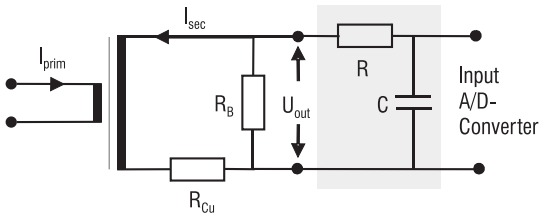
CURRENT TRANSFORMER STANDARD TYPES FOR ELECTRONIC WATTHOUR METERS

TABLE 1: CURRENT TRANSFORMERS FOR DIRECT CONNECTION WITH DC-TOLERANCE ACCORDING TO IEC 62053 -21, -23 (operating frequency 50 Hz)

Order Code T60404-...	Primary Current Range		Ratio	Phase Error	Characteristical Values				Dimensions			
	I_{max}	$\hat{I}_{peak}$			L	R_{DC}	R_B	U_B	Inner dia. Ø	Width D	Height H	Pin/ Wire
	[A_{rms}]	[A_{0p}]	1 : [ ]	φ(I) [°]	[H]	[Ω]	[Ω]	[V_{rms}]	[mm]	[mm]	[mm]	
...E4622-X101	20	20	2500	3.69	4.6	54	37.5	0.3	5.0	28.5	14.5	Wire
...E4623-X101	40	40	2500	4.28	3.7	66	18.8	0.3	5.5	28.0	16.0	Wire
...E4624-X101	60	60	2500	4.42	3.0	55	12.5	0.3	8.0	30.5	15.0	Wire
...E4624-X501	60	60	2500	4.42	3.0	55	12.5	0.3	8.5	31.0	14.0	Pin
...E4625-X101	80	80	2500	5.20	2.4	54	9.4	0.3	8.0	30.5	15.0	Wire
...E4625-X501	80	80	2500	5.20	2.4	54	9.4	0.3	8.5	31.0	14.0	Pin
...E4626-X101	100	100	2500	4.73	2.1	44	7.5	0.3	9.5	35.0	15.0	Wire
...E4626-X501	100	100	2500	4.73	2.1	44	7.5	0.3	11.5	34.0	14.0	Pin
...E4627-X101	120	120	2500	4.35	1.8	34	6.25	0.3	12.0	39.0	18.0	Wire

APPLICATION NOTES

The excellent soft magnetic properties of the VAC core material for DC-tolerant CTs leads to a negligible small amplitude error as well as to an extremely low and linear temperature dependence. Due to the low permeability, a phase error of typically 4° to 5° occurs which is easy to compensate on account of its high constancy of typically ± 0.05°. The compensation can be made digitally by appropriate correction in the microprocessor and analogously by an RC low-pass in front of the input of the A/D converter. A number of major metering chip providers supply tailored solutions for optimum performance and accuracy in combination with these CT types.



$$C = (R_{Cu} + R_B) / \omega^2 \cdot R \cdot L$$

Condition for value of R:
RB << R << IZI of converter;
typical value R = 1 kΩ
Typ. C values: 150 . . . 300 nF

TABLE 2: CURRENT TRANSFORMERS FOR DIRECT CONNECTION WITHOUT DC-TOLERANCE (operating frequency 50 Hz)

Order Code T60404-...	Primary Current Range		Ratio	Phase Error	Characteristical Values				Dimensions			
	I_{max}	$\hat{I}_{peak}$			L	R_{DC}	R_B	U_B	Inner dia. Ø	Width D	Height H	Pin/ Wire
	[A_{rms}]	[A_{0p}]	1 : [ ]	φ(I) [°]	[H]	[Ω]	[Ω]	[V_{rms}]	[mm]	[mm]	[mm]	
...E4622-X002	20	-	2500	0.18	113	54	37.5	0.3	5.0	28.5	14.5	Wire
...E4623-X002	40	-	2500	0.12	155	61	18.8	0.3	5.5	28.0	16.0	Wire
...E4624-X002	60	-	2500	0.13	122	55	12.5	0.3	8.0	30.5	15.0	Wire
...E4624-X502	60	-	2500	0.13	122	55	12.5	0.3	8.5	31.0	14.0	Pin
...E4626-X002	100	-	2500	0.11	97	44	7.5	0.3	9.5	35.0	15.0	Wire
...E4626-X502	100	-	2500	0.11	97	44	7.5	0.3	11.5	34.0	14.0	Pin

TABLE 3: CURRENT TRANSFORMERS FOR INDIRECT CONNECTION WITHOUT DC-TOLERANCE ACCORDING TO IEC 62053 -22 (operating frequency 50 Hz)

Order Code T60404-...	Primary Current Range		Ratio	Phase Error	Characteristical Values				Dimensions			
	I_{max}	$\hat{I}_{peak}$			L	R_{DC}	R_B	U_B	Inner dia. Ø	Width D	Height H	Pin/ Wire
	[A_{rms}]	[A_{0p}]	1 : [ ]	φ(I) [°]	[H]	[Ω]	[Ω]	[V_{rms}]	[mm]	[mm]	[mm]	
...E4629-X007	6	-	2000	0.37	110	115	100	0.3	7.0	23.0	11.0	Wire
...E4622-X501	6	-	2000	0.37	110	115	100	0.3	6.3	24.5	11.5	Pin
...E4629-X010	6	-	2000	0.17	238	114	100	0.3	7.0	23.0	11.0	Wire
...E4622-X503	6	-	2000	0.17	238	114	100	0.3	6.3	24.5	11.5	Pin
...E4658-X043	6	-	1500	0.46	35	46	75	0.3	5.0	16.8	9.0	Pin

TABLE 4: CURRENT TRANSFORMERS FOR DIRECT / INDIRECT CONNECTION WITHOUT DC-TOLERANCE ACCORDING TO ANSI C12.xx (operating frequency 60 Hz)

Order Code T60404-...	Primary Current Range		Ratio	Phase Error	Characteristical Values				Dimensions			
	I_{max}	$\hat{I}_{peak}$			L	R_{DC}	R_B	U_B	Inner dia. Ø	Width D	Height H	Pin/ Wire
	[A_{rms}]	[A_{0p}]	1 : [ ]	φ(I) [°]	[H]	[Ω]	[Ω]	[V_{rms}]	[mm]	[mm]	[mm]	
...E4629-X007	20	-	2000	0.19	110	115	30	0.3	7.0	23.0	11.0	Wire
...E4622-X501	20	-	2000	0.19	110	115	30	0.3	6.3	24.5	11.5	Pin
...E4629-X010	20	-	2000	0.10	238	114	30	0.3	7.0	23.0	11.0	Wire
...E4622-X503	20	-	2000	0.10	238	114	30	0.3	6.3	24.5	11.5	Pin
...E4627-X001	200	-	1000	0.11	25	16	1.5	0.3	8.5	30.0	17.5	Wire
...E4628-X001	320	-	1000	0.10	20	10	0.94	0.3	11.0	35.0	18.5	Wire