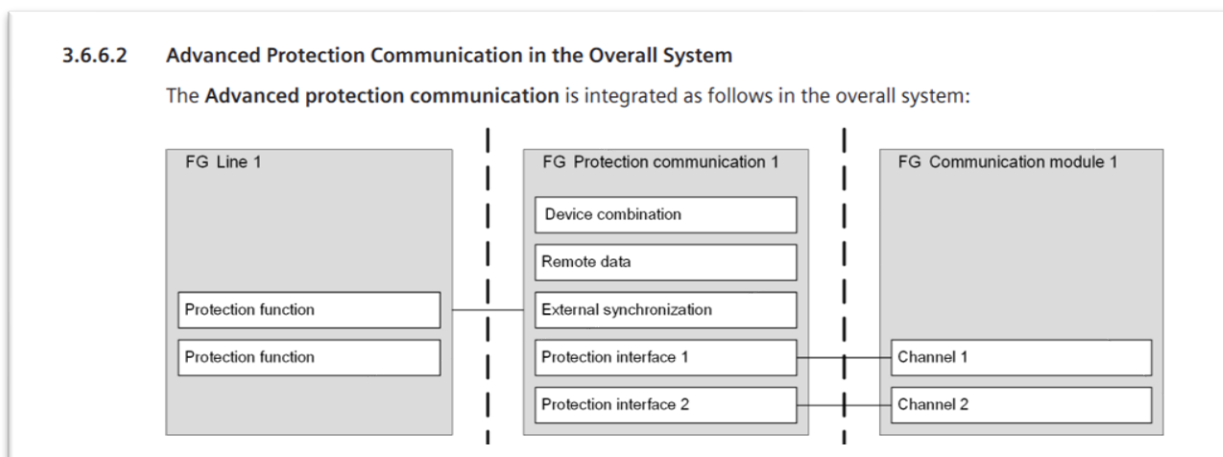


This Quick Note covers the key steps in DIGSI 5 v9.00 to set up a three-end line differential scheme. From version 8.60 firmware onwards, the method of selecting three and multi-end line differential schemes changed from using a ‘Significant Feature’ in the order code to requiring 185 function points per line end being available for the third and each addition ended.

This introduces a new Function Group “Protection communication” of type “Advanced Protection Communications”. Refer to Section 3.6 and 3.6.6 of the Manual^[1]



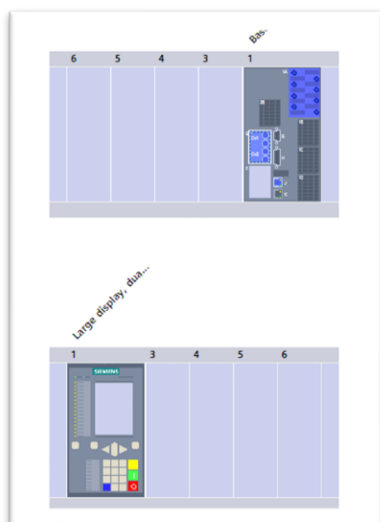
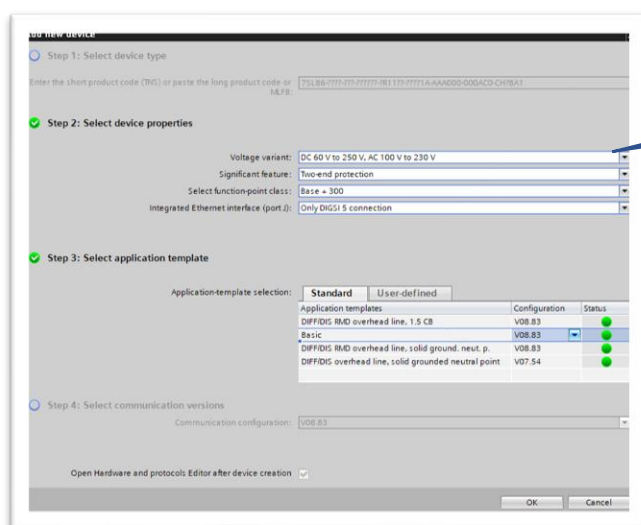
[1]

Use manual 8.6 or higher. This document was written based on manual V8.80 “SIPROTEC 5 Distance Protection, Line Differential Protection, and Overcurrent Protection for 3-Pole Tripping 7SA82, 7SD82, 7SL82, 7SA84, 7SD84, 7SA86, 7SD86, 7SL86, 7SJ86.”

