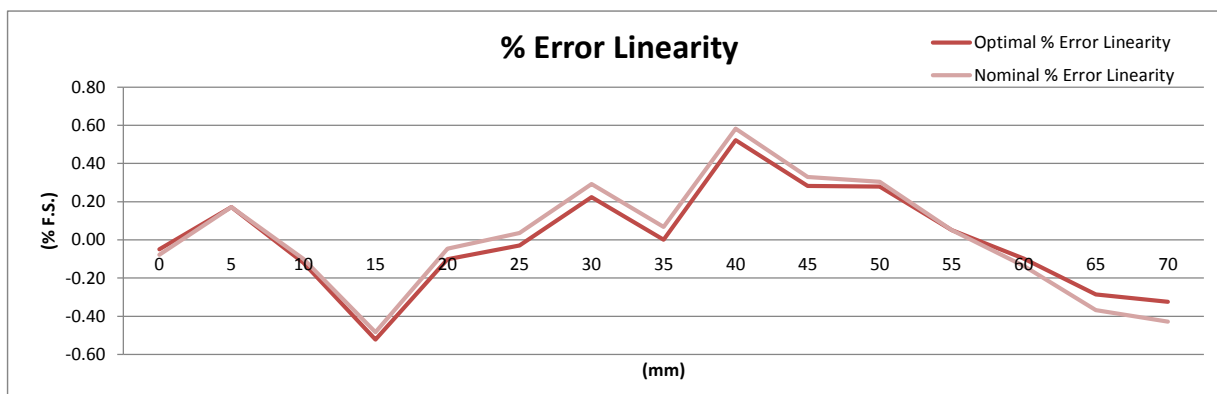
Solved

Nominal Sensitivity (Max Error 0.58%)	
Calibration Factor mm/volt	31.3408
Linearization exponent:	-0.46750
*Calculate displacement using the formula: $mm = (V_{\text{sensor}} \wedge -0.4675) * -31.3408 + 101.3041$	
*These values are unique to this IR-TRACC	

Lateral Displacement Measurement			
Output # @ Disp = 0	Measured Output (V)	Linearized Output (V)	Calculated Displacement (mm)
1	0.084	3.150	1.41
2	0.083	3.161	1.05
3	0.082	3.187	0.21
4	0.082	3.185	0.29
Max. Variance	0.002	0.037	1.19
			Max. % F.S.: 1.66
			Pass/Fail: Pass

Humanetics Acceptance Specifications	
Max. Displacement Range	72 mm
Max. Linearity Error	2% F.S.
Max. Error (from forced lateral displacement)	± 3% F.S.

Wire Color Codes	
Wire Color	Function
Red	+ Exc
Black	- Exc
Green	+ Sig
White	- Sig



Notes:

The optimized linearization sensitivity yields the most accurate results, however it requires your processing software to allow the use of a different exponent for each IR-TRACC used in your system. The nominal value is also provided for backwards compatibility in systems that have a hard-coded value or a single global value used for all IR-TRACCs. It is important to understand how these numbers are used, if you are unsure please contact Humanetics Instrumentation group.

IR-TRACCs are calibrated with the cable in-line on the base and tip and should be used with this calibration data in the same position. Rotating the tip will cause different output and provide less accurate results.

Calibration Equipment Used

<u>Instrument</u>	<u>Manufacturer</u>	<u>Report No.</u>	<u>Cal Date</u>	<u>Cal Due</u>	<u>Model No.</u>	<u>Serial No.</u>	<u>ID No.</u>
DMM	Keithley	11651-D-K-15180	15.01.2015	15.01.2017	2000	613658	0
D Linear Scale	Mitutoyo (TL-580)	11641-D-K-15180	15.12.2014	15.12.2016	3600-50	095	0

The equipment used during the calibration of this transducer is traceable to the Physikalisch Technische Bundesanstalt (PTB).
The reference fixture is not traceable to the Physikalisch Technische Bundesanstalt (PTB).

Calibrated by:

Humanetics Authorized Representative