



High Precision Stainless Steel Capped Thermistor Assembly

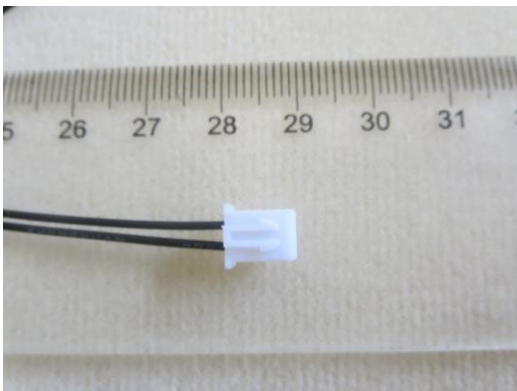


Figure 1. Physical Photo of the ATSC230K-100

MAIN FEATURES

- High strength stainless steel cap
- High precision glass encapsulated thermistor inside
- Excellent accuracy over a wide temperature range
- High resistance accuracy:  $\leq \pm 1^\circ\text{C}$  (within  $95^\circ\text{C}$ – $102^\circ\text{C}$ )
- Wide operating temp. range:  $-30^\circ\text{C}$  to  $300^\circ\text{C}$
- 100 % lead (Pb)-free and RoHS compliant

APPLICATIONS

For liquid temperature sensing, such as washing machines, dish washers, heat pumps and electric boilers. This sensor is

especially designed to have a high accuracy for sensing boiling water temperature around  $100^\circ\text{C}$ .

DESCRIPTION

The ATSC230K-100 thermistor assembly is housed by a stainless steel housing with a stainless flange. The thermistor inside has glass encapsulation to ensure long time operation, wide temperature range, and no parameter drift of either short time or long term. The flange can be used for mounting the thermistor assembly onto a chassis. Both the cap and the flange are made of stainless steel, making them long time lasting even under harsh environment, such as acid, moisture, etc. The output terminals use a pair of heavy duty PVC insulated wires of 26 AWG. The ends are terminated by a standard 2 pin plug, which can be customized for other types of connectors according to customers need. The length of the wires can also be specified.

SPECIFICATIONS

Parameter	Value
Stainless Steel Material	18 – 8
Wire Gauge	26AWG
Weight	7g
Plug Part Number	XH –2.54 –2P
Nominal Resistance@ $25^\circ\text{C}$	$231.5 \pm 16.9\text{K}$
B Value @ $25^\circ\text{C}/50^\circ\text{C}$	4170K
Lead Diameter	$1.08 \pm 0.03\text{mm}$
Lead Wire	$800 \pm 10\text{mm}$



Table 1. Resistance vs. Temperature.

