

# Normas IEEE sobre transformadores de instrumentación

Daniel Slomovitz

Instituto de Ingeniería Eléctrica

Facultad de Ingeniería

UNIVERSIDAD DE LA REPÚBLICA

2021

# IEEE Standard Requirements for Instrument Transformers

IEEE Power and Energy Society

Sponsored by the  
Transformers Committee

---

IEEE  
3 Park Avenue  
New York, NY 10016-5997  
USA

**IEEE Std C57.13™-2016**  
(Revision of  
IEEE Std C57.13-2008)

# Frecuencia

## 4.3 Frequency

Instrument transformers shall be designed and rated for operation at a frequency of 60 Hz.

# Norma IEEE C57.13

## Ratio Correction Factor

- RCF (para VT):

$$RCF = \frac{V_{primario}}{V_{secundario} r_{nominal}}$$

- Si  $RCF > 1$ , la tensión de salida es menor que la que debería ser (opuesto a definición IEC).
- Similar para CT.

**Table 8—Standard accuracy class for metering service and corresponding limits of transformer correction factor and ratio correction factor [0.6 to 1.0 power factor (lagging) of metered load]<sup>c</sup>**

Metering accuracy class	Voltage transformers (at 90% to 110% rated voltage)		Current transformers					
	Minimum	Maximum	At 100% rated current <sup>a</sup>		At 10% rated current		At 5% rated current	
			Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
0.15S <sup>b</sup>	—	—	0.9985	1.0015	—	—	0.9985	1.0015
0.15 <sup>b</sup>	0.9985	1.0015	0.9985	1.0015	—	—	0.9970	1.0030
0.15N	—	—	0.9985	1.0015	0.9970	1.0030	—	—
0.3S	—	—	0.9970	1.0030	—	—	0.9970	1.0030
0.3	0.9970	1.0030	0.9970	1.0030	0.9940	1.0060	—	—
0.6	0.9940	1.0060	0.9940	1.0060	0.9880	1.0120	—	—
1.2	0.9880	1.0120	0.9880	1.0120	0.9760	1.0240	—	—

