

# Solutions for IEC61850

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IEC61850 covers all aspects of substation communications and provides a worldwide standard based on one technology.

This gives the benefit of interoperability and also standardises all aspects of project engineering and maintenance.

### COMECA offers solutions to connect LV with this new standard.

LV switchboards are fed from MV through MV/LV transformers. In Oil & Gas, LV switchboards often have two incomer breakers and one bus-tie per switchboard. LV Incomers protection devices are more related to distribution, they are linked and co-ordinated with the MV, they send information to the plant Electrical control system. For this reason it is required that the devices be IEC61850 compatible.

Native IEC61850 Intelligent Electronic Devices are available in the market and enable LV Incomers to be part of the substation communication scheme. Projects delivered by COMECA and including such IEDs have grown significantly since a couple of years.

Until now, LV feeders or LV Motor Starters were considered of lower importance as they were process orientated. It is also a fact that IEC61850 is not ready in terms of LV IED description. On the other hand, big motors should also be considered as 'electrical loads', at least their status and consumption should be transmitted to the Electrical Control System.

For this reason, COMECA enhanced its capability to make whole switchboard or MCC information to be available for IEC61850.

### TOOL BOX SOLUTION

Despite a lack of standardisation for LV devices, the IEC61850 standard provides an object orientated approach for component definition, some objects are usable to define LV devices.

Rather than developing one product interface, the COMECA R&D Automation team implemented different solutions to ensure IEC61850 connectivity to any LV arrangement.

Based and conceived on the same hardware brick, it's a real application 'Tool Box' which has been made available for projects.

We will always find a solution for IEC61850 communication. Should you need to connect an electronic device like a meter, protection devices like GemStart5 up to a complete switchboard plus hot-standby Integrated Motor Center System, the required solution has been already studied, implemented and tested.



## IEC61850 Server for LV

### SERVER DESCRIPTION

The LV server is based on an Industrial Controller including two LAN ports, several serial ports and I/Os. This hardware base matches any simple or redundant architecture.

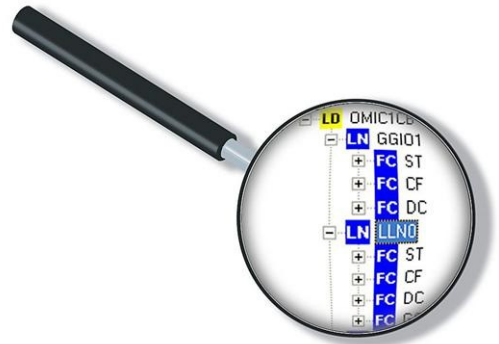


### DRIVER DESCRIPTION

Communication over the standardized International Protocol is handled by STRATON Certified IEC61850 Driver which includes GOOSE.

### ICD FILE

The use of standard Logical Nodes to describe the Intelligent Electronic Devices and our performance reports made available from experiment will enable COMECA to propose the right ICD file at an early stage of your studies.



### LV ICD FILE EXAMPLE

```
+ IED : RTU COMECA
  + LD : GS5_001
  + LD : GS5_002
  + LD : GS5_003
  ...
  + LD : Eqt_Other_001
  + LD : Eqt_Other_002
  + LD : Eqt_Other_003
  ...
  + LD : System
  + GGIO1 : Flags
  + GGIO2 : Flags
  ...
```

### GEMSTART5 LD DETAIL EXAMPLE

```
+LD : GemStart5
  + LLN0
  + LPHD
  + MMXN : measurements
    + Amp : current
    ...
    + Watt : power
    ...
  + GGIO1 : Status
    + Ind1 : Running
    + Ind2 : Stopped
    + Ind3 : Test position
    + Ind4 : Remote mode
    + Ind5 : Link Control
    ...
  + GGIO2 : alarms
    + Alm1 : Communication fault
    + Alm2 : Fault or warning
    + Alm3 : Trip
    ...
```

