Does the ISaGRAF-256 software have I/O Tag limitation? Why not using "ISaGRAF-L" Large version?

The answer is yes only for the declared variables that are attributed as "Input" & "Output". The total number of "Input" & "Output" attributed variables can not exceed 256 if the software is ISaGRAF-256 (with a protection Dongle plug in the printer port).

However the ICP DAS's ISaGRAF controller is never more than 256 I/O Tags.

ISaGRAF-256 includes one ISaGRAF CD-ROM & one "hardware Dongle" (key-pro to plug in 25-pin printer port on PC). It is the software limitation, not controller limitation. The number of I/O tag of ICP DAS's ISaGRAF controller, I-8417/8817/8437/8837 , I-7188EG, I-7188XG & Wincon-8037/8337/8737 is never more than 256. For ex. If you are using I-8837 (8 slots) with I-8041 x 8 (each 32-channels), that is 8 x 32 = 256, it is Ok. If you have 10 pcs of I-8837 (that is total 256 x 10 = 2560 tags), ISaGRAF-256 is also enough because the tag limitation is counted by every single controller (256 tags), not sum of them (256 x 10).

Besides, Number of tags is counted only for the I/O board plugged in slots of the controller. That means remote I/O "I-7000" series & "I-87K" series and remote Modbus I/O are not counted into the I/O tags. For example, the ISaGRAF tag number of I-7188EG + X107 (6 DI & 7 DO in slot 0) + I-7041 (14 DI) x 30 is only 13 (All remote I-7000 & I-87K variable use "internal" attribution, so they are not counted).

The internal tags (not "Input" / "Output" attributed tags, for ex. Timer, other internal variables) are also not counted into ISaGRAF tags.

Conclusion

ISaGRAF-256 Is Enough For ALL ICP DAS ISaGRAF Controllers.