

**List of instrumentation for the heat exchanger test unit: detailed list**

Version 0.1 - L3

	Instrument	Brand	Type	Measurement range	Accuracy	S/N or calibraton #	Wire Warm?	
1	TT	1121	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09087	No
2	TT	1121b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09057	No
3	TT	1221	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09061	No
4	TT	1221b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09056	No
5	TT	1151	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09102	No
6	TT	1151b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09103	No
7	TT	1251	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09099	No
8	TT	1251b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09088	No
9	TT	1321	Lake Shore	Pt102	50 - 300 K	Brand A		No
10	TT	2121	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09005	No
11	TT	2121b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09006	No
12	TT	2221	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09054	No
13	TT	2221b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09051	No
14	TT	2151	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09055	No
15	TT	2151b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09052	No
16	TT	2251	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09049	No
17	TT	2251b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09050	No
18	TT	2421	Lake Shore	Pt102	50 - 300 K	Brand A		No
19	TT	3121	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09072	No
20	TT	3121b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09073	No
21	TT	3221	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09077	No
22	TT	3221b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09078	No
23	TT	3151	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09007	No
24	TT	3151b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09079	No
25	TT	3251	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09001	No
26	TT	3251b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09003	No
27	TT	3321	Lake Shore	Pt102	50 - 300 K	Brand A		No
28	TT	4121	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09066	No
29	TT	4121b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09067	No
30	TT	4221	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09076	No
31	TT	4221b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09071	No
32	TT	4151	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09064	No
33	TT	4151b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09065	No
34	TT	4251	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09062	No
35	TT	4251b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09063	No
36	TT	4421	Lake Shore	Pt102	50 - 300 K	Brand A		No
37	TT	5121	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09060	No
38	TT	5121b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09081	No
39	TT	5221	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09068	No
40	TT	5221b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09069	No
41	TT	5321	Lake Shore	Pt102	1.5 - 300 K	0.25% of val.		No
42	TT	9430	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X10780	No
43	TT	9531	Lake Shore	Pt102	50 - 300 K	Brand A		No
44	TT	9532	Lake Shore	Pt102	50 - 300 K	Brand A		No
45	TT	9133	Lake Shore	Pt102	50-300 K	Brand A		No
46	TT	9138	Lake Shore	CX-1030-SD	1.5 - 300 K	0.25% of val.	X10696	Yes
47	TT	9335	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X10781	No
48	TT	9236	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09082	No
49	TT	9236b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09083	No
50	TT	9237	Lake Shore	CX-1050-SD	1.5 - 300 K	?	Cern_X04146	Yes
51	TT	9238	Lake Shore	CX-1050-SD	1.5 - 300 K	?	Cern_X01801	Yes
52	TT	9238b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X09537	Yes

