Flansch-Thermoelement TTF

Anwendung

„Unsere Flansch-Thermoelemente dienen zur Temperaturmessung von flüssigen und gasförmigen Medien in Rohrleitungen und Behältern. Unser TTF ist standardmäßig auch mit Ex-Zulassung erhältlich. Bei Anwendungen in aggressiven Medien können zudem spezielle Materialien oder Beschichtungen verwendet werden. Unsere Standardfühler TWFb-100/160/250/400 sind ab Lager lieferbar, gerne fertigen wir aber auch nach Kundenwunsch.“

Technische Spezifikationen TTF

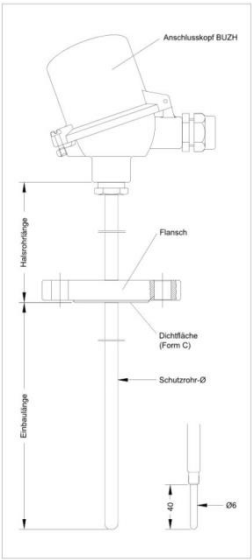
Temperatursensor	Typ K NiCr-Ni
Klasse	1
Temperaturbereich	von -40°C bis +1150°C
Schutzart	IP54
Messeinsatz	auswechselbar, Ø3mm
Anschlusskopf	BUZH
Prozessanschluss	Flansch DN25 PN40
Werkstoff	1.4571
Schutzrohr	Ø11mm, Spitze Ø6mm
Halsrohrlänge	130mm

Artikelnummer

Einbaulänge ohne Ex	100mm: **TTF-100** 160mm: **TTF-160** 250mm: **TTF-250** 400mm: **TTF-400**
Einbaulänge mit Ex	100mm: **TTF-100Ex** 160mm: **TTF-160Ex** 250mm: **TTF-250Ex** 400mm: **TTF-400Ex**

Gerne fertigen wir auch nach Kundenwunsch! benützen Sie unseren Konfigurator.

Masszeichnung



Messeinsatz: auswechselbar

„Die auswechselbare Variante ist durch eine Feder geschützt, welche Platzverdrängungen aufgrund starker Temperaturschwankungen entgegenwirkt. Weitere Infos finden Sie unter Widerstandsthermometer-Messeinsatz.“

Messeinsatz-Konfigurationen

1 x Typ K NiCr-Ni

Februar 2015 / Änderungen vorbehalten

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Spannungstabelle Thermoelement Typ K (NiCr-Ni)

Thermoelemente vom Typ K (NiCr-Ni) in mV

	0	1	2	3	4	5	6	7	8	9
-100°C	-3,554	-3,523	-3,492	-3,462	-3,431	-3,4	-3,368	-3,337	-3,306	-3,274
-90°C	-3,243	-3,211	-3,179	-3,147	-3,115	-3,083	-3,05	-3,018	-2,986	-2,953
-80°C	-2,92	-2,887	-2,854	-2,821	-2,788	-2,755	-2,721	-2,688	-2,654	-2,62
-70°C	-2,587	-2,553	-2,519	-2,485	-2,45	-2,416	-2,382	-2,347	-2,312	-2,278
-60°C	-2,243	-2,208	-2,173	-2,138	-2,103	-2,067	-2,032	-1,996	-1,961	-1,925
-50°C	-1,889	-1,854	-1,818	-1,782	-1,745	-1,709	-1,673	-1,637	-1,6	-1,564
-40°C	-1,527	-1,49	-1,453	-1,417	-1,38	-1,343	-1,305	-1,268	-1,231	-1,194
-30°C	-1,156	-1,119	-1,081	-1,043	-1,006	-0,968	-0,93	-0,892	-0,854	-0,816
-20°C	-0,778	-0,739	-0,701	-0,663	-0,624	-0,586	-0,547	-0,508	-0,47	-0,431
-10°C	-3,554	-3,523	-3,492	-3,462	-3,431	-3,4	-3,368	-3,337	-3,306	-3,274
0°C	0	0,075	0,114	0,154	0,193	0,233	0,273	0,313	0,352	0,392
+10°C	0,432	0,472	0,512	0,552	0,592	0,632	0,672	0,713	0,753	0,793
+20°C	0,833	0,874	0,914	0,954	0,995	1,035	1,076	1,117	1,157	1,198
+30°C	1,238	1,279	1,32	1,361	1,402	1,442	1,483	1,524	1,565	1,606
+40°C	1,647	1,688	1,729	1,77	1,811	1,852	1,893	1,935	1,976	2,017
+50°C	2,058	2,1	2,141	2,182	2,223	2,265	2,306	2,347	2,389	2,43
+60°C	2,472	2,513	2,555	2,596	2,637	2,679	2,72	2,762	2,803	2,845
+70°C	2,886	2,928	2,97	3,011	3,053	3,094	3,136	3,177	3,219	3,26
+80°C	3,302	3,343	3,385	3,426	3,468	3,51	3,551	3,593	3,634	3,676
+90°C	3,717	3,759	3,8	3,842	3,883	3,924	3,966	4,007	4,049	4,09
+100°C	4,131	4,173	4,214	4,255	4,297	4,338	4,379	4,421	4,462	4,503

