

# DK-45

## COMPRESSOR CONTROLLER

### DESCRIPTION

The DK-45 is a high-tech products providing control and protection of screw or piston type air compressors driven by electric motors.

The unit incorporates all functions needed in a compressor control panel. Thus no additional modules are necessary resulting in lower panel cost.

The “early start” function analyzes the air consumption trend and runs the compressor so that the pressure never falls below the low limit.

The unit is directly supplied from the 