

## Overview

The D25 controller is a multifunction intelligent electronic device (IED) available from GE Energy.

The D25 is ideal for new additions and retrofits to existing facilities. It is upgradeable, and supports over 110 communication protocols. It also has the flexibility that allows it to be used in a variety of applications.

The D25 can replace multiple devices with a single unit. It functions as a programmable logic controller, a remote terminal unit, a local area network node, an IED gateway, a bay level controller, revenue class meter (non-certified), a power quality monitor, and a fault/event (waveform) recorder.

The D25 has been enhanced with a variety of new features for those customers looking for a flexible full range substation IED.

## Digital Fault Recording

When activated by configurable trigger conditions, Digital Fault Recording captures current/voltage waveforms and digital status on analog and digital channels. The status values of up to 250 digital status inputs for the time of capture are recorded and put together with 240 cycles of waveform data in standard C37.111-1991 COMTRADE files. D25 DFR stores up to 16 MB of fault data locally (approx 150 seconds of 8 AC and 64 digital point data) for subsequent retrieval via PowerLink\* Advantage, or other Comtrade compatible systems.



## Breaker Failure Protection

The Breaker Failure Protection feature monitors and verifies that the fault current is interrupted as required. If the fault current still exists after a configurable period of time, the Breaker Failure Protection application operates a configured control point to open a breaker further upstream. This protection is enabled simultaneously on all defined circuits.

## Fluxbuster\*

Fluxbuster technology allows the D25 to monitor and record current waveform levels up to 42 times nominal. This guarantees the true recording of an asymmetrical-fault current waveforms with magnitude of 20 times nominal and under offset conditions. This ensures accurate post-fault analysis. The Fluxbuster technology does not give up any accuracy in order to provide a wide input range. The Fluxbuster technology has unparalleled accuracy of 0.3% of nominal (0.3% of nominal from 2% – 195% measurement range and 1.0% of nominal from 195% – 4200% measurement range).

## Definite Time Over Current Protection

The Definite Time Over Current Protection algorithm provides a “3-steps” time-current characteristic. Each step has a unique Current-Time configuration pair, which is set by the user for each protected circuit. The D25 provides Definite Time Over Current Protection to a maximum of five individual circuits.

## Synchronism

The D25 supports the Synchcheck and Synchronizing functions, including a synchronism bypass function for any or all of the following conditions:

- Dead Line – Live Bus
- Dead Bus – Live Line
- Dead Bus – Dead Line

The D25 monitors voltage difference, phase angle difference and slip frequency to ensure proper breaker closure as per user-defined settings.

## Dynamic Bus Switching

The D25 now supports multiple buses per feeder, where each bus is defined by a set of PTs and a digital input that indicates when the bus is active on that feeder. These digital inputs are referred to as Active Bus Indications. The D25 monitors the Active Bus Indications to determine which set of PTs to use for the feeder. This unique ability allows for dual-busbar schemes to be reconfigured dynamically, maintaining your system-metering scheme without requiring an external voltage selection scheme. As a feeder in the substation is reconfigured to use a different bus, the D25 recognizes the change and uses the set of PTs associated with new bus to calculate the feeder metering data.

## Transformer Monitoring

The D25 Transformer Monitoring system is a condition analysis and management system for critical power transformers that is based on the D25. This system measures key data, implements continuous analysis models and communicates the needed information using the flexible communication options supported by the D25. On-line analysis models include winding hot spot, cooling system control, cooling system efficiency, moisture in paper analysis, aging and dynamic loading capability. The dynamic loading model incorporates outputs from the other models as well as key measurements to provide the system operator with a look ahead loadability table for the transformer.

## The D25 Is Suited for

**Transmission or large substations.** The largest system to date includes 65 D25s operating as a network of bay control units. Each D25, with the Ethernet option, was integrated using GE's iSCS LAN technology. This system supported sophisticated applications such as interlocking and virtual connection.

**Distribution or small substations.** The D25, with the serial option, operates as a stand-alone intelligent IED with all of the RTU functions and more.

**Feeder automation.** The D25 has been used in one of the world's largest feeder automation projects, with over 4,500 D25s

installed communicating to over 150 D200s. These D200s are used as regional data concentrators communicating to the Distribution Master Station.

## Features

- Definite time over current protection
- Breaker failure protection
- Synchronism
- Dynamic bus switching
- Unique meter type per circuit
- Multistage alarming
- AC data profiling
- Thermal calculation
- Voltage-only circuits and independent monitoring of any AC signal
- Power equipment condition monitor
- An option for dual-contact switching on up to each of 16 relays or control outputs
- Improved AC data accuracy with phase angle measurement accuracy of 0.5° and frequency accurate to 0.01 Hz
- Auto range digital fault recorder

## Benefits

- Replaces multiple devices with a single unit
- Unified design reduces wiring and maintenance costs
- Data is retrieved from legacy and third party devices such as relays, and transferred to a host or enterprise system
- Monitors and runs diagnostics of primary equipment, and expands to meet future physical and functional station requirements
- The latest version of the D25 is fully CE compliant

For more information please visit us on-line at [www.GEDigitalEnergy.com](http://www.GEDigitalEnergy.com)

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