



Monthly Newsletter 015

Energy Automation News

Dear Reader,

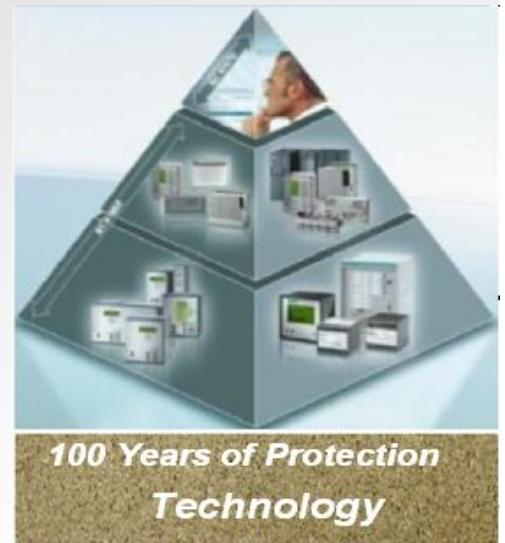
With belief that you find the newsletter interesting & knowledge sharing we take pleasure to present you with the next newsletter containing a wealth of interesting information surrounding the entire range of products and systems in the field of power transmission & distribution technology.

In this issue, the major highlights are:

- => Protection Schemes using IEC 61850 with GOOSE message for 33KV Gas Insulated Switchgear
- => Energy Automation Exhibition

As your competent and reliable partner/supplier, it is important for us to provide you with comprehensive support and information, ranging from planning to operation. In case you have any query regarding any particular product/solution please let us know.

Have fun reading and surfing!
EA Marketing Team



Protection Schemes using IEC 61850 with GOOSE message for 33KV GIS

Introduction

A typical 33KV Gas Insulated Switchgear is envisaged with two bus sections having two incomers, one bus coupler and outgoing feeders with bay control and protection units (BCPU) mounted on switchgear.

These BCPUs communicate with each other on IEC 61850 protocol. The above configuration is planned to achieve the following objectives:

- Protection schemes will be implemented using IEC 61850 to minimize physical wiring.
- To achieve inter operability between BCPUs of different makes (Compatibility*).
- Retrieval of disturbance records and parameterization of BCPUs from remote.

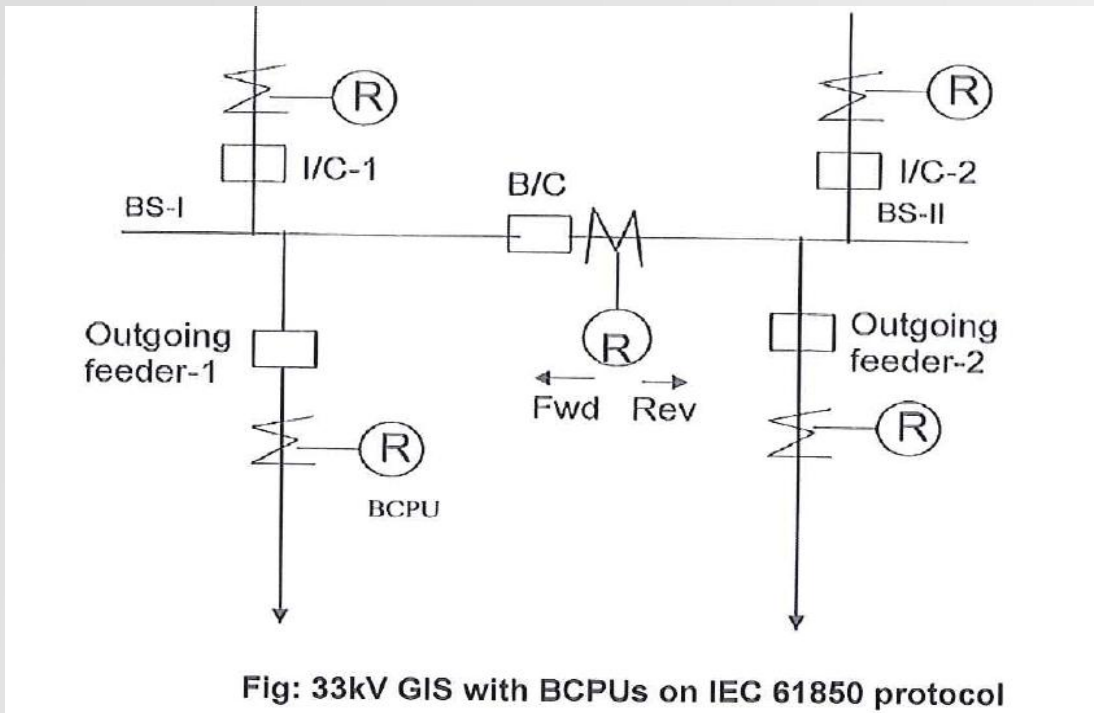


Fig: 33kV GIS with BCPUs on IEC 61850 protocol

Scope

The scope of this note covers the 33KV Gas Insulated Switchgears in existing or new sub stations. The following protection schemes are envisaged for 33KV GIS systems through BCPUs using IEC 61850 with GOOSE message.