	0	1	2	3	4	5	6	7	8	9
+110°C	4,544	4,585	4,627	4,668	4,709	4,75	4,791	4,832	4,873	4,914
+120°C	4,955	4,996	5,037	5,078	5,119	5,16	5,2	5,241	5,282	5,323
+130°C	5,364	5,404	5,445	5,486	5,526	5,567	5,608	5,648	5,689	5,729
+140°C	5,77	5,81	5,851	5,891	5,932	5,972	6,012	6,053	6,093	6,133
+150°C	6,174	6,214	6,254	6,294	6,335	6,375	6,415	6,455	6,495	6,535
+160°C	6,575	6,616	6,656	6,696	6,736	6,776	6,816	6,856	6,896	6,936
+170°C	6,976	7,016	7,056	7,096	7,136	7,176	7,216	7,255	7,295	7,335
+180°C	7,375	7,415	7,455	7,495	7,535	7,575	7,615	7,655	7,695	7,734
+190°C	7,774	7,814	7,854	7,894	7,934	7,974	8,014	8,054	8,094	8,134
+200°C	8,174	8,214	8,254	8,294	8,334	8,374	8,414	8,454	8,494	8,534
+210°C	8,574	8,614	8,654	8,694	8,734	8,774	8,814	8,855	8,895	8,935
+220°C	8,975	9,015	9,056	9,096	9,136	9,176	9,217	9,257	9,297	9,338
+230°C	9,378	9,418	9,459	9,499	9,539	9,58	9,62	9,661	9,701	9,742
+240°C	9,782	9,823	9,863	9,904	9,945	9,985	10,026	10,067	10,107	10,148
+250°C	10,189	10,229	10,27	10,311	10,352	10,392	10,433	10,474	10,515	10,556
+260°C	10,597	10,637	10,678	10,719	10,76	10,801	10,842	10,883	10,924	10,965
+270°C	11,006	11,047	11,088	11,129	11,17	11,212	11,253	11,294	11,335	11,376
+280°C	11,417	11,459	11,5	11,541	11,582	11,623	11,665	11,706	11,747	11,789
+290°C	11,83	11,871	11,913	11,954	11,995	12,037	12,078	12,119	12,161	12,202
+300°C	12,244	12,285	12,327	12,368	12,41	12,451	12,493	12,534	12,576	12,617
+310°C	12,659	12,7	12,742	12,783	12,825	12,867	12,908	12,95	12,992	13,033
+320°C	13,075	13,116	13,158	13,2	13,242	13,283	13,325	13,367	13,408	13,45
+330°C	13,492	13,534	13,575	13,617	13,659	13,701	13,742	13,784	13,826	13,868
+340°C	13,91	13,952	13,993	14,035	14,077	14,119	14,161	14,203	14,245	14,286

Februar 2015 / Änderungen vorbehalten

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SIL Safety Integrity Level IEC 61508 & IEC 61511 ISO 9001

