

## Specification For Approval

**Customer name :** \_\_\_\_\_

**Product name :**           **NTC Thermistor**          

**Customer PN :** \_\_\_\_\_

**MFG PN :**           **CWFB0103FC-312XS<sub>P</sub>12**          

MFG			Customer Confirmation		
Make	Check	Approval	Test	Check	Approval
HD CHENG	XR LU	DZ LING			

(Company name)

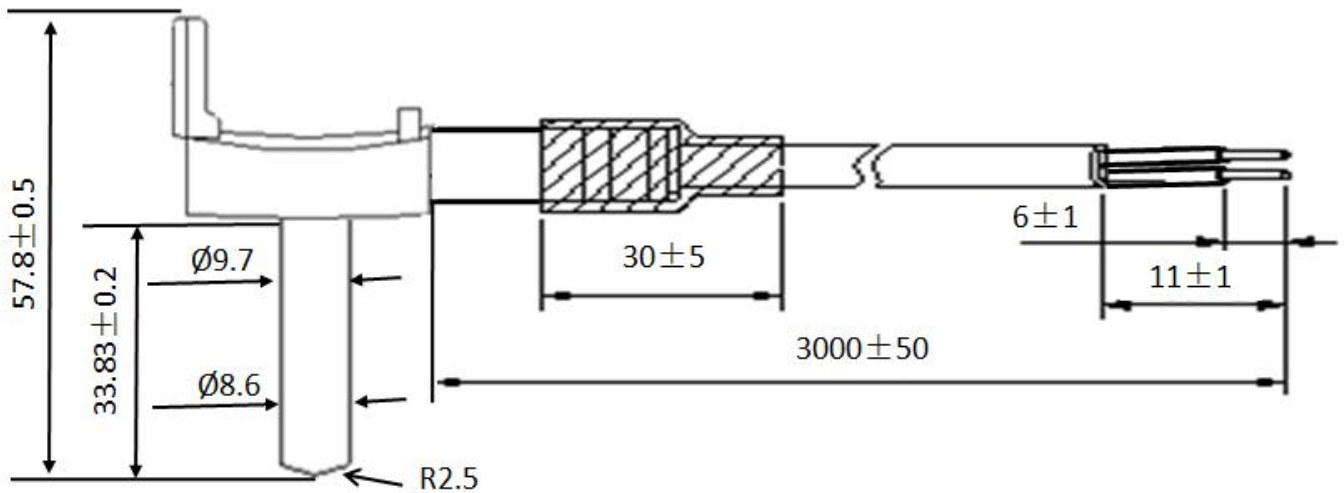
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Confirm got the spec and accept as our company's warehouse accept standard.

Version	Revise content	Forwarder	Date
A/0	Just made	Cheng	2016-05-23
A/4	Increase the B25/100 value	Cheng	2016-05-26

**1、 Overall Dimension**

(Unit: mm)


**2、 Material explanation**

NO	COMPONENT	MATERIAL AND SPECIFICATIONS	Q'TY	REMARK
2-1.	ELEMENT	R25=10KΩ±1% B25/85=3977K±1% B25/100=3995±1%	1	
2-2.	HOUSING	Plastic Housing	1	Blue
2-3.	COATING	Thermally Conductive Epoxy		
2-4.	LEAD WIRE	TPE AWG24(0.5mm*2C) OD3.3mm (Red and White) (both ends stripped but not tinned)	1	Gray
2-5	CASING	Heat shrinkable casing (Φ7+Φ8)	3	Blue

**3、 Part Number :**

$$\frac{CWF}{1} - \frac{\times}{2} \frac{\times}{3} \frac{\times\times\times}{4} \frac{\times}{5} \frac{\times}{6} \frac{\times\times\times\times}{7}$$

- (1) NTC Thermistor Mark;
- (2) Head shape sign (B:Housing Type, D:Dip-Coating, M:Molding);
- (3) Series Type (0:Epoxy coating structure, 1:Epoxy coating structure(high temp) ;
- (4) Nominal resistor is value at 25degree,unit is Ohm, previous two digital representation significant digits of resistance, third digital representation the number of zero;
- (5) Resistance tolerance (%) ;
- (6) B Value constant sign In general, it is value of 25/50Deg, other conditions will remark and explain;
- (7) Length Sign, unit is mm ;