Temp. (°C)	Resistance (Ω)			TCR	Positive Tolerance (°C)	Negative Tolerance (°C)
	Min	Nominal	Max			
-30	4,068,500	4,579,800	5,150,700	-6.371	1.75	-1.96
-29	3,821,800	4,297,900	4,829,100	-6.332	1.75	-1.95
-28	3,591,400	4,035,000	4,529,400	-6.292	1.75	-1.95
-27	3,376,200	3,789,700	4,250,000	-6.253	1.74	-1.94
-26	3,175,100	3,560,700	3,989,400	-6.215	1.74	-1.94
-25	2,987,100	3,346,800	3,746,300	-6.177	1.74	-1.93
-24	2,811,300	3,146,900	3,519,300	-6.139	1.74	-1.93
-23	2,646,900	2,960,100	3,307,400	-6.101	1.73	-1.92
-22	2,493,000	2,785,400	3,109,400	-6.064	1.73	-1.92
-21	2,348,900	2,622,000	2,924,300	-6.027	1.73	-1.91
-20	2,213,900	2,469,100	2,751,300	-5.990	1.73	-1.91
-19	2,087,400	2,326,000	2,589,500	-5.954	1.72	-1.90
-18	1,968,900	2,191,900	2,438,100	-5.918	1.72	-1.90
-17	1,857,700	2,066,300	2,296,300	-5.882	1.72	-1.89
-16	1,753,400	1,948,600	2,163,600	-5.847	1.71	-1.89
-15	1,655,600	1,838,300	2,039,300	-5.812	1.71	-1.88
-14	1,563,700	1,734,800	1,922,900	-5.777	1.71	-1.88
-13	1,477,500	1,637,700	1,813,700	-5.743	1.70	-1.87
-12	1,396,500	1,546,600	1,711,300	-5.708	1.70	-1.87
-11	1,320,300	1,461,000	1,615,200	-5.675	1.70	-1.86
-10	1,248,800	1,380,600	1,525,100	-5.641	1.69	-1.85
-9	1,181,500	1,305,100	1,440,500	-5.608	1.69	-1.85
-8	1,118,200	1,234,200	1,361,000	-5.575	1.69	-1.84
-7	1,058,600	1,167,400	1,286,300	-5.542	1.68	-1.84
-6	1,002,500	1,104,700	1,216,200	-5.509	1.68	-1.83
-5	949,710	1,045,600	1,150,200	-5.477	1.67	-1.83
-4	899,970	990,060	1,088,200	-5.445	1.67	-1.82
-3	853,110	937,740	1,029,800	-5.414	1.67	-1.81
-2	808,930	888,470	974,940	-5.382	1.66	-1.81
-1	767,280	842,040	923,260	-5.351	1.66	-1.80
0	728,000	798,290	874,590	-5.320	1.66	-1.80
1	690,940	757,050	828,740	-5.289	1.65	-1.79
2	655,960	718,160	785,540	-5.259	1.65	-1.78
3	622,940	681,470	744,830	-5.229	1.64	-1.78
4	591,750	646,850	706,430	-5.199	1.64	-1.77
5	562,290	614,170	670,220	-5.169	1.63	-1.77
6	534,460	583,310	636,060	-5.140	1.63	-1.76
7	508,140	554,170	603,810	-5.111	1.62	-1.75
8	483,270	526,630	573,380	-5.082	1.62	-1.75
9	459,740	500,610	544,630	-5.053	1.62	-1.74
10	437,480	476,010	517,470	-5.025	1.61	-1.73
11	416,410	452,750	491,820	-4.996	1.61	-1.73
12	396,470	430,740	467,560	-4.968	1.60	-1.72
13	377,580	409,920	444,630	-4.941	1.60	-1.71
14	359,700	390,220	422,940	-4.913	1.59	-1.71
15	342,750	371,560	402,430	-4.886	1.59	-1.70
16	326,690	353,890	383,010	-4.858	1.58	-1.69
17	311,470	337,150	364,630	-4.832	1.58	-1.69
18	297,030	321,290	347,230	-4.805	1.57	-1.68



Temp. (°C)	Resistance (Ω)			TCR	Positive Tolerance (°C)	Negative Tolerance (°C)
	Min	Nominal	Max			
19	283,340	306,260	330,740	-4.778	1.57	-1.67
20	270,340	292,010	315,130	-4.752	1.56	-1.67
21	258,010	278,490	300,330	-4.726	1.56	-1.66
22	246,310	265,670	286,300	-4.700	1.55	-1.65
23	235,200	253,510	273,000	-4.674	1.55	-1.64
24	224,640	241,960	260,380	-4.649	1.54	-1.64
25	214,610	231,500	248,410	-4.624	1.53	-1.63
26	205,080	220,590	237,050	-4.598	1.53	-1.62
27	196,030	210,700	226,270	-4.574	1.52	-1.62
28	187,410	201,310	216,040	-4.549	1.52	-1.61
29	179,220	192,380	206,310	-4.524	1.51	-1.60
30	171,430	183,890	197,080	-4.500	1.51	-1.59
31	164,020	175,820	188,300	-4.476	1.50	-1.59
32	156,960	168,150	179,960	-4.452	1.49	-1.58
33	150,250	160,840	172,030	-4.428	1.49	-1.57
34	143,850	153,890	164,490	-4.404	1.48	-1.56
35	137,760	147,280	157,320	-4.381	1.48	-1.56
36	131,960	140,980	150,490	-4.358	1.47	-1.55
37	126,430	134,990	144,000	-4.335	1.46	-1.54
38	121,160	129,280	137,820	-4.312	1.46	-1.53
39	116,130	123,840	131,930	-4.289	1.45	-1.52
40	111,340	118,650	126,320	-4.266	1.44	-1.52
41	106,770	113,710	120,980	-4.244	1.44	-1.51
42	102,410	108,990	115,900	-4.222	1.43	-1.50
43	98,249	104,500	111,050	-4.200	1.42	-1.49
44	94,278	100,210	106,430	-4.178	1.42	-1.48
45	90,486	96,122	102,020	-4.156	1.41	-1.48
46	86,866	92,219	97,814	-4.135	1.40	-1.47
47	83,408	88,494	93,805	-4.113	1.40	-1.46
48	80,105	84,937	89,979	-4.092	1.39	-1.45
49	76,948	81,540	86,327	-4.071	1.38	-1.44
50	73,932	78,295	82,842	-4.050	1.38	-1.43
51	71,048	75,196	79,514	-4.029	1.37	-1.43
52	68,290	72,234	76,336	-4.008	1.36	-1.42
53	65,653	69,403	73,300	-3.988	1.35	-1.41
54	63,131	66,696	70,400	-3.968	1.35	-1.40
55	60,717	64,108	67,628	-3.947	1.34	-1.39
56	58,407	61,633	64,978	-3.927	1.33	-1.38
57	56,197	59,265	62,446	-3.907	1.33	-1.37
58	54,080	57,000	60,023	-3.888	1.32	-1.36
59	52,053	54,832	57,707	-3.868	1.31	-1.36
60	50,112	52,757	55,491	-3.849	1.30	-1.35
61	48,253	50,770	53,370	-3.829	1.29	-1.34
62	46,471	48,867	51,341	-3.810	1.29	-1.33
63	44,764	47,045	49,398	-3.791	1.28	-1.32
64	43,127	45,299	47,538	-3.772	1.27	-1.31
65	41,558	43,626	45,757	-3.753	1.26	-1.30
66	40,053	42,023	44,051	-3.734	1.26	-1.29
67	38,610	40,487	42,416	-3.716	1.25	-1.28
68	37,226	39,013	40,850	-3.698	1.24	-1.27