	0	1	2	3	4	5	6	7	8	9
+340°C	13,91	13,952	13,993	14,035	14,077	14,119	14,161	14,203	14,245	14,286
+350°C	14,328	14,37	14,412	14,454	14,496	14,538	14,58	14,622	14,664	14,706
+360°C	14,748	14,79	14,832	14,874	14,916	14,958	15	15,042	15,084	15,126
+370°C	15,168	15,21	15,252	15,294	15,336	15,378	15,42	15,462	15,505	15,547
+380°C	15,589	15,631	15,673	15,715	15,757	15,799	15,842	15,884	15,926	15,968
+390°C	16,01	16,052	16,095	16,137	16,179	16,221	16,263	16,306	16,348	16,39
+400°C	16,432	16,475	16,517	16,559	16,601	16,644	16,686	16,728	16,77	16,813
+410°C	16,855	16,897	16,94	16,982	17,024	17,067	17,109	17,151	17,194	17,236
+420°C	17,278	17,321	17,363	17,405	17,448	17,49	17,532	17,575	17,617	17,66
+430°C	17,702	17,744	17,787	17,829	17,872	17,914	17,957	17,999	18,041	18,084
+440°C	18,126	18,169	18,211	18,254	18,296	18,339	18,381	18,424	18,466	18,509
+450°C	18,551	18,594	18,636	18,678	18,721	18,764	18,806	18,849	18,891	18,934
+460°C	18,976	19,019	19,061	19,104	19,146	19,189	19,231	19,274	19,316	19,359
+470°C	19,402	19,444	19,487	19,529	19,572	19,614	19,657	19,7	19,742	19,785
+480°C	19,827	19,87	19,912	19,955	19,998	20,04	20,083	20,125	20,168	20,211
+490°C	20,253	20,296	20,339	20,381	20,424	20,466	20,509	20,552	20,594	20,637
+500°C	20,679	20,722	20,765	20,807	20,85	20,893	20,935	20,978	21,021	21,063
+510°C	21,106	21,148	21,191	21,234	21,276	21,319	21,362	21,404	21,447	21,49
+520°C	21,532	21,575	21,618	21,66	21,703	21,746	21,788	21,831	21,873	21,916
+530°C	21,959	22,001	22,044	22,087	22,129	22,172	22,215	22,257	22,3	22,343
+540°C	22,385	22,428	22,471	22,513	22,556	22,598	22,641	22,684	22,726	22,769
+550°C	22,812	22,854	22,897	22,94	22,982	23,025	23,067	23,11	23,153	23,195
+560°C	23,238	23,281	23,323	23,366	23,408	23,451	23,494	23,536	23,579	23,621
	0	1	2	3	4	5	6	7	8	9
+570°C	23,664	23,707	23,749	23,792	23,834	23,877	23,92	23,962	24,005	24,047
+580°C	24,09	24,132	24,175	24,218	24,26	24,303	24,345	24,388	24,43	24,473
+590°C	24,515	24,558	24,601	24,643	24,686	24,728	24,771	24,813	24,856	24,898
+600°C	24,941	24,983	25,026	25,068	25,111	25,153	25,196	25,238	25,281	25,323
+610°C	25,366	25,408	25,45	25,493	25,535	25,578	25,62	25,663	25,705	25,748
+620°C	25,79	25,832	25,875	25,917	25,96	26,002	26,044	26,087	26,129	26,171
+630°C	26,214	26,256	26,299	26,341	26,383	26,426	26,468	26,51	26,553	26,595
+640°C	26,637	26,68	26,722	26,764	26,806	26,849	26,891	26,933	26,976	27,018
+650°C	27,06	27,102	27,145	27,187	27,229	27,271	27,313	27,356	27,398	27,44
+660°C	27,482	27,524	27,567	27,609	27,651	27,693	27,735	27,777	27,82	27,862
+670°C	27,904	27,946	27,988	28,03	28,072	28,114	28,156	28,198	28,241	28,283
+680°C	28,325	28,367	28,409	28,451	28,493	28,535	28,577	28,619	28,661	28,703
+690°C	28,745	28,787	28,829	28,871	28,913	28,955	28,997	29,038	29,08	29,122
+700°C	29,164	29,206	29,248	29,29	29,332	29,374	29,415	29,457	29,499	29,541
+710°C	29,583	29,625	29,666	29,708	29,75	29,792	29,834	29,875	29,917	29,959
+720°C	30,001	30,042	30,084	30,126	30,167	30,209	30,251	30,292	30,334	30,376
+730°C	30,417	30,459	30,501	30,542	30,584	30,626	30,667	30,709	30,75	30,792
+740°C	30,833	30,875	30,917	30,958	31	31,041	31,083	31,124	31,166	31,207
+750°C	31,249	31,29	31,332	31,373	31,414	31,456	31,497	31,539	31,58	31,622
+760°C	31,663	31,704	31,746	31,787	31,828	31,87	31,911	31,952	31,994	32,035
+770°C	32,076	32,118	32,159	32,2	32,241	32,283	32,324	32,365	32,406	32,447
+780°C	32,489	32,53	32,571	32,612	32,653	32,694	32,736	32,777	32,818	32,859
+790°C	32,9	32,941	32,982	33,023	33,064	33,105	33,147	33,188	33,229	33,27