#### 4、Electrical Performance:

NO	Item	Sign	Test Conditions	Min.	Normal value	Max.	Unit
4-1.	Resistance at 25°C	R25	Ta=25±0.05°C P <sub>T</sub> ≤0.1mw	9.900	10.000	10.100	kΩ
4-2.	B Value	B25/85	$B=LN \frac{R_{T1}}{R_{T2}} / \left( \frac{1}{T1} - \frac{1}{T2} \right)$	3937.3	3977.0	4016.7	k
		B25/100		3955.05	3995	4034.95	
4-3.	Dissipation factor	σ	Ta=25±0.5°C	2.5		/	mw/°C
4-4.	Time constant	τ	Ta=25±0.5°C	/	/	15	sec
4-5.	Insulation resistance	/	500VDC	100	/	/	MΩ
4-6.	Withstand voltage	/	1500V AC	5	/	/	Sec
4-7.	Operating temp.range	/	/	-40	/	+105	°C

#### 5、Reliability Test

NO	Item	Technical requirements	Test conditions and method
5-1.	High temp. Test	ΔR/R25≤±3% ΔB/B≤±3% No change with withstand voltage、 Insulation performance。 Appearance without damage.	105±5°C, power on 500±24 hrs, DC0.2mA
5-2.	Low temp. tes		-40±5°C, power on 500±24 hrs, DC0.2mA
5-3.	Endure moisture test		Store in environment 55±2°C,90%-95%RH for 500±24 hrs
5-4.	Temp. cycle test		-20°C×30min→Room temp.×10min→ in 100°C water×30min→Room temp.×10min 10 cycles
5-5.	Load electrify test		Power on DC1mA,500hrs in room temp. and humid.
5-6.	Tensile tests		Applying 2 kg force lasts 1 min.
5-7.	Drop test		Free fall into concrete floor from height 1M, 10 cycle.
5-8.	Vibration test		Frequency range: 10~55HZ Total amplitude 1.52mm 1 cycle 1 min, direction and time X、Y、Z axis 2Hr each.
5-9.	Bending test		Bend 180°binding site wire and epoxy resin. Back and forth 10 times

#### 6、Storage Method

6.1 In the process of storage and transportation, per stack height is not more than 4 CTN products.

6.2 Available with all transport method, but avoid the rain, snow of direct or indirect leaching and mechanical damage.

6.3 Products should be stored in the temperature of environment - 10 °C / + 40 °C, relative humidity is not more than 80%, environment should not have acid, alkali and corrosion gas or radioactive source.

#### 7、R—T TABLE

**R—T CONVERSION TABLE**

		<b>R<sub>25</sub>=10.00KΩ±1%</b>				<b>B<sub>25/85</sub>=3977K±1%</b>	
<b>T/°C</b>	<b>R<sub>min</sub></b>	<b>R<sub>cen</sub></b>	<b>R<sub>max</sub></b>	<b>T/°C</b>	<b>R<sub>min</sub></b>	<b>R<sub>cen</sub></b>	<b>R<sub>max</sub></b>
-40	352.8365	337.2659	322.3502	-2	36.9010	36.0700	35.2541
-39	329.7864	315.4439	301.6950	-1	35.0328	34.2614	33.5037
-38	308.3974	295.1810	282.5028	0	33.2701	32.5542	31.8505
-37	288.5391	276.3558	264.6605	1	31.6065	30.9421	30.2886
-36	270.0923	258.8572	248.0646	2	30.0358	29.4192	28.8125
-35	252.9476	242.5831	232.6201	3	28.5523	27.9802	27.4169
-34	237.0049	227.4402	218.2397	4	27.1507	26.6199	26.0970
-33	222.1724	213.3428	204.8436	5	25.8260	25.3337	24.8483
-32	208.3658	200.2120	192.3580	6	24.5736	24.1170	23.6666
-31	195.5077	187.9756	180.7156	7	23.3891	22.9658	22.5479
-30	183.5270	176.5670	169.8540	8	22.2685	21.8761	21.4885
-29	172.3586	165.9252	159.7160	9	21.2081	20.8444	20.4849
-28	161.9422	155.9939	150.2490	10	20.2041	19.8672	19.5340
-27	152.2226	146.7212	141.4044	11	19.2534	18.9414	18.6326
-26	143.1489	138.0594	133.1376	12	18.3529	18.0640	17.7779
-25	134.6743	129.9646	125.4071	13	17.4995	17.2322	16.9673
-24	126.7556	122.3962	118.1750	14	16.6906	16.4434	16.1982
-23	119.3529	115.3168	111.4061	15	15.9237	15.6951	15.4683
-22	112.4294	108.6918	105.0679	16	15.1963	14.9851	14.7753
-21	105.9514	102.4893	99.1304	17	14.5062	14.3111	14.1173
-20	99.8874	96.6799	93.5660	18	13.8512	13.6713	13.4923
-19	94.2086	91.2363	88.3489	19	13.2295	13.0636	12.8984
-18	88.8881	86.1332	83.4553	20	12.6391	12.4862	12.3340
-17	83.9013	81.3474	78.8634	21	12.0784	11.9376	11.7973
-16	79.2252	76.8573	74.5527	22	11.5455	11.4161	11.2870
-15	74.8386	72.6428	70.5043	23	11.0392	10.9203	10.8015
-14	70.7220	68.6854	66.7008	24	10.5578	10.4487	10.3396
-13	66.8571	64.9680	63.1259	25	10.1000	10.0000	9.9000
-12	63.2271	61.4745	59.7645	26	9.6730	9.5731	9.4732
-11	59.8164	58.1903	56.6027	27	9.2664	9.1667	9.0671
-10	56.6104	55.1015	53.6274	28	8.8791	8.7797	8.6806
-9	53.5956	52.1953	50.8265	29	8.5100	8.4112	8.3127
-8	50.7597	49.4601	48.1889	30	8.1583	8.0601	7.9623
-7	48.0908	46.8846	45.7041	31	7.8230	7.7256	7.6286
-6	45.5783	44.4588	43.3624	32	7.5033	7.4067	7.3107
-5	43.2121	42.1730	41.1546	33	7.1984	7.1027	7.0077
-4	40.9829	40.0183	39.0725	34	6.9074	6.8129	6.7189
-3	38.8819	37.9865	37.1081	35	6.6298	6.5363	6.4435

