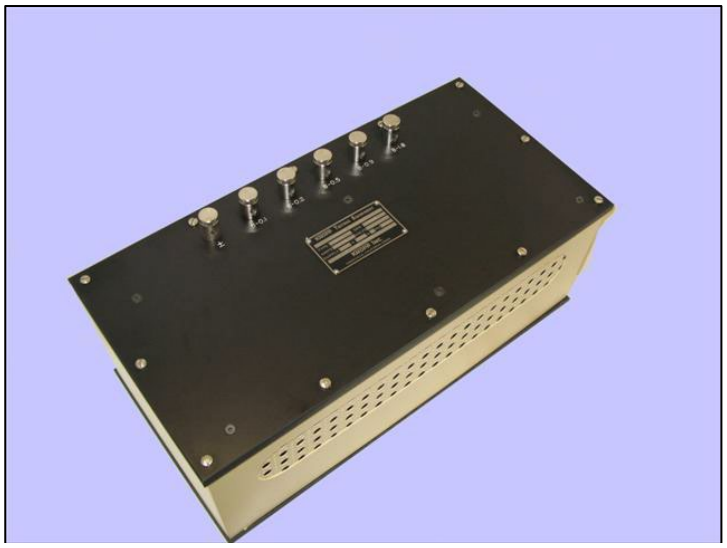
A TESCO COMPANY

ANSI Standard Burden Sets (Voltage and Current)



Testing and calibrating instrument transformers often requires standard burdens of reliable accuracy and stability, and burdens that are immune to stray fields and harmonics. The burden sets described below have been carefully designed to meet these requirements. They provide the standard burdens required for the testing of current and voltage transformers for metering service, and for the testing (within the current rating provided by the sets) of current transformers for relaying applications, all as called for by ANSI/IEEE C57.13-2016.

One burden set, the Type BSC-5, provides in one unit three of the ANSI standard burdens for current transformers for metering service, i.e., B-0.1, B-0.2, and B-0.5. The BSC-24 set includes B-0.9 and B-1.8, while the BSC-25 includes all metering burdens (B-0.1 through B-1.8). The heavier burdens are provided by two sets. The Type BSC-8 covers the ANSI burdens B-1, B-2, and B-4 for current transformers for relaying applications; the Type BSC-9A includes the ANSI B-4 and B-8 burdens.

All the current burden sets are designed to be used with external leads consisting of a 5-foot pair of #8 copper conductors. This becomes very significant at the lower burden values, since the external leads constitute a significant part of the total burden.

The standard burdens for voltage transformers (120 volt secondaries) are covered by three sets. Three of the burdens, i.e., W, X, and Y, are combined in one unit, the Type BSP-6 burden set. The burdens in this set are independent of each other, each with its own pair of binding posts. The standard burden Z is supplied in a separate unit, the Type BSP-7. Two of these BSP-7 burden sets can be used in parallel to obtain ANSI burden ZZ. The ANSI M burden is contained in the BSP-20 unit.

The burden sets are of the portable type, supplied in beige finished metal housings with engraved bakelite terminal boards. Extensive design and development work in perfecting these burden sets, and the quality material and skillful workmanship employed assure excellent performance and quality throughout. Details pertaining to the accuracy and performance, as well as other specifications are continued on the next page.

specifications

Accuracy: Resistance and inductance within 1.0%

Stability: Variation with current of the 60 Hz. impedance and power factor of the current transformer burdens does not exceed 2.0% in the range from 0.5 to 10 amperes, and the variation does not exceed 1.0% from 1 to 10 amperes, and 0.5% from 2.5 to 10 amperes. Variation of either inductance or resistance of the voltage transformer burdens operated at 60 Hz. does not exceed 0.2% from 100 to 140 volts. These data include the effects of self-heating in an ambient temperature ranging from 60°F to 80°F.

Shielding: The maximum leakage field four inches from the cases of the burden sets operated at rated current or voltage is less than 0.5 oersted. Stray 60 Hz. magnetic fields of 100 oersteds changes the rated current of the voltage transformer burdens less than 0.25% and the rated voltage drop of the current transformer burdens less than 0.1%.

Harmonics: The percent harmonics in the voltage drop of the current transformer burdens is less than 1.0% throughout the range up to 10 amperes. The percent harmonic current taken by the voltage transformer burdens is approximately 0.2% at 80 volts, 0.3% at 120 volts, and 0.6% at 160 volts.

Dimensions and weights below.

CURRENT TRANSFORMER BURDENS

Type	ANSI Desig.	Imp. (Ohms)	Volt-Amperes*	Power Factor*	Width (in.)	Length (in.)	Height (in.)	Weight (lbs.)
BSC-5	B-0.1	0.1	2.5	0.9	7.125	9.75	6.313	13
	B-0.2	0.2	5.0	0.9				
	B-0.5	0.5	12.5	0.9				
BSC-8	B-1	1.0	25	0.5	8.25	11.625	7.75	22
	B-2	2.0	50	0.5				
	B-4	4.0	100	0.5				
BSC-9A	B-4	4.0	100	0.5	8.25	12	7.75	25
	B-8	8.0	200	0.5				
BSC-10	B-0.1	0.1	2.5	0.9	8.25	15.75	7.75	26
	B-0.2	0.2	5.0	0.9				
	B-0.5	0.5	12.5	0.9				
	B-1	1.0	25	0.5				
	B-2	2.0	50	0.5				
BSC-24	B-0.9	0.9	22.5	0.9	8.25	11.625	7.75	17
	B-1.8	1.8	45	0.9				
BSC-25	B-0.1	0.1	2.5	0.9	8.25	16.75	7.75	27
	B-0.2	0.2	5.0	0.9				
	B-0.5	0.5	12.5	0.9				
	B-0.9	0.9	22.5	0.9				
	B-1.8	1.8	45	0.9				

* Values are for 60 Hz. and 5 amperes in the secondary.

VOLTAGE TRANSFORMER BURDENS

Type	ANSI Desig.	Volt-Amperes*	Power Factor*	Width (in.)	Length (in.)	Height (in.)	Weight (lbs.)
BSP-6	W	12.5	0.10	8.25	11.625	7.438	15
	X	25.0	0.70				
	Y	75.0	0.85				
BSP-7	Z	200	0.85	7.875	9.375	8.813	15
BSP-20	M	35.0	0.20	7.875	9.375	8.813	18

* Values are for 60 Hz. And 120 volts in the secondary.

On special order, sets for frequencies other than 60 Hz. can be supplied.

Leads: Leads are not supplied with the burden sets.

All the current transformer burden sets are adjusted for a 5-foot pair of #12 closely spaced copper conductors. For the best accuracy it is important to use equivalent leads. This is especially true for the B-0.1 burden as the leads constitute approximately 20% of this value. If special lead size and length must be used, the burden sets can be furnished, at extra cost, and adjusted to suit the leads specified.

With the Type BSP-6 Knopp Standard Burden Set, a pair of closely spaced #14 copper leads as much as 20 feet in length may be used with negligible effect on the burden provided by the set. A pair of closely spaced #12 copper leads not exceeding 5 feet in length may be used with the Type BSP-7 Knopp Standard Burden Set with negligible effect on the burden provided by the set.

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