Temp. (°C)	Resistance (Ω)			TCR	Positive Tolerance (°C)	Negative Tolerance (°C)
	Min	Nominal	Max			
69	35,898	37,601	39,349	-3.679	1.23	-1.26
70	34,623	36,246	37,910	-3.661	1.22	-1.25
71	33,400	34,946	36,530	-3.643	1.21	-1.24
72	32,225	33,699	35,207	-3.625	1.21	-1.24
73	31,098	32,502	33,939	-3.607	1.20	-1.23
74	30,015	31,353	32,721	-3.590	1.19	-1.22
75	28,975	30,250	31,553	-3.572	1.18	-1.21
76	27,975	29,191	30,432	-3.555	1.17	-1.20
77	27,015	28,174	29,357	-3.538	1.16	-1.19
78	26,092	27,197	28,324	-3.520	1.15	-1.18
79	25,205	26,259	27,332	-3.503	1.15	-1.17
80	24,352	25,357	26,379	-3.486	1.14	-1.16
81	23,532	24,490	25,464	-3.470	1.13	-1.15
82	22,743	23,657	24,585	-3.453	1.12	-1.14
83	21,984	22,856	23,741	-3.436	1.11	-1.13
84	21,254	22,086	22,929	-3.420	1.10	-1.12
85	20,552	21,345	22,148	-3.403	1.09	-1.11
86	19,876	20,632	21,398	-3.387	1.08	-1.10
87	19,225	19,947	20,677	-3.371	1.07	-1.09
88	18,599	19,287	19,983	-3.355	1.06	-1.07
89	17,996	18,652	19,315	-3.339	1.05	-1.06
90	17,415	18,041	18,673	-3.323	1.04	-1.05
91	16,855	17,453	18,055	-3.308	1.03	-1.04
92	16,316	16,886	17,460	-3.292	1.03	-1.03
93	15,797	16,341	16,888	-3.277	1.02	-1.02
94	15,296	15,815	16,337	-3.261	1.01	-1.01
95	14,814	15,309	15,806	-3.246	1.00	-1.00
96	14,349	14,821	15,295	-3.231	0.99	-0.99
97	13,900	14,351	14,803	-3.216	0.98	-0.98
98	13,468	13,898	14,328	-3.201	0.97	-0.97
99	13,051	13,461	13,872	-3.186	0.96	-0.96
100	12,649	13,040	13,431	-3.171	0.95	-0.95
101	12,249	12,634	13,019	-3.156	0.97	-0.97
102	11,864	12,242	12,622	-3.142	0.98	-0.99
103	11,492	11,865	12,238	-3.127	1.00	-1.01
104	11,134	11,500	11,867	-3.113	1.02	-1.03
105	10,789	11,148	11,510	-3.098	1.04	-1.05
106	10,455	10,809	11,165	-3.084	1.06	-1.07
107	10,134	10,482	10,831	-3.070	1.08	-1.09
108	9,824	10,165	10,509	-3.056	1.10	-1.11
109	9,524	9,860	10,199	-3.042	1.12	-1.13
110	9,235	9,565	9,898	-3.028	1.14	-1.15
111	8,956	9,281	9,608	-3.015	1.16	-1.17
112	8,687	9,006	9,327	-3.001	1.18	-1.19
113	8,427	8,740	9,056	-2.987	1.20	-1.21
114	8,176	8,483	8,794	-2.974	1.22	-1.23
115	7,933	8,235	8,541	-2.960	1.24	-1.25
116	7,699	7,996	8,296	-2.947	1.26	-1.28
117	7,473	7,764	8,059	-2.934	1.28	-1.30
118	7,254	7,540	7,830	-2.921	1.30	-1.32