**R—T CONVERSION TABLE**

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<b>T/°C</b>	<b>R<sub>min</sub></b>	<b>R<sub>cen</sub></b>	<b>R<sub>max</sub></b>	<b>T/°C</b>	<b>R<sub>min</sub></b>	<b>R<sub>cen</sub></b>	<b>R<sub>max</sub></b>
36	6.3648	6.2725	6.1809	74	1.5759	1.5313	1.4878
37	6.1119	6.0207	5.9303	75	1.5246	1.4809	1.4384
38	5.8703	5.7804	5.6913	76	1.4752	1.4325	1.3909
39	5.6395	5.5509	5.4631	77	1.4277	1.3859	1.3452
40	5.4190	5.3317	5.2453	78	1.3819	1.3410	1.3012
41	5.2083	5.1223	5.0373	79	1.3378	1.2978	1.2589
42	5.0069	4.9223	4.8386	80	1.2954	1.2562	1.2181
43	4.8143	4.7311	4.6488	81	1.2544	1.2161	1.1789
44	4.6301	4.5483	4.4675	82	1.2150	1.1775	1.1411
45	4.4539	4.3735	4.2941	83	1.1770	1.1403	1.1047
46	4.2854	4.2064	4.1284	84	1.1404	1.1045	1.0696
47	4.1241	4.0465	3.9699	85	1.1051	1.0699	1.0358
48	3.9697	3.8935	3.8183	86	1.0710	1.0367	1.0033
49	3.8218	3.7470	3.6733	87	1.0382	1.0045	0.9719
50	3.6803	3.6069	3.5346	88	1.0065	0.9736	0.9417
51	3.5447	3.4726	3.4017	89	0.9759	0.9437	0.9125
52	3.4147	3.3441	3.2746	90	0.9464	0.9149	0.8844
53	3.2903	3.2210	3.1528	91	0.9180	0.8871	0.8573
54	3.1709	3.1030	3.0362	92	0.8905	0.8603	0.8311
55	3.0565	2.9900	2.9245	93	0.8640	0.8345	0.8059
56	2.9469	2.8816	2.8175	94	0.8384	0.8095	0.7815
57	2.8417	2.7777	2.7149	95	0.8137	0.7854	0.7580
58	2.7408	2.6781	2.6166	96	0.7898	0.7621	0.7353
59	2.6439	2.5826	2.5224	97	0.7667	0.7396	0.7134
60	2.5510	2.4909	2.4320	98	0.7444	0.7179	0.6923
61	2.4618	2.4030	2.3452	99	0.7229	0.6969	0.6718
62	2.3762	2.3185	2.2621	100	0.7021	0.6767	0.6521
63	2.2940	2.2375	2.1822	101	0.6820	0.6571	0.6331
64	2.2150	2.1597	2.1056	102	0.6625	0.6382	0.6146
65	2.1392	2.0850	2.0321	103	0.6437	0.6199	0.5969
66	2.0663	2.0133	1.9615	104	0.6256	0.6022	0.5797
67	1.9963	1.9444	1.8937	105	0.6080	0.5851	0.5630
68	1.9289	1.8782	1.8285	106	0.5910	0.5686	0.5470
69	1.8642	1.8145	1.7660	107	0.5745	0.5526	0.5315
70	1.8020	1.7533	1.7059	108	0.5586	0.5371	0.5164
71	1.7421	1.6945	1.6481	109	0.5432	0.5222	0.5019
72	1.6846	1.6380	1.5925	110	0.5283	0.5077	0.4879
73	1.6292	1.5836	1.5391				