1. Set up the Project

Add a device to the project. We have shown a simple relay/scheme to show the key steps. In this case we used DIGSI V9.00, and a 7SL86 with firmware and communication protocols v8.83. Your configuration may need to be different.

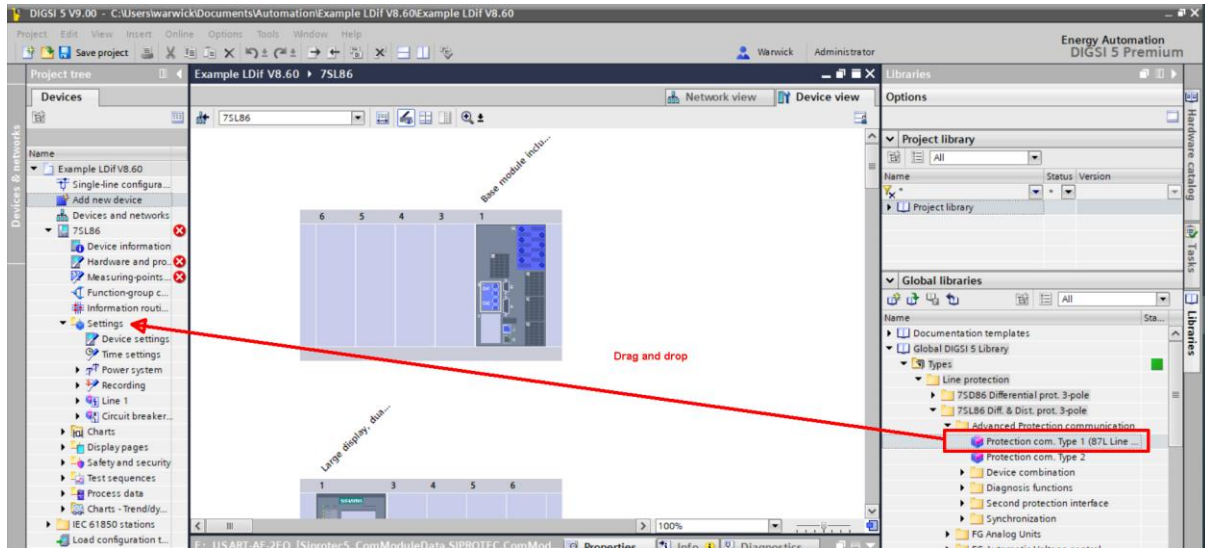
We added the 7SL86 to the project using the “Hardware and protocols Editor”, but device could have also been added using a short or long code. *To keep the Quick Guide simple, we used the Hardware editor to avoid the case of using a short/long code that included an older firmware/hardware specification that included a non-two-end Significant Feature specification.*



