

# 2IDX

## Transformer Protection Relay



### Making the Smart Grid real



Compact **Multifunction Solution** for **Transformer Feeders**.

Ensures **Stability** against **Saturation** and **Errors** in the CTs.

Suitable for all types of **Two or Three Winding Machines**.

- ✓ Three-Phase Differential Protection (3 x 87T).
- ✓ External Fault Detector (50FD).
- ✓ Phase & Ground Overcurrent Protection for all windings (3 x 50/51 + 50N/51N).
- ✓ Directional Units (67N).
- ✓ Negative Sequence Overcurrent Protection for all windings (50Q/51Q).
- ✓ Over / Undervoltage Protection (27/59).
- ✓ Neutral Overvoltage Protection (59N).
- ✓ Frequency Protection (81M / 81m / 81ROC).
- ✓ Breaker Failure Units (50BF).
- ✓ Thermal Image protection for all windings (49).
- ✓ Current Measurement Supervision (60CT).
- ✓ Restricted Earth Fault Units (87N).
- ✓ Overexcitation Protection (V/Hz).

- ✓ Cold-Load Pick-Up.
- ✓ Compensation of the Connection Group.
- ✓ Tap Compensation.
- ✓ Lockout Function (86).
- ✓ Zero Sequence Filter.
- ✓ Breaker Monitoring.
- ✓ Supervision of the Switching Circuits.
- ✓ Selection of the System Phase Sequence.
- ✓ Fault Reporting.
- ✓ Historical Metering Data Logging.



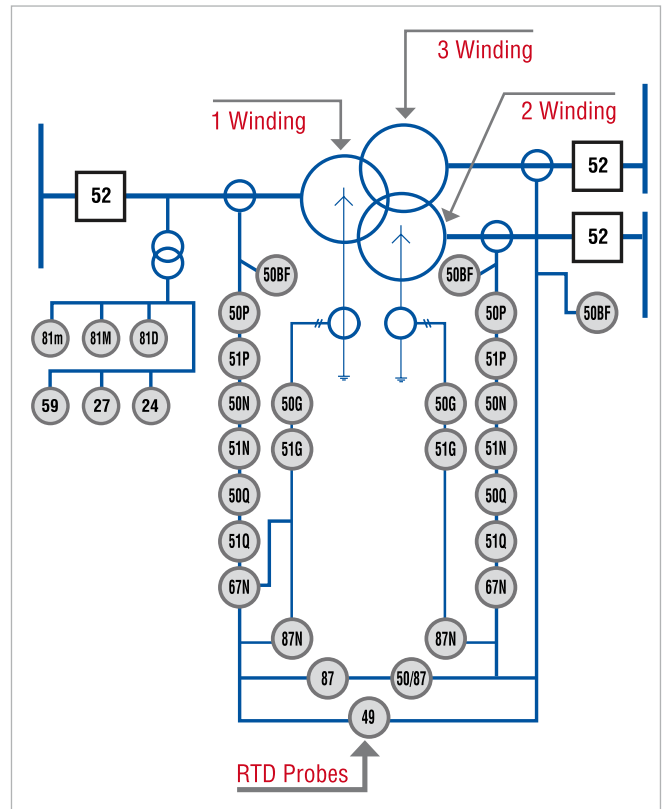
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# Application

**Differential Protection** is intended for detection of internal faults in the machine as well as faults occurring within the zone of influence of its CTs. It is also very important for this protection to include **Restraint Elements** to avoid false trips due to the current generated during the energization of the transformers or the high values of current produced by external faults that might cause the saturation of some CTs. The **2IDX** differential protection IED ensures stability against:

- Saturation and errors in the CTs.
- Energizing maneuvers.
- All types of internal and external faults.
- Variation in the transformer taps and/or their connection group.

**2IDX** is suitable for all types of **Two or Three Winding Machines** (transformers, autotransformers, motors, generators and reactance). This IED can compensate the transformer taps and the connection group of the machine without need of intermediate auxiliary CTs.



# Physical Description



- 1 Programmable LED targets.** 8 programmable LEDs and 1 non-configurable LED for relay In Service indication.
- 2 Alphanumeric Display.** 320 x 240 matrix display.
- 3 Keypad.** 6 push-buttons to control the information displayed, such as measures, events, fault indications, I/Os status, etc.
- 4 Control Push Buttons.** 3 push-buttons to either operate the system elements, change the active setting group or enable/disable any protection function.
- 5 Local Communication Port.** RS232C and USB front port for local communication with the relay.

**6 Digital I/Os.** 24-pin terminal blocks for digital I/Os, transducer inputs, trip and close contacts and power supply connection. [Slots C & D]

**7 Analog Inputs.** 10-ring lug terminal blocks for current and voltage inputs. [Slots A & B]

**8 Remote Communications Ports.** Multiple options available depending on model selection: RS232/RS485, Glass FO (ST), Ethernet (RJ45 or Multimode Glass FO ST) and IIRIG-B.

