

How to Determine Maximum CT Lead Length

The capacity of a current transformer to drive a load is specified in units of VA (Volt-Amps). The amount of energy required to energize a load is also specified in VA. For a current transformer to be able to drive a load and maintain specified accuracy, the VA rating of the current transformer must be equal to or greater than the VA required to drive the load.

ie. $VA (CT \text{ Rating}) \geq VA (Load)$

If the VA rating of the CT is greater than what is required to drive the load, then the extra VA can be used to drive the load of added CT wire length. The following table shows how many feet of additional wiring (by wire ga.) can be driven per the CT's extra VA rating.

FEET OF LEAD EXTENSION PER EXTRA VA OF CT CAPACITY*

WIRE AWG	CT SECONDARY RATING		
	5A	1A	0.1A
10	17	424	42373
12	11	267	26738
14	7	168	16835
16	4	106	10571
18	3	67	6658
20	2	42	4202

* Based on the resistance of wire at 65°C. Values in chart assume 2 feet of wire used for each 1 foot of lead extension. (i.e. wire to and from CT leads)

Example 1: CTY-200B-1 (200:1A) @ 2.0VA driving an ACT-005A @ 1.0VA
 Extra VA = 2.0 - 1.0 = 1.0VA
 Allowable lead extension using 10AWG wire = 1.0 X 424ft. = 424ft.

Example 2: 200:5A Flexible CT @ 2.0VA driving a PC5 current input @ 1.25VA
 Extra VA = 2.0 - 1.25 = 0.75VA
 Allowable lead extension using 12AWG wire = 0.75 X 11ft. = 8.25ft.

Example 3: 1500:5A Flexible CT @ 15VA driving a PC5 current input @ 1.25VA
 Extra VA = 15 - 1.25 = 13.75VA
 Allowable lead extension using 12AWG wire = 13.75 X 11 = 151.25ft.
 Allowable lead extension using 14AWG wire = 13.75 X 7 = 96.25ft.
 Allowable lead extension using 18AWG wire = 13.75 X 3 = 41.25ft.

Example 4: CTY-200A-1 CT @ 1.0VA driving an ACT-001A current input @ 1.0VA
 Extra VA - 1.0 - 1.0 = 0.0VA **i.e. Leads should not be extended!**

Please contact OSI Customer Support at 614-527-0475 or "support@ohiosemi.com" if you have further questions.