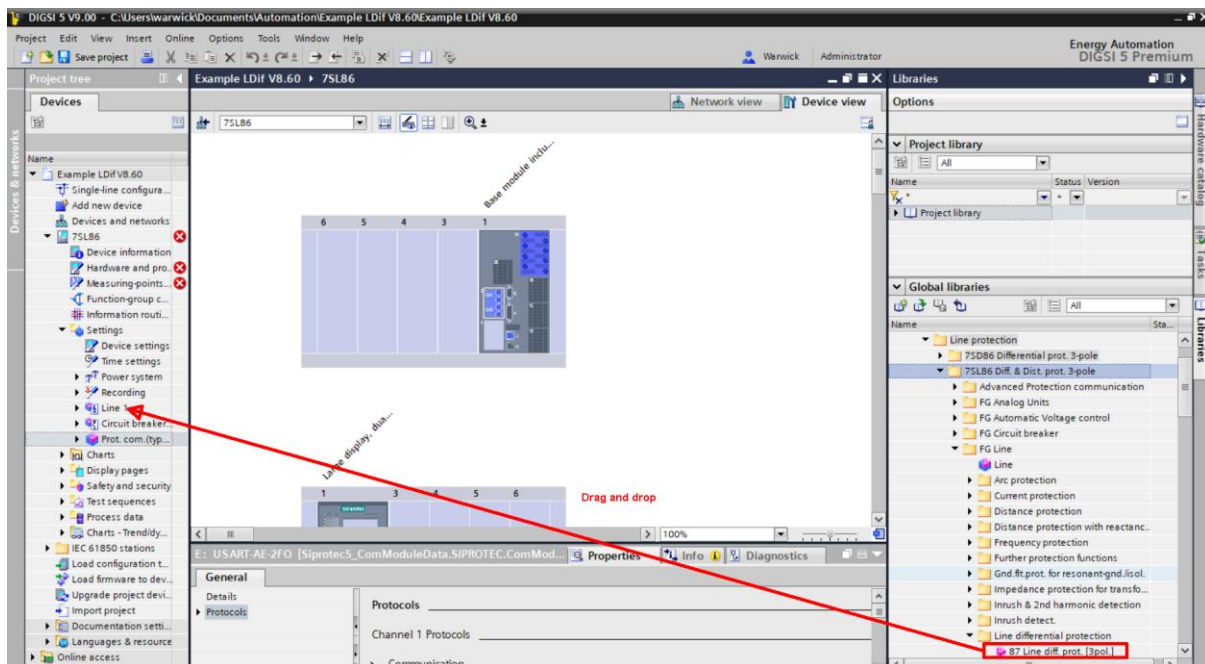
Add display, current terminals, and Optical serial interface in the device view.

2. Add Function Groups

Add Advanced Protection Communications Type 1



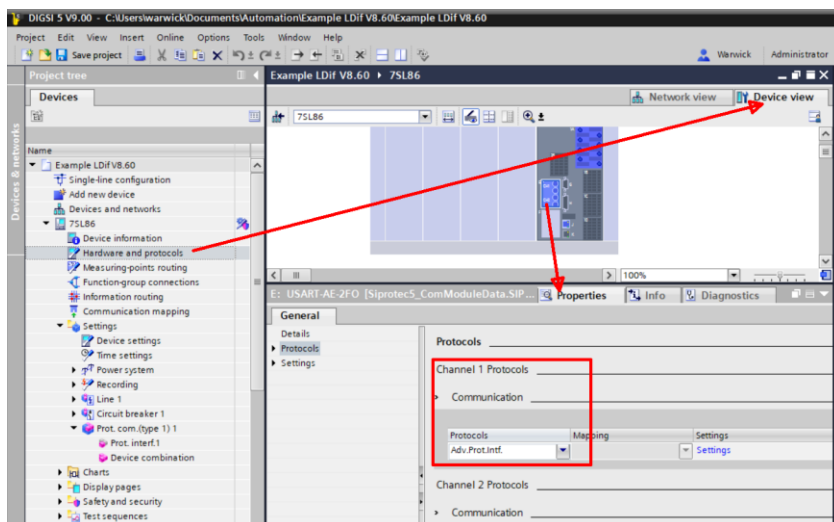
Add "87 Line diff. prot" (to Line 1 function group)



Synchronise the hardware (info.Inconsistencies)