Temp. (°C)	Resistance (Ω)			TCR	Positive Tolerance (°C)	Negative Tolerance (°C)
	Min	Nominal	Max			
119	7,043	7,323	7,609	-2.908	1.32	-1.34
120	6,838	7,114	7,394	-2.895	1.34	-1.36
121	6,641	6,912	7,187	-2.882	1.36	-1.38
122	6,450	6,716	6,986	-2.869	1.38	-1.40
123	6,265	6,526	6,792	-2.856	1.40	-1.43
124	6,086	6,343	6,604	-2.843	1.42	-1.45
125	5,914	6,165	6,422	-2.831	1.44	-1.47
126	5,746	5,994	6,246	-2.818	1.46	-1.49
127	5,585	5,827	6,075	-2.806	1.48	-1.52
128	5,428	5,667	5,910	-2.794	1.51	-1.54
129	5,277	5,511	5,750	-2.781	1.53	-1.56
130	5,130	5,360	5,595	-2.769	1.55	-1.58
131	4,988	5,214	5,445	-2.757	1.57	-1.61
132	4,851	5,072	5,299	-2.745	1.59	-1.63
133	4,718	4,935	5,158	-2.733	1.61	-1.65
134	4,589	4,803	5,021	-2.721	1.63	-1.67
135	4,464	4,674	4,889	-2.709	1.65	-1.70
136	4,344	4,549	4,760	-2.698	1.68	-1.72
137	4,227	4,428	4,636	-2.686	1.70	-1.74
138	4,113	4,311	4,515	-2.674	1.72	-1.77
139	4,003	4,198	4,398	-2.663	1.74	-1.79
140	3,897	4,088	4,284	-2.651	1.76	-1.81
141	3,793	3,981	4,174	-2.640	1.78	-1.84
142	3,693	3,877	4,067	-2.629	1.81	-1.86
143	3,596	3,777	3,963	-2.617	1.83	-1.88
144	3,502	3,680	3,863	-2.606	1.85	-1.91
145	3,411	3,585	3,765	-2.595	1.87	-1.93
146	3,322	3,494	3,670	-2.584	1.90	-1.96
147	3,237	3,405	3,578	-2.573	1.92	-1.98
148	3,153	3,318	3,489	-2.562	1.94	-2.00
149	3,073	3,235	3,402	-2.551	1.96	-2.03
150	2,994	3,153	3,318	-2.541	1.99	-2.05
151	2,918	3,074	3,236	-2.530	2.01	-2.08
152	2,844	2,998	3,156	-2.519	2.03	-2.10
153	2,773	2,923	3,079	-2.509	2.05	-2.13
154	2,703	2,851	3,004	-2.498	2.08	-2.15
155	2,636	2,781	2,931	-2.488	2.10	-2.18
156	2,570	2,713	2,861	-2.477	2.12	-2.20
157	2,506	2,646	2,792	-2.467	2.15	-2.23
158	2,444	2,582	2,725	-2.457	2.17	-2.25
159	2,384	2,519	2,660	-2.447	2.19	-2.28
160	2,326	2,459	2,597	-2.436	2.22	-2.30
161	2,269	2,400	2,535	-2.426	2.24	-2.33
162	2,214	2,342	2,475	-2.416	2.26	-2.35
163	2,161	2,286	2,417	-2.406	2.29	-2.38
164	2,109	2,232	2,361	-2.396	2.31	-2.40
165	2,058	2,179	2,306	-2.387	2.33	-2.43
166	2,009	2,128	2,252	-2.377	2.36	-2.46
167	1,961	2,078	2,200	-2.367	2.38	-2.48
168	1,915	2,030	2,150	-2.357	2.40	-2.51



