

FPS SERIES

Feeder Protection System

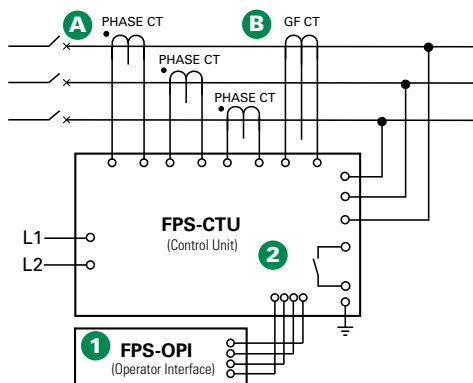


1



2

Simplified Circuit Diagram



Ordering Information

ORDERING NUMBER	COMMUNICATIONS
FPS-CTU-01-00	RS-485
FPS-CTU-02-00	RS-485 & DeviceNet™
FPS-CTU-03-00	RS-485 & Profibus®
FPS-CTU-04-00	RS-485 & Ethernet
ACCESSORIES	REQUIREMENT
FPS-OPI-01-00	Recommended
SE-IP65CVR-M	Optional
Phase CTs	Required
Ground-Fault CT	Recommended
MPS-RTD-01-00	Optional

Description

The FPS Feeder Protection System monitors voltage and current to provide a comprehensive package of 17 protective functions. The FPS is a modular system with integrated protection, breaker control, metering, and data-logging functions.

1 Operator Interface (FPS-OPI)

- Large, bright, 4 x 20 vacuum-fluorescent display
- Display metered values
- Access set points
- Powered by Control Unit
- Panel mount or attach directly to Control Unit
- Remote mounting (1.2 km or 4000 ft maximum loop length)
- 1/2 DIN size
- Hazardous-location certified

2 Control Unit (FPS-CTU)

- Current inputs—5-A or 1-A secondary phase current transformers
- Voltage inputs—up to 600 V without PTs
- Earth-leakage input—5-A or 1-A secondary or sensitive transformer
- 8 digital inputs, 5 relay outputs, 1 analog input and output
- 24-Vdc supply for OPI and RTD modules, and for digital inputs
- IRIG-B time-code input
- 1/2 DIN size, surface mount
- RS-485 network communications (Standard)
- DeviceNet™, Profibus®, or Ethernet communications available

Accessories

A



Phase Current Transformers

Phase CTs are required to detect phase currents.

B



Ground-Fault Current Transformer

Zero-sequence current transformer detects ground-fault current. Available with 5-A and 30-A primary ratings for low-level pickup.

C



MPS-RTD Temperature Input Module

Optional module provides 8 inputs to connect Pt100, Ni100, Ni120, and Cu10 RTDs.

D



SE-IP65CVR-M Cover

Optional gasketed, transparent cover for limited access and IP65 protection for an Operator Interface Module.

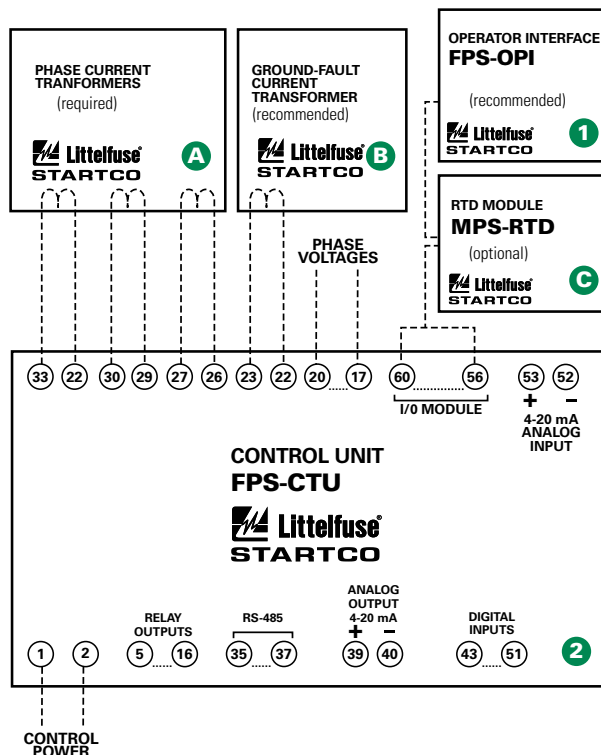
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Feeder Protection System

Features & Benefits

FEATURES	IEEE #	BENEFITS
Overload	49, 51	Long-time overcurrent provides thermal protection for feeder or load
Inverse-time overcurrent	50, 51	Coordination using IEEE and IEC Curves
Definite-time overcurrent	50, 51	Instantaneous overcurrent to detect catastrophic failure
Current unbalance/ Phase loss/Phase reverse	46	Detects an open or high-impedance phase
Ground fault	50G/N, 51G/N	Inverse and definite time. Early insulation-failure detection.
RTD temperature	38, 49	Optional protection (MPS-RTD module) for load-temperature monitoring
Overvoltage	59	Limits stress to insulation
Undervoltage	27	Detects a damaging brown-out condition
Voltage unbalance	47	Detects unhealthy supply voltage
Two setting groups		Minimizes Arc-Flash hazards during maintenance
Breaker control		Allows local and remote operation; reduces component count
Metering		Displays the measured and calculated parameters
Data logging		On-board 64-event recorder helps with system diagnosis
Communications		Remotely view measured values, event records, & reset trips
Conformal coating		Internal circuits are conformally coated to protect against corrosion and moisture

Wiring Diagram



Specifications

Protective Functions (IEEE Device Numbers)	Overload (49, 51) Phase reverse (current) (46) Overfrequency (81) Overcurrent (50, 51) Underfrequency (81) Ground fault (50G/N, 51G/N) Unbalance (voltage) (47) RTD temperature (38, 49)	Unbalance (current) (46) Phase loss (voltage) (47) Overvoltage (59) Phase loss (current) (46) Undervoltage (27) Phase reverse (voltage) (47) Power factor (55)
Input Voltage	65-265 Vac, 25 VA; 80-275 Vdc, 25 W	
Power-Up Time	800 ms at 120 Vac	
Ride-Through Time	100 ms minimum	
24-Vdc Source	100 mA maximum	
AC Measurements	True RMS and DFT, Peak, 16 samples/cycle, and positive and negative sequence of fundamental	
Frequency Inputs	50 or 60 Hz	
Output Contacts	5 contacts — See Product Manual	
Approvals	CSA certified, C-Tick (Australian)	
Communications	Allen-Bradley® DFI and Modbus® RTU (Standard); DeviceNet™, Profibus®, Ethernet (Optional)	
Conformal Coating	Standard feature	
Warranty	10 years	
Mounting:		
Control Unit	Surface	
Operator Interface	Panel, Control-Unit mounted	