The 7SR242 transformer protection relay is the latest development of the “Duobias” family of products. The relay provides protection, control and monitoring for two winding transformers of all vector groups, primary configurations/connections and earthing connections.

Description:
The application of differential protection for two winding transformers is complicated by CT mismatch, on-load tap changing, transformer vector group phase shift and unbalanced current during switching. The 7SR242 provides an integrated, basic, intermediate or comprehensive transformer protection package. The relay can also be applied to other plant items such as motors, reactors or auto transformers.

Integrated logic is provided to allow optimal user specific configuration of relay functionality with the relays analogue inputs and binary input/output circuits.

Protection, control, instrumentation and metering functionality is accessible via data communication channel(s). A front USB port for local PC connection or rear electrical RS485 port for remote connection are provided. Additional rear port options are available.
Protection Functions
- Overall Biased Differential
- High-Set Differential
- High Impedance Restricted Earth Fault
- Over-Fluxing (V/F) Protection
- Under/Over-voltage
- Undercurrent
- Negative Phase Sequence Overcurrent
- Thermal Overload
- Overcurrent
- Earth Fault
- Neutral Voltage Displacement

Supervision Functions
- Circuit Breaker Fail
- Trip Circuit Supervision
- Inrush Current Detector
- Over-Fluxing Detector

Monitoring Functions
- Primary/Secondary Currents Phases and Earth Currents
- Relay Operate and Restraint Currents
- Positive Phase Sequence (PPS) Current
- Negative Phase Sequence (NPS) Current
- Zero Phase Sequence (ZPS) Current
- Thermal status
- Primary/Secondary Single Phase Voltage
- Frequency and Fluxing
- Historical Demand Record

Biased Differential Characteristic (87BD) and High-set (87HS)

![Biased Differential Characteristic Diagram]

- 87BD Initial Setting
- 87BD 1st Bias Slope
- 87BD 2nd Bias Slope
- 87HS Setting
- Bias (Restraint) Current
- \( I_{W1} + I_{W2} \)
- 1st Bias Slope Limit
- 2nd Bias Slope Type