Temp. (°C)	Resistance (Ω)			TCR	Positive Tolerance (°C)	Negative Tolerance (°C)
	Min	Nominal	Max			
169	1,869	1,983	2,101	-2.348	2.43	-2.54
170	1,826	1,937	2,053	-2.338	2.45	-2.56
171	1,783	1,892	2,006	-2.329	2.48	-2.59
172	1,741	1,848	1,961	-2.319	2.50	-2.61
173	1,701	1,806	1,916	-2.310	2.53	-2.64
174	1,661	1,765	1,873	-2.301	2.55	-2.67
175	1,623	1,725	1,831	-2.291	2.57	-2.69
176	1,586	1,686	1,791	-2.282	2.60	-2.72
177	1,550	1,648	1,751	-2.273	2.62	-2.75
178	1,514	1,611	1,712	-2.264	2.65	-2.78
179	1,480	1,575	1,675	-2.255	2.67	-2.80
180	1,447	1,540	1,638	-2.246	2.70	-2.83
181	1,414	1,506	1,602	-2.237	2.72	-2.86
182	1,382	1,473	1,567	-2.228	2.75	-2.88
183	1,352	1,440	1,533	-2.219	2.77	-2.91
184	1,322	1,409	1,500	-2.210	2.80	-2.94
185	1,292	1,378	1,468	-2.201	2.82	-2.97
186	1,264	1,348	1,437	-2.193	2.85	-2.99
187	1,236	1,319	1,406	-2.184	2.87	-3.02
188	1,209	1,290	1,376	-2.175	2.90	-3.05
189	1,183	1,263	1,347	-2.167	2.93	-3.08
190	1,157	1,236	1,319	-2.158	2.95	-3.11
191	1,132	1,209	1,291	-2.150	2.98	-3.14
192	1,108	1,184	1,264	-2.141	3.00	-3.16
193	1,084	1,159	1,238	-2.133	3.03	-3.19
194	1,061	1,134	1,212	-2.125	3.05	-3.22
195	1,038	1,110	1,187	-2.116	3.08	-3.25
196	1,016	1,087	1,162	-2.108	3.11	-3.28
197	995	1,065	1,139	-2.100	3.13	-3.31
198	974	1,043	1,115	-2.092	3.16	-3.34
199	953	1,021	1,093	-2.084	3.18	-3.37
200	933	1,000	1,070	-2.076	3.21	-3.39
201	914	979	1,049	-2.068	3.24	-3.42
202	895	959	1,028	-2.060	3.26	-3.45
203	877	940	1,007	-2.052	3.29	-3.48
204	858	921	987	-2.044	3.32	-3.51
205	841	902	967	-2.036	3.34	-3.54
206	824	884	948	-2.028	3.37	-3.57
207	807	866	929	-2.020	3.40	-3.60
208	791	849	911	-2.013	3.43	-3.63
209	775	832	893	-2.005	3.45	-3.66
210	759	816	876	-1.997	3.48	-3.69
211	744	800	859	-1.990	3.51	-3.72
212	729	784	842	-1.982	3.53	-3.75
213	715	769	826	-1.975	3.56	-3.78
214	700	754	810	-1.967	3.59	-3.81
215	687	739	795	-1.960	3.62	-3.84
216	673	725	779	-1.953	3.64	-3.87
217	660	711	765	-1.945	3.67	-3.90
218	647	697	750	-1.938	3.70	-3.94