# Límites de error para VT

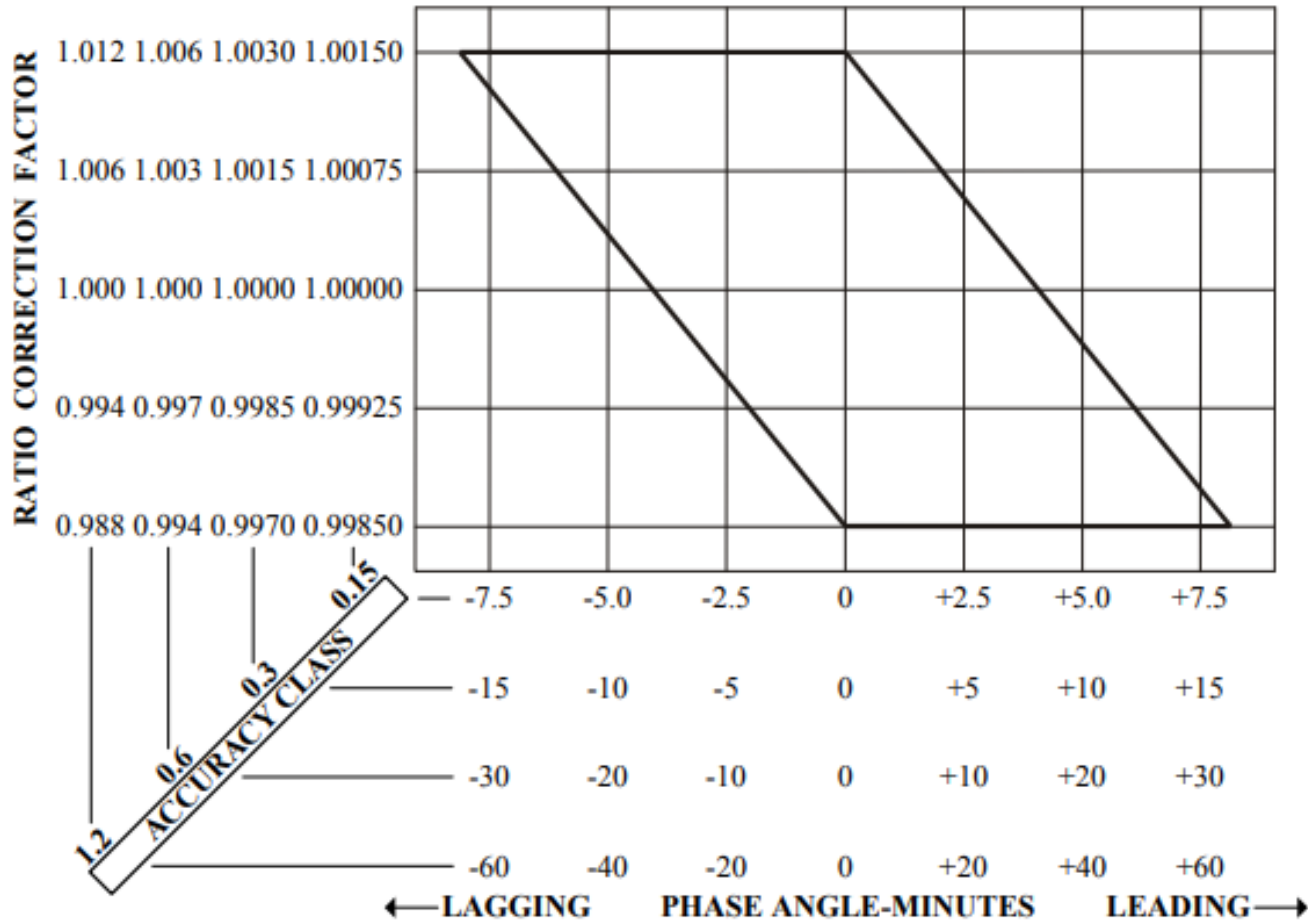


Figure 5—Limits of accuracy classes for voltage transformers for metering

# Límite de error para TC

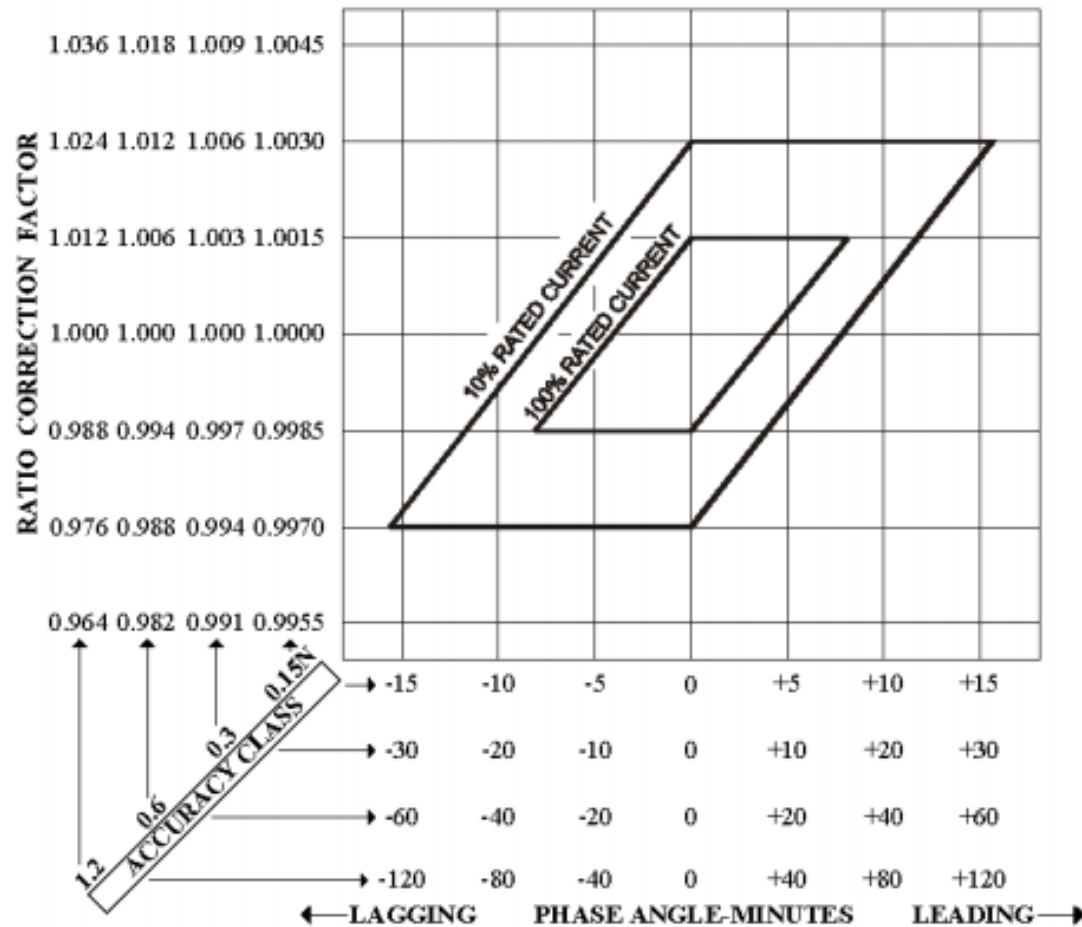


Figure 2—Limits for accuracy classes for current transformers for metering

# Cargas para CT

**Table 9—  
Standard burdens for current transformers with 5 A secondary windings\***

Burdens	Burden designation†	Resistance (Ω)	Inductance (mH)	Impedance (Ω)	Voltamperes (at 5 A)	Power factor
<i>Metering burdens</i>	B-0.1	0.09	0.116	0.1	2.5	0.9
	B-0.2	0.18	0.232	0.2	5.0	0.9
	B-0.5	0.45	0.580	0.5	12.5	0.9
	B-0.9	0.81	1.040	0.9	22.5	0.9
	B-1.8	1.62	2.080	1.8	45.0	0.9
<i>Relaying burdens</i>	B-1	0.50	2.300	1.0	25.0	0.5
	B-2	1.00	4.600	2.0	50.0	0.5
	B-4	2.00	9.200	4.0	100.0	0.5
	B-8	4.00	18.400	8.0	200.0	0.5

\*If a current transformer secondary winding is rated at other than 5 A, ohmic burdens for specification and rating shall be derived by multiplying the resistance and inductance of the table  $[5/(\text{ampere rating})]^2$ , the VA at rated current, the power factor, and the burden designation remaining the same.

†These standard burden designations have no significance at frequencies other than 60 Hz.



# Carga de ensayo VT

- Rango: entre carga nula y la nominal.
- Valores propuestos:

– Denominación:	W	X	M	Y	Z	ZZ
– Carga (VA):	12.5	25	35	75	200	400
– FP:	0.10	0.70	0.2	0.85	0.85	0.85

Fin