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53	TT	9337	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X10890	No
54	TT	9337b	Lake Shore	CX-1050-SD	1.5 - 300 K	0.25% of val.	X10891	No
55	TCV	9202	Circle seal ctr	up to 12 g/s (LHe)	Cv=0.03-1.25	4 - 20 mA	CV8-086TRF14949	
56	TCV	9402	Circle seal ctr	up to 6.5 g/s (LHe)	Cv=0.008 - 0.32	4 - 20 mA	CV8-086TRF14950	
57	TCV	9502	Circle seal ctr	up to 1.5 g/s (GHe)	Cv=0.005-0.2	4 - 20 mA	CV8-086TRF14951	
58	TCV	9505	cern's valve	?	?	Cern's device	?	
59	PCV	9305	cern's valve	?	?	Cern's device	?	
60	LCV	9405	cern's valve	?	?	Cern's device	?	
61	Y	1203	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
62	Y	1203b	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
63	Y	2203	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
64	Y	2203b	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
65	Y	3203	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
66	Y	3203b	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
67	Y	4203	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
68	Y	4203b	Home made heater	supply: 0-60V /2A	0 - 60 W [30 ohms]			No
69	Y	9303	MINCO	supply: 0-70V/ 10A	0-240 W [15 ohms]			No
70	Y	9303b	MINCO	supply: 0-70V/ 10A	0-240 W [15 ohms]			No
71	Y	9403	MINCO	supply:0-60V/ 2A	0-20 W [65 ohms]			No
72	Y	9403b	MINCO	supply:0-60V/ 2A	0-20 W [65 ohms]			No
73	LT	9204	AMI	75mA / 0-30V	6" active		96-1031-7H	No
74	LT	9304	AMI	75mA / 0-30V	12" active		98-0319-4H	No
75	LT	9304b	AMI	75mA / 0-30V	12" active		98-0319-5H	No
76	LT	9404	AMI	75mA / 0-30V	28" active		98-0319-15H	No
77	LT	9404b	AMI	75mA / 0-30V	28" active		98-0319-16H	No
78	HV	9110	Circle seal ctr	0-4 g/s (GHe)	Cv = 0.6 - 6.0		CV8-086CWTR1M-CB	
79	HV	9410	Worcester	1/2 4416N	0/1		R2CWP300	
80	HV	9510	Worcester	1/2 4416N	0/1		R2CWP300	
81	HV	9610	Cern's device	bobine EV 24Vdc/5W	electro-pneumatic		?	
82	HV	9710	Nor-cal	ESV-2002NWB	progressive		170570	
83	PSV	9111	Maund Richards	83SF68-8	4 bar (abs. P)		99/06183	
84	PSV	9311	Maund Richards	83SF48-4	3 bar (abs. P)		99/06185	
85	PSV	9411	Maund Richards	83SF68-4	3 bar (abs. P)		99/06184	
86	PSV	9511	Maund Richards	83SF48-4/SPL	2 bar (abs. P)		99/06186	
87	NRV	9112	Maund Richards		17 bar (abs. P)		308237	
88	PDW	9613	Cern's device	Turbo pump mol	1E-2mb - 1E-5 mb		?	
89	PDW	9713	Cern's device	Rough pump	PA - 1E-2 mb		?	
90	PT	9114	Edwards	W60041111	0 - 1.3 bar	0.1% full scale	81113536	Yes
91	PT	9214	Edwards	W60031111	0 -133 mbar	0.1% full scale	80212945	Yes
92	PT	9217	Edwards	W60041111	0 -1.3 mbar	0.1% full scale	81113532	Yes
93	PT	9314	Edwards	W60031111	0 -133 mbar	0.1% full scale	80212947	Yes
94	PT	9414	Edwards	W60041111	0 - 1.3 bar	0.1% full scale	90513725	Yes
95	FT	9215	Cern's device,Ref1	4 - 20 mA	0 - 12 g/s	< 1% accuracy	Ref1	Yes
96	FT	9315	Cern's device		0 - 1 g/s		?	Yes
97	PI	9516	Cern's Balzers	3.3 kV	<1E-8mbar		?	No

Ref1 HO1/2X1/4-0.25-2.5-B-1M-BW-CE-SP

DONE by

<b>Still to complete:</b>	<b>PT</b>	:serial #	17/11/99	<b>FT 9315</b>	:accuracy + serial #	tbd by Cern
on 28/10/1999	<b>TCV</b>	:serial #	17/11/99	<b>TCV9505</b>	:accuracy	tbd by Cern
	<b>LT</b>	:serial #	17/11/99	<b>PCV9305</b>	:accuracy	tbd by Cern
	<b>TT9138</b>	:serial #	12/21/99	<b>PCV9305</b>	:Type (flow)	tbd by Cern
	<b>HV</b>	:serial #	12/21/99	<b>PCV9305</b>	:Type of supply?	tbd by Cern
	<b>PI</b>	:serial #	tbd by Cern	<b>TT9237 &amp; TT9238</b>	:accuracy?	tbd by Cern

Note: L2 = 17/11/99 Add serial  
 Detail characteristics  
 L3= 21/12/99 Calibration # for sensor TT9138 & TT9238b  
 Ch. Darve Correc. T5121 & T5221 calibration #