Temp. (°C)	Resistance (Ω)			TCR	Positive Tolerance (°C)	Negative Tolerance (°C)
	Min	Nominal	Max			
219	634	684	736	-1.931	3.73	-3.97
220	622	671	722	-1.923	3.76	-4.00
221	610	658	709	-1.916	3.78	-4.03
222	598	645	695	-1.909	3.81	-4.06
223	587	633	682	-1.902	3.84	-4.09
224	576	621	670	-1.895	3.87	-4.12
225	565	610	657	-1.888	3.90	-4.15
226	554	598	645	-1.881	3.92	-4.19
227	544	587	634	-1.874	3.95	-4.22
228	533	576	622	-1.867	3.98	-4.25
229	523	566	611	-1.860	4.01	-4.28
230	514	555	600	-1.853	4.04	-4.31
231	504	545	589	-1.847	4.07	-4.35
232	495	535	578	-1.840	4.10	-4.38
233	486	525	568	-1.833	4.13	-4.41
234	477	516	558	-1.826	4.15	-4.44
235	468	506	548	-1.820	4.18	-4.47
236	459	497	538	-1.813	4.21	-4.51
237	451	488	529	-1.807	4.24	-4.54
238	443	480	519	-1.800	4.27	-4.57
239	435	471	510	-1.793	4.30	-4.61
240	427	463	501	-1.787	4.33	-4.64
241	419	455	492	-1.781	4.36	-4.67
242	412	447	484	-1.774	4.39	-4.70
243	405	439	476	-1.768	4.42	-4.74
244	397	431	467	-1.761	4.45	-4.77
245	390	424	459	-1.755	4.48	-4.81
246	383	416	451	-1.749	4.51	-4.84
247	377	409	444	-1.742	4.54	-4.87
248	370	402	436	-1.736	4.57	-4.91
249	364	395	429	-1.730	4.60	-4.94
250	357	388	422	-1.724	4.63	-4.97
251	351	380	411	-1.699	4.66	-5.01
252	345	374	402	-1.690	4.99	-5.02
253	349	367	394	-1.678	5.01	-5.05
254	342	361	384	-1.664	5.05	-5.09
255	337	355	374	-1.633	5.08	-5.12
256	330	349	365	-1.605	5.11	-5.16
257	326	343	359	-1.584	5.15	-5.20
252	345	374	402	-1.690	4.99	-5.22
253	349	367	394	-1.678	5.01	-5.26
254	342	361	384	-1.664	5.05	-5.30
261	306	321	336	-1.486	5.36	-5.33
262	300	315	331	-1.462	5.38	-5.35
263	295	310	325	-1.456	5.42	-5.38
264	290	305	320	-1.435	5.43	-5.42
265	286	300	315	-1.424	5.45	-5.44
266	281	295	310	-1.409	5.50	-5.47
267	276	290	305	-1.399	5.54	-5.50
268	272	286	300	-1.376	5.58	-5.53







\*The wire length and thickness can be customized, and the plug can change for your requirements. If you need other kinds of thermistors, please feel free to contact us.

Two Conductor Male Connector(2.54-2P XH-2P)

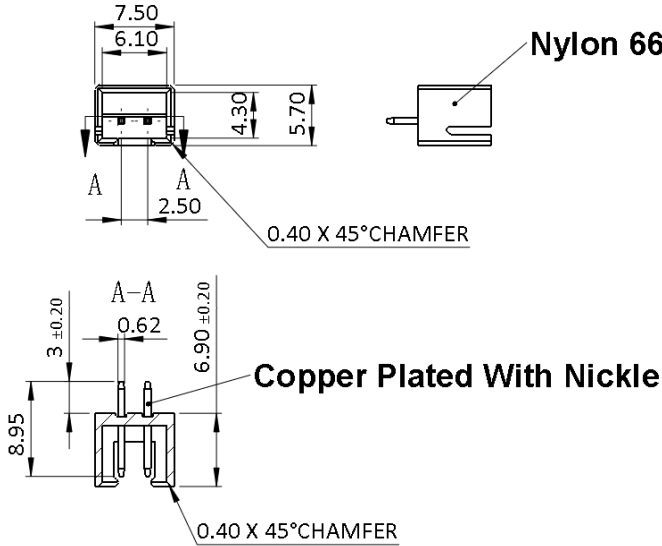


Figure 3. Component outline of the mail connector

ORDERING INFORMATION

Table with 6 columns: Part #, 1-9, 10-49, 50-199, 200-499, >=500. Row 1: ATSC230K-100, \$4.8, \$4.5, \$4.3, \$4.1, \$3.9

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