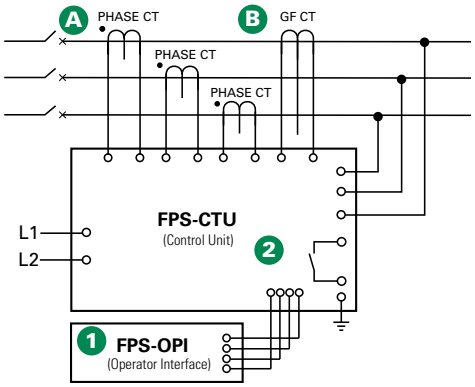
FPS SERIES

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.

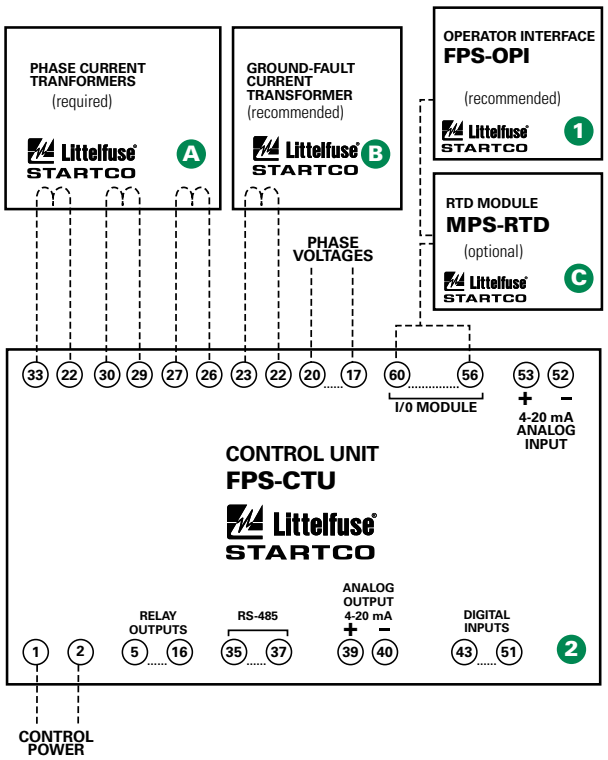
FPS SERIES

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); Unbalance (current) (46); Phase reverse (current) (46); Phase loss (voltage) (47); Overfrequency (81); Overvoltage (59); Overcurrent (50, 51); Phase loss (current) (46); Underfrequency (81); Undervoltage (27); Ground fault (50G/N, 51G/N); Phase reverse (voltage) (47); Unbalance (voltage) (47); Power factor (55); RTD temperature (38, 49)
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	50 or 60 Hz
Inputs	Phase current, Earth-leakage current, Phase voltage, 7 digital, 1 analog
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