Numerical Differential Protective Relay
589891 (3819-00)

FESTO

LabVolt Series

Datasheet

Festo Didactic
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Table of Contents

General Description

The Numerical Differential Protective Relay is a power-utility grade, numerical protective relay (Siemens SIPROTEC 5 series) mounted in a table-top enclosure. The relay can perform the protection functions listed below.

- Transformer differential (87T) protection
- Instantaneous phase overcurrent (50) protection
- Instantaneous ground overcurrent (50N) protection
- Phase overcurrent (51) protection
- Ground overcurrent (51N) protection
- Machine or transformer thermal (49) protection

The Numerical Differential Protective Relay can also perform several other standard protection functions (ANSI 37, 38, 46, 74, 86, 87N, and 87M).

The front panel of the relay features a display that can provide information about the relay protection functions, indicate currently measured values of the transformer winding currents, and show information about trip events that have been recorded. A keypad, also on the front panel of the relay, allows users to select the information displayed. The front panel of the relay also features a set of 16 LEDs that allows quick monitoring of the status of various relay functions.

Relay programming (e.g., protection function selection, function settings) is achieved via the Siemens DIGSI 5 software. This software is designed to be run from a personal computer with a Microsoft® Windows™ operating system. Communication between the computer and the relay is through a USB port or an Ethernet port. Relay function settings can also be performed using the keypad and display located on the front panel of the relay. Once programmed, the Numerical Differential Protective Relay can be tested using a built-in relay testing unit to ensure it is programmed to operate as expected. This eliminates the need for users to purchase a costly external relay tester to perform relay testing. The built-in relay testing unit is operated using the DIGSI 5 software.

Access to the current inputs of the Numerical Differential Protective Relay is through a removable panel located at the back of the relay enclosure. Access to the relay Ethernet port, binary inputs, and binary outputs (e.g., trip contacts) is also through this removable panel. The Numerical Differential Protective Relay is powered via an ac power inlet mounted on the front of the relay enclosure. A variant of the Numerical Differential Protective Relay with safety jacks and connectors mounted on the front panel to provide access to all relay inputs, outputs, and ports is also available. See the Numerical Differential Protective Relay, Model 3819-A.

Courseware

Different courses are available to perform exercises using the Numerical Differential Protective Relay. Each course consists of a student manual providing comprehensive theory presentations, guided, easy-to-understand lab procedures, and review questions. Each course also comprises an instructor guide that includes both the content of the student manuals as well as the results and answers to questions.

The following table indicates which courses are available for each numerical protective relay.

	Available courses (each including a student manual and an instructor guide)			
Numerical protection relay	**Overcurrent and Overload Protection Using Protective Relays Manual 52173**	**Directional Protection Manual 52174**	**Differential Protection Manual 52175**	**Distance Protection Manual 52176**
3812	X	X		
3813	X	X		X
3819	X		X	

List of Manuals

Description	Manual number
Numerical Protective Relays (User Guide)	590108 (52766-E0)
Numerische Schutzrelais (User Guide)	593908 (52766-EG)
Relais de protection numériques (User Guide)	593909 (52766-E1)
Relés numéricos de protección (User Guide)	593910 (52766-E2)

Optional Manual(s)

Qty	Description	Model number
1	Overcurrent and Overload Protection Using Protective Relays (Student Manual)	589887 (52173-00)
1	Overcurrent and Overload Protection Using Protective Relays (Instructor Guide)	589888 (52173-10)
1	Differential Protection (Student Manual)	590085 (52175-00)
1	Differential Protection (Instructor Guide)	590086 (52175-10)

Specifications

Parameter	Value
Relay Type	Siemens 7UT82
Power Requirements	
Voltage	100-240 V
Apparent Power	35 VA
Frequency	50/60 Hz
Input	IEC C14 input on the front panel
Protection	6 A circuit breaker
Computer Interface	
Connection	RJ45 EtherNet port on the front panel
Software	DIGSI 5 Software included, free license for educational institutions obtainable from Siemens via application
Physical Characteristics	
Intended Location	On a work surface able to support the weight of the equipment, or on a Festo-approved A4 workstation or equivalent
Dimensions (H x W x D)	295 x 260 x 240 mm (11.61 x 10.24 x 9.45 in)
Net Weight	7.08 kg (15.6 lb)

Reflecting the commitment of Festo Didactic to high quality standards in product, design, development, production, installation, and service, our manufacturing and distribution facility has received the ISO 9001 certification.

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