- A. Busbar protection using reverse blocking
- B. Over load trimming scheme
- C. Under frequency load shedding and auto restoration
- D. LBBU Scheme

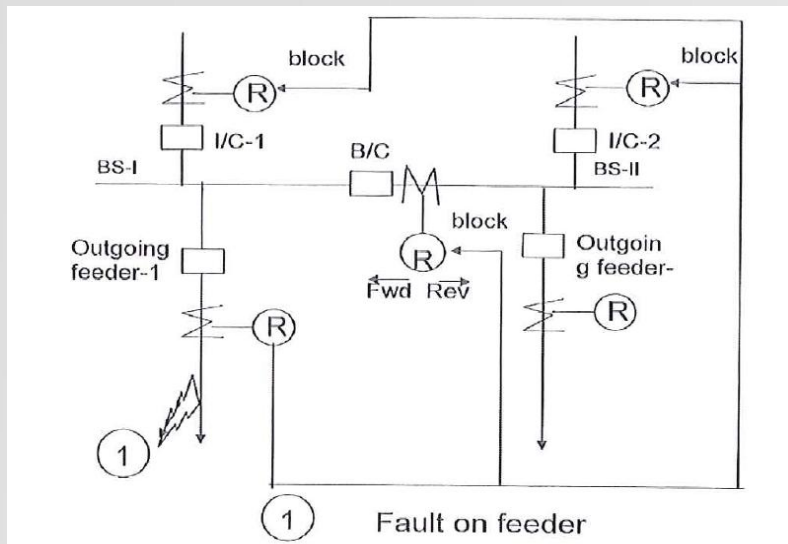
A. Busbar protection using reverse blocking:

This Scheme will be implemented considering following three cases:

Case 1: Fault on Feeder

For this application, the protection IEDs on the incoming bay (usually the Transformer bay) and bus coupler bay will be provided with blocking signals as GOOSE messages from the protection IED on the outgoing bays (the feeder bays).

If one of the outgoing bay protection IED detects a fault, this protection IED must route a blocking signal to the protection IED on the incoming bay and protection IED on bus coupler

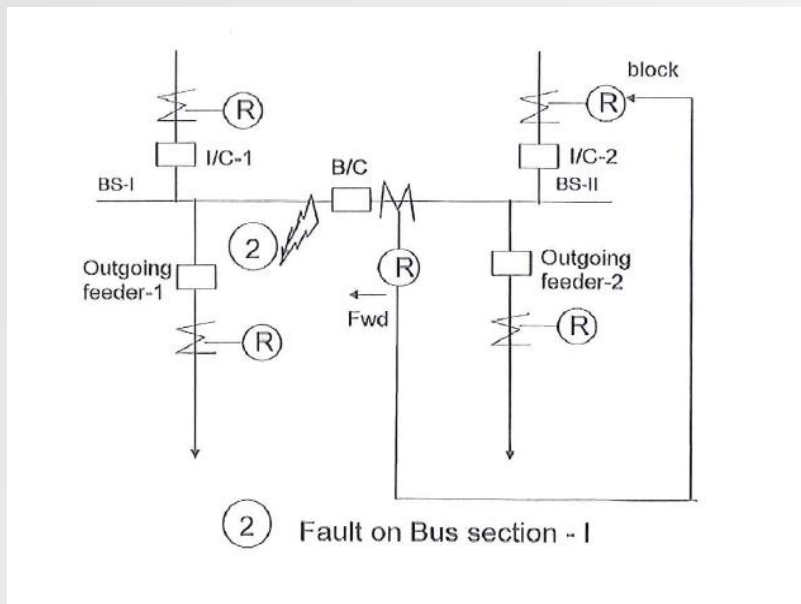


bay. This blocking signal prevents fast tripping of the incoming and bus coupler bay ($I >>$ stage). The block signal may only remain for 150ms.

During fault on feeder, protection device closest to fault releases trip signal and issues block signal as a GOOSE message to incoming bays and bus coupler bay.