3. Set up the Protection Data Interface

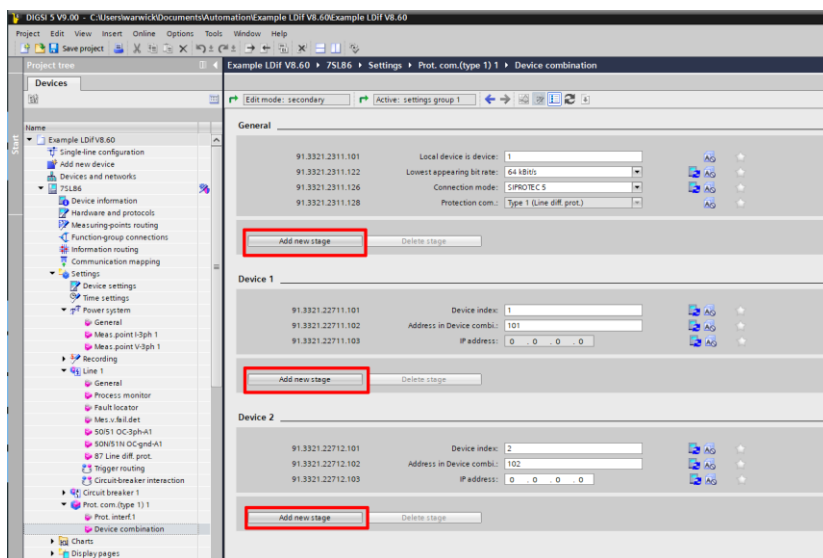
In the Hardware and Protocols area select “Device View” and double click on Protection Interface, to see its properties. Change Channel 1 to “Adv. Prot.Intf”.



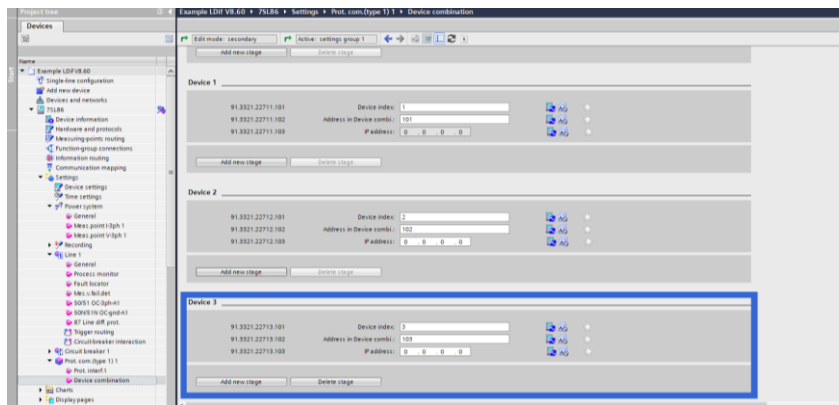
In this example we are setting this relay to be a single end of a three-end scheme. If it was the ‘mid’ relay in a chain, or if ‘ring’ communications were to be setup, then Channel 2 would also have this protocol selected.

4. Add the additional line end

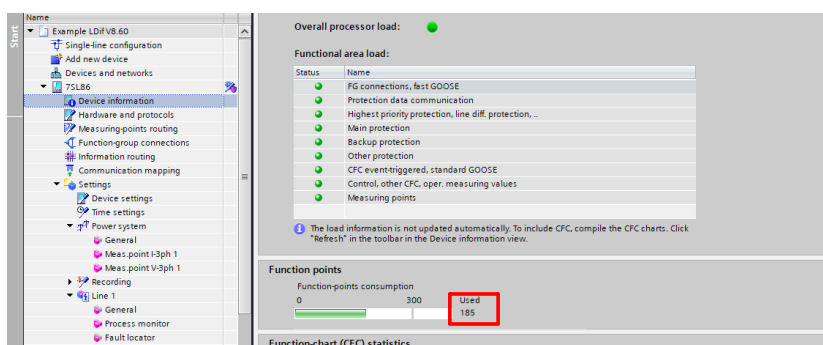
In the Device Combination area of the function group, two line-ends have defaulted. Click any of the “Add new stage” button to add a third line-end (e.g. add a Device 3).



A third line-end is now added (Device 3 below)



Device information, Resource Consumption shows that 185 function-points are now being consumed



Settings/Device Settings, still shows device functionality to be “Two-end Protection”, as significant features are not used in firmware 8.60 or higher

