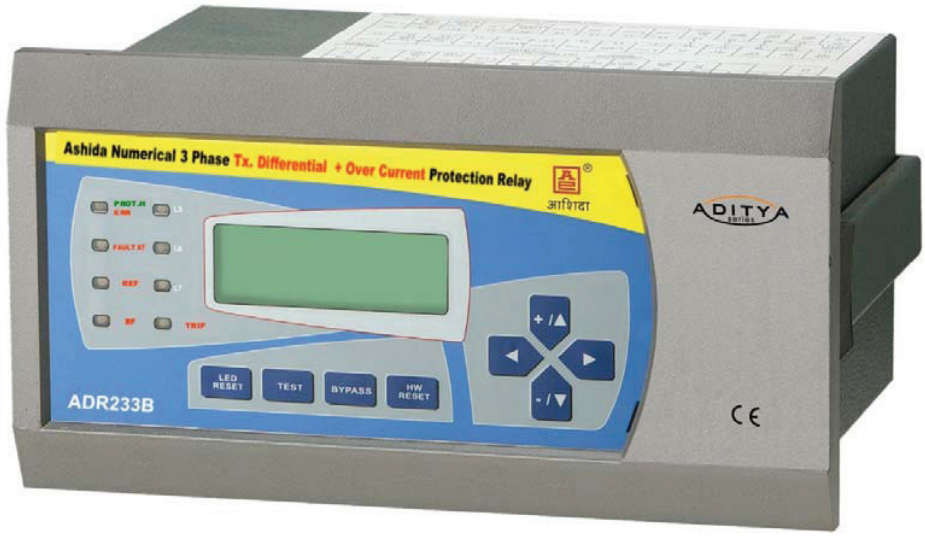
ASHIDA Numerical 3 Phase Tx. Differential + Over Current Protection Relay

Type: ADR233B
(ADITYA–V2 Series)
(Preliminary)



Protection Features:

- ✓ Transformer Differential + Over Current + Restricted Earth Fault.
- ✓ 3 Element (3 Phase + 3Io) Over current IDMT/DMT with instant Trip.
- ✓ Instantaneous Over-Current Protection with adjustable Timer.
- ✓ Internal calculation of zero seq. EF current (3Io).
- ✓ Negative Sequence Over Current (46).
- ✓ Selection of Curve: Five selectable curve (Normal Inverse 1 (C1), Normal Inverse 2 (C2), Very Inverse (C3), Extremely Inverse (C4), Long Time Inverse (C5)) and Define Time (C6).
- ✓ Programmable starting current and dual bias setting.
- ✓ Harmonic Restrain for Transformer charging and CT saturation condition.
- ✓ Unrestrained Differential Protection.
- ✓ Programmable Internal ICT (Interposing CT) ratio to match different transformer having different vector groups.
- ✓ In-built CB Trip Circuit Supervision function during pre closing and post closing of CB.
- ✓ Breaker Failure Detection.
- ✓ Disturbance Recorder. Up to 3 sec of actual waveform of *current* along with logical and physical status are captured and saved in the built-in memory, with date time stamping for analyzing fault condition & fault location.
- ✓ Fully communicable with IEC 60870-5-103.
- ✓ Continuously monitors the module's internal hardware and alarm is generated in case of failure of any critical components.

Relay Design Features:

- ✓ Large 20x4 LCD display for Parameter and setting display.
- ✓ On site CT Secondary selection 1A or 5A.
- ✓ Very low burden on CT (less than 0.2VA)
- ✓ Operation based on fundamental frequency value.
- ✓ Latching of fault current value.
- ✓ 8 Digital Output contacts for local Alarm as well as Tele-signalling.

Note: Due to our policy to upgrade our products constantly, we reserve the right to supply products which may vary slightly from that indicated above.

आशिदा
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- ✓ 8 Optically isolated digital status input for monitoring of status and to avoid use of external relay logic
- ✓ **Programmable (Non- Volatile) settings by local keys as well as remote setting by communication port.**
- ✓ Facility to synchronised Relay Time from SCADA
- ✓ Separate Communication Port for SCADA (RS485) as well as Local Testing (RS232C)
- ✓ 100 nos of event memory, event such as CB close, Trip, digital status change, relay pkp etc. All these events are with date and time stamped up to 1ms.
- ✓ 10 nos of Fault data stored with keypad interface and time stamping.
- ✓ Breaker TRIP/CLOSE operation directly from relay keypad.

Description:

ADR233B is second generation Numerical Transformer Differential + Over Current Protection Relay. It consists of all the necessary protection and monitoring functions required for transformer, i.e.

1. High Speed Digital DSP Controller
2. Analog Measuring Module
3. Power supply Module
4. Digital Input output module.

The High speed Digital Signal Controller continuously monitors Line Phase current, HV and LV current, REF current, along with different status input through CTs and optical isolated status connections. The high-speed micro-controller samples these current signals through an **A/D converter**. The Digital Signal performs powerful **Numerical Algorithms** to find out RMS of fundamental & harmonic contents of the current. All measurement is tuned to fundamental frequency i.e. 50Hz, thus relay remains stable during distorted waveform by various industrial load. All these measured values are then used for different protection function such IDMT Over Current protection, Instantaneous Over Current Protection, Restricted Earth Fault Protection and Transformer Differential Protection. These measured values are also displayed on large 20 x 4 LCD display for metering purpose. The **DSC** also monitor different digital input through optical isolator and perform some monitoring function such as Trip circuit supervision & control potential free contact for control CB and generate ALARM and Tele-signalling.

The power supply module is basically DC – DC converter designed using modern PWM based Switching mode technique to convert 110Vdc station battery supply to the 12V and 24Vdc low voltage supply for relay electronics and control circuit. It also provides necessary isolation from station battery. There are two types of power supply modules available 1) having range of 77Vdc – 250Vdc covering requirement of 110Vdc and 220Vdc station battery system 2) having range of 18Vdc to 250Vdc covering 24Vdc, 40Vdc, 110Vdc, 220Vdc station battery requirement.

The relay is having total 8 nos of dual LEDs of high intensity for easy identification of type of