

FPS SERIES

Feeder Protection System



1



2

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.

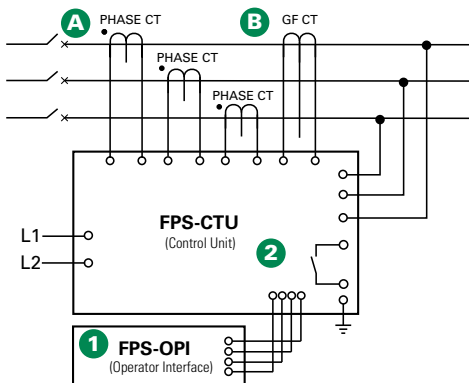
1 Operator Interface (FPS-OPI)

- 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

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

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.

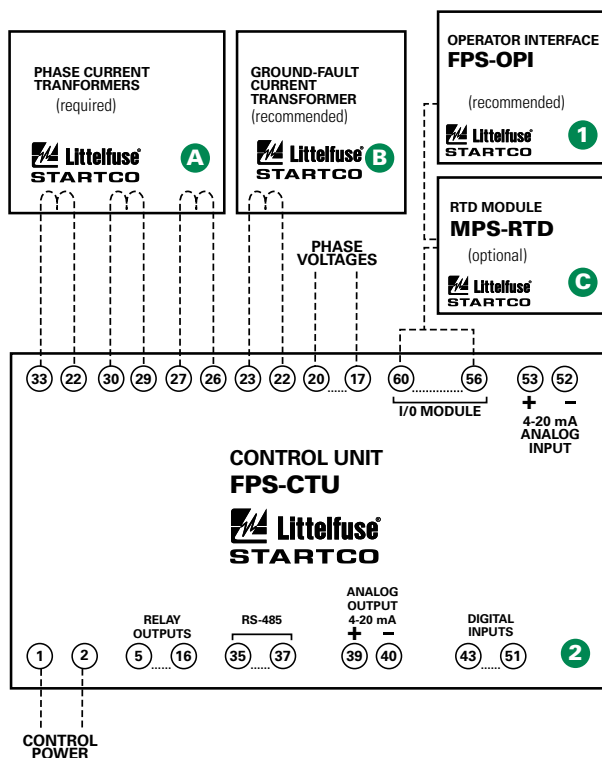
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Features & Benefits

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		
	50 or 60 Hz		
Frequency Inputs	Phase current, Earth-leakage current, Phase voltage, 7 digital, 1 analog		
	5 contacts — See Product Manual		
Approvals	CSA certified, C-Tick (Australian)		
Communications	Allen-Bradley® DFI and Modbus® RTU (Standard); DeviceNet™, Profibus®, Ethernet (Optional)		
	Standard feature		
Conformal Coating	Standard feature		
Warranty	10 years		
Mounting:	Control Unit	Surface	
	Operator Interface	Panel, Control-Unit mounted	