

# DPR-165

## TRANSFORMER STEP & TEMPERATURE INDICATOR

- **STEP RESISTOR INPUT**
- **PT100 TEMPERATURE INPUT**
- **ANALOG OUT: 0-20mA**
- **ANALOG INPUT: 0-20mA**
- **2 RELAY OUTPUTS, 6A**
- **RS-485 MODBUS PORT**



### DESCRIPTION

DPR-165 is a microprocessor controlled precision instrument displaying steps and temperatures of MV/HV transformers. The unit has a high degree of protection against electromagnetic noises.

The unit determines the step by measuring the resistive converter of the transformer.

The step information is displayed on the screen. Additionally it is output through the 4-20mA analog output. This information may be fed to automation systems or to the next DPR-165 unit.

It can also display the step information from the analog value coming from another DPR-165 unit.

With analog inputs and outputs, an unlimited number of DPR-165 units may be cascaded.

The unit offers one PT100 type temperature sensor input. This input may be used for the transformer or ambient temperature. The alarm level of the temperature input is adjustable and the alarm information is output as a relay contact.

The unit offers an adjustable cable length compensation function in order to have precise measurements with long cables.

The unit offers 2 volt-free relay contacts rated 6A. Any function may be assigned to these outputs, selected from list.

Alarm levels are adjusted within the programming mode of the unit. If no action is taken, the unit will terminate the programming mode in 1 minute.

The standard isolated RS-485 Modbus RTU port of the unit is free from ground potential differences and allows safe transfer of information to automation and monitoring systems.

The supply inputs of the unit is isolated from measurement inputs. It operates between 88-400VDC and 85-270VAC.

### FEATURES

**Up to 50 steps**

**Installation without energy interruption**

**Accurate step measurement input, 10 bit**

**16 bit analog output accuracy**

**10 bit analog input accuracy**

**PT100 temperature input, 1°C accuracy**

**Cable length compensation**

**Automatic sensor failure detection**

**2 relay outputs, 6A/250Vac**

**Fully isolated RS-485 serial port**

**MODBUS-RTU communications**

**Logging of maximum temperature**

**Front panel adjustable parameters**

**Temperature alarm threshold level**

**Easy to read, 4 digits 14mm led display**

**Minimum 20 years data retention**

**Wide supply range: 88-400 VDC (85-270VAC)**

**Low panel depth, easy installation**

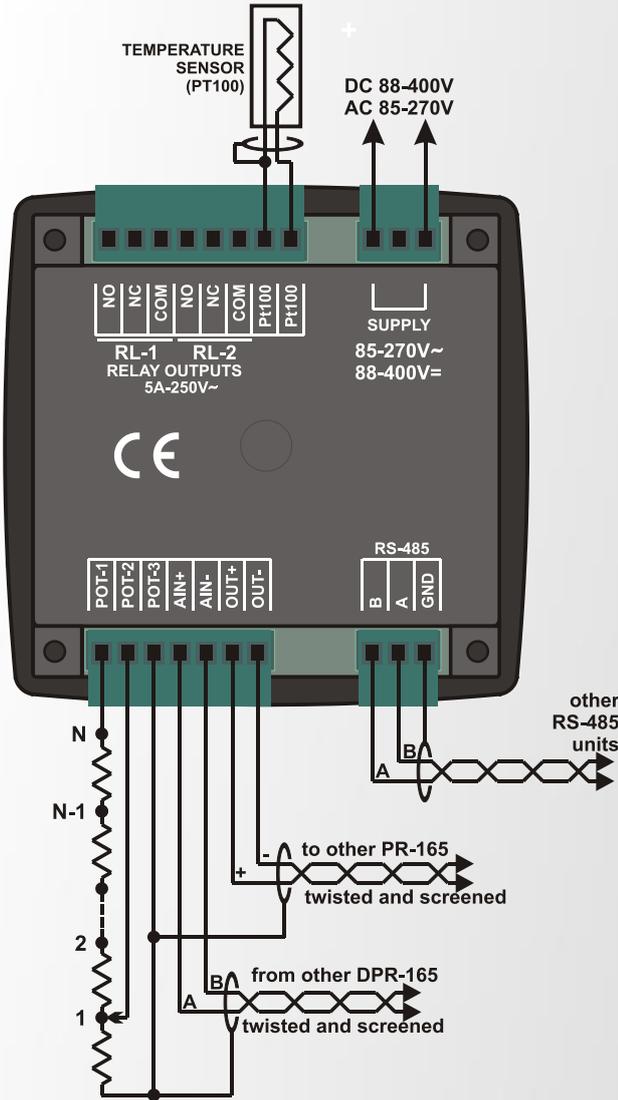
**Wide operating temp. range, -20...+70°C**

**Sealed front panel (IP65 with gasket)**

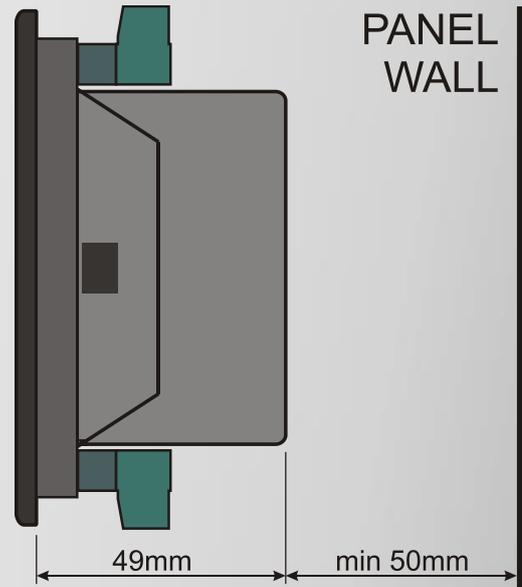
**Two part connection system**



## INSTALLATION DIAGRAM



## INSTALLATION TOLERANCES



## TECHNICAL SPECIFICATIONS

**Supply Input:** 88-400VDC  
85-270VAC (50/60Hz)

**Power Consumption:** < 2 W

**Maximum Step Count:** 50

**Resistor Measuring Input:** 3 terminals

**Resistor Measuring Accuracy:** 10 bits, 0.1%

**Resistor Range:** 30 ohm to 2K-ohm

**Temperature Input:** PT100

**Temp. Measuring Range:** -40°C to +250°C

**Temp. Measuring Accuracy:** ±1°C

**Analog Output:** 0-20mA

**Analog Output Accuracy:** 16 bit

**Analog Input:** 0-20mA

**Analog Input Accuracy:** 10 bit, 0.1%

**Relay Outputs:** 6A @ 250V AC

**Serial Port:**

**Signal Type:** RS-485

**Communication:** Modbus RTU

**Data Rate:** 2400-115200baud

**Isolation:** 1000V AC, 1 minute

**Operating Temp. Range:** -20°C...+70 °C

**Max. Relative Humidity:** %95 non-condensing

**IP Protection:** IP 65 (front panel, with gasket)  
IP 30 (back panel)

**Enclosure:** Flame retardant, ROHS compliant,  
high temperature ABS/PC (UL94-V0)

**Installation:** Panel mount, rear retaining plastic  
brackets.

**Dimensions:** 102x102x53mm (WxHxD)

**Panel Cut-out:** 92x92mm

**Weight:** 200 gr (approx)

**EUDirectives:**

2006/95/EC (LVD)

2004/108/EC (EMC)

**Reference**

**Standards:**

EN 61010 (safety)

EN 61326 (EMC)

## PANEL CUTOUT