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	0	1	2	3	4	5	6	7	8	9
+800°C	33,311	33,352	33,393	33,434	33,475	33,515	33,556	33,597	33,638	33,679
+810°C	33,72	33,761	33,802	33,843	33,884	33,924	33,965	34,006	34,047	34,088
+820°C	34,129	34,169	34,21	34,251	34,292	34,333	34,373	34,414	34,455	34,495
+830°C	34,536	34,577	34,618	34,658	34,699	34,74	34,78	34,821	34,862	34,902
+840°C	34,943	34,983	35,024	35,065	35,105	35,146	35,186	35,227	35,267	35,308
+850°C	35,348	35,389	35,429	35,47	35,51	35,551	35,591	35,632	35,672	35,712
+860°C	35,753	35,793	35,834	35,874	35,914	35,955	35,995	36,035	36,076	36,116
+870°C	36,156	36,197	36,237	36,277	36,318	36,358	36,398	36,438	36,479	36,519
+880°C	36,559	36,599	36,639	36,68	36,72	36,76	36,8	36,84	36,88	36,92
+890°C	36,961	37,001	37,041	37,081	37,121	37,161	37,201	37,241	37,281	37,321
+900°C	37,361	37,401	37,441	37,481	37,521	37,561	37,601	37,641	37,681	37,721
+910°C	37,761	37,801	37,84	37,88	37,92	37,96	38	38,04	38,08	38,119
+920°C	38,159	38,199	38,239	38,279	38,318	38,358	38,398	38,438	38,477	38,517
+930°C	38,557	38,596	38,636	38,676	38,715	38,755	38,795	38,834	38,874	38,914
+940°C	38,953	38,993	39,032	39,072	39,112	39,151	39,191	39,23	39,27	39,309
+950°C	39,349	39,388	39,428	39,467	39,507	39,546	39,586	39,625	39,664	39,704
+960°C	39,743	39,783	39,822	39,861	39,901	39,94	39,979	40,019	40,058	40,097
+970°C	40,137	40,176	40,215	40,254	40,294	40,333	40,372	40,411	40,451	40,49
+980°C	40,529	40,568	40,607	40,647	40,686	40,725	40,764	40,803	40,842	40,881
+990°C	40,92	40,96	40,999	41,038	41,077	41,116	41,155	41,194	41,233	41,272
+1000°C	41,311	41,35	41,389	41,428	41,467	41,506	41,545	41,583	41,622	41,661
+1010°C	41,7	41,739	41,778	41,817	41,856	41,894	41,933	41,972	42,011	42,05
+1020°C	42,088	42,127	42,166	42,205	42,243	42,282	42,321	42,359	42,398	42,437
	0	1	2	3	4	5	6	7	8	9
+1030°C	42,475	42,514	42,553	42,591	42,63	42,669	42,707	42,746	42,784	42,823
+1040°C	42,862	42,9	42,939	42,977	43,016	43,054	43,093	43,131	43,17	43,208
+1050°C	43,246	43,285	43,323	43,362	43,4	43,439	43,477	43,515	43,554	43,592
+1060°C	43,63	43,669	43,707	43,745	43,783	43,822	43,86	43,898	43,937	43,975
+1070°C	44,013	44,051	44,089	44,128	44,166	44,204	44,242	44,28	44,318	44,356
+1080°C	44,394	44,433	44,471	44,509	44,547	44,585	44,623	44,661	44,699	44,737
+1090°C	44,775	44,813	44,851	44,889	44,927	44,965	45,002	45,04	45,078	45,116
+1100°C	45,154	45,192	45,23	45,267	45,305	45,343	45,381	45,419	45,456	45,494
+1110°C	45,532	45,57	45,607	45,645	45,683	45,72	45,758	45,796	45,833	45,871
+1120°C	45,908	45,946	45,984	46,021	46,059	46,096	46,134	46,171	46,209	46,246
+1130°C	46,284	46,321	46,359	46,396	46,434	46,471	46,508	46,546	46,583	46,621
+1140°C	46,658	46,695	46,733	46,77	46,807	46,844	46,882	46,919	46,956	46,993
+1150°C	47,031	47,068	47,105	47,142	47,179	47,217	47,254	47,291	47,328	47,365
+1160°C	47,402	47,439	47,476	47,513	47,55	47,587	47,624	47,661	47,698	47,735
+1170°C	47,772	47,809	47,846	47,883	47,92	47,957	47,993	48,03	48,067	48,104
+1180°C	48,141	48,177	48,214	48,251	48,288	48,324	48,361	48,398	48,434	48,471
+1190°C	48,508	48,544	48,581	48,618	48,654	48,691	48,727	48,764	48,8	48,837
+1200°C	48,873	48,91	48,946	48,983	49,019	49,056	49,092	49,129	49,165	49,201
+1210°C	49,238	49,274	49,31	49,347	49,383	49,419	49,455	49,492	49,528	49,564
+1220°C	49,6	49,636	49,673	49,709	49,745	49,781	49,817	49,853	49,889	49,925
+1230°C	49,961	49,997	50,033	50,069	50,105	50,141	50,177	50,213	50,249	50,285
+1240°C	50,321	50,357	50,393	50,429	50,464	50,5	50,536	50,572	50,608	50,643
+1250°C	50,679	50,715	50,75	50,786	50,822	50,858	50,893	50,929	50,964	51

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