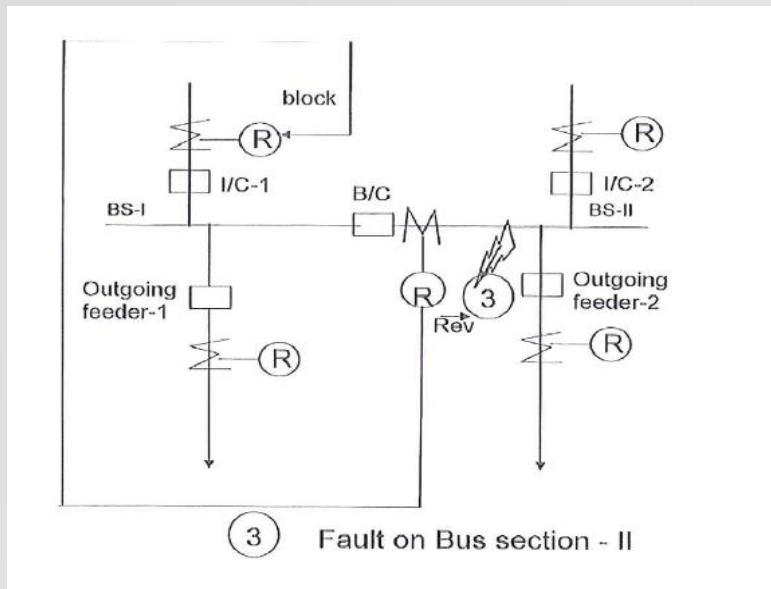
Case-2: Fault on bus section-I

The bus coupler bay protection IED shall be provided with bidirectional feature which can detect fault in forward as well as reverse direction.



During fault on bus section-I, the bus coupler IED shall detect it in forward direction and issues a block signal to incomer-2 IED so that fast tripping of incomer-2 bay is prevented and incomer-1 and bus coupler IED will issue trip signal on $I >>$ stage. None of the feeder bays pick up and therefore they do not issue a block signal.

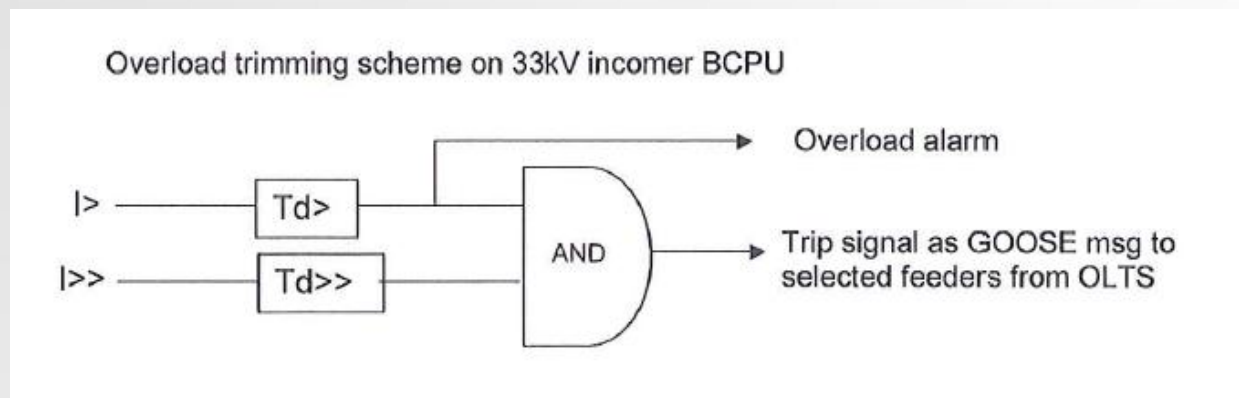
Case – 3: Fault on bus section- II



During fault on bus section- II, the bus coupler IED shall detect it in reverse direction and issues a block signal to incomer-1 IED so that fast tripping of incomer-1 bay is prevented and incomer-2 and bus coupler IED will issue trip signal on I>> stage. None of the feeder bays pick up and therefore they do not issue a block signal.

B. Overload trimming scheme (OLTS) on 33KV incomer BCPU:

During overload condition with I> and I>> stage pick up with time delay on BCPU of 33KV Transformer incomer, OLTS trip signal generated to trip selected 33KV feeders.

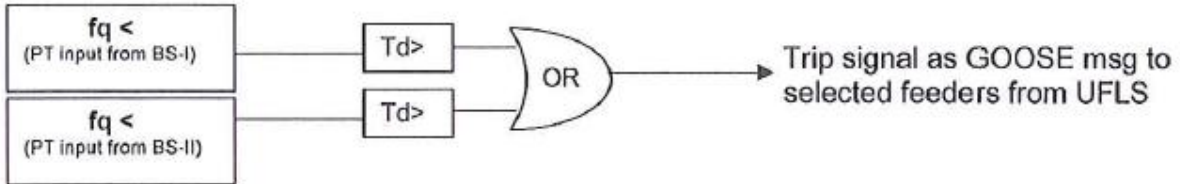


C. Under frequency load shedding (ULFS) scheme:

During under frequency stage pick up with time delay on BCPU of 33KV Transformer incomers, ULFS trip signal will be generated, to trip selected 33KV feeders.

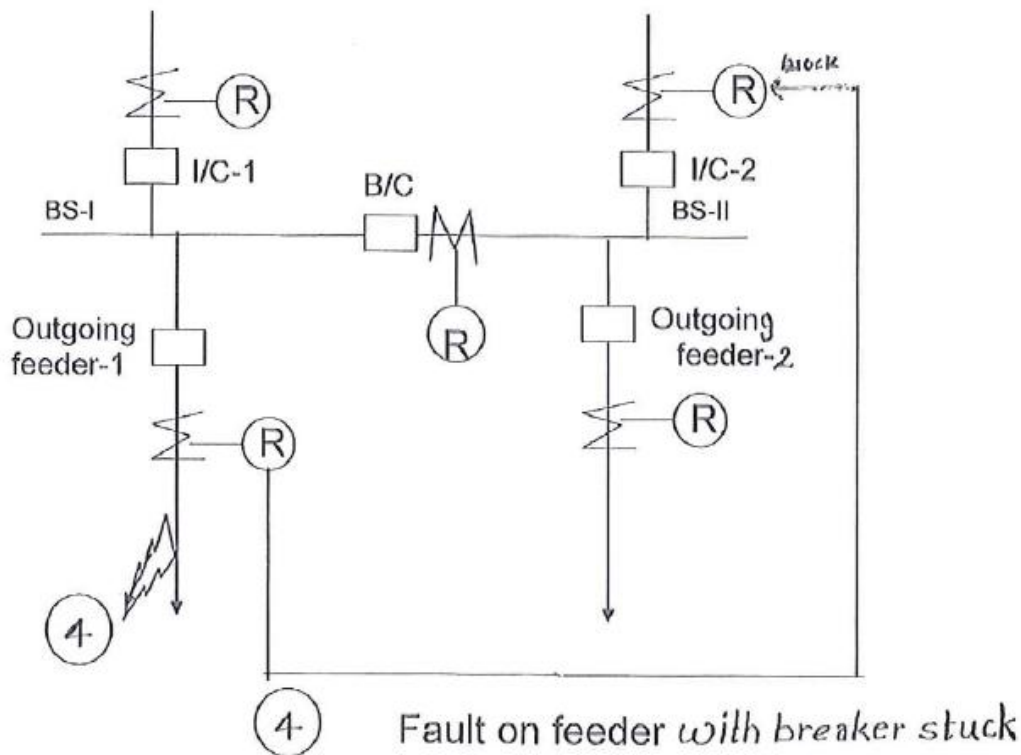
Implementation of above schemes will be a step towards realizing benefits of IEC 61850 through BCPUs, with standardization of 33KV GIS.

Under frequency load shedding scheme on 33kV incomer BCPUs on BS-I & II



D. Local Breaker Backup (LBBU) function)

During 33KV feeder stuck breaker condition on feeder fault, local breaker backup function of associated BCPU operates and sends block signal after set time delay of 100ms to other incomer breaker (when breaker on BS-I is stuck the block signal is sent to incomer of BS-II). The corresponding incomer breaker and bus coupler breaker will detect the fault and clear the faulty bus section whereas shutdown to other bus section is prevented.



Energy Automation Exhibition

Siemens Energy Automation exhibits Products/ Solutions in Techno 2011 fair



Siemens at Techno 2011

Techno 2011 is a three (3) days (07th October – 09th October 2011) popular International Exhibition cum Conference held in Colombo, Srilanka, organized by Institution of Engineers, Srilanka showcasing latest State-of-the-Art technologies in the Engineering, Products & services from reputed International and National manufacturers/ suppliers. The exhibition aimed towards bringing equipment manufacturers, service companies, consulting engineers, government departments etc. together under 1 roof .The exhibition was

visited by professionals from International/ National manufacturers, utilities, academic/financial institutions, policy makers, experts, students etc.

We had displayed the following products/solutions in exhibition:

Siprotec 100 Years experience

Demo for Siemens Reyrolle/ Siprotec Relays

'Siemens stall received the 'Golden' award for display in Techno 2011 exhibition'

Pertaining to this Newsletter...

If you know anyone else within your organization who may wish to receive the information given, please forward it to them. If anyone wants to sub-scribe to our e-newsletter, please send us an email and we will add their name to our mailing list, which will be used solely for the distribution of this newsletter, and for no other purposes. Also if you do not wish to receive this information, please email us.

For any technical documentation, please visit:

<http://www.energy.siemens.com/hq/en/automation/power-transmission-distribution>

For any general queries and technical support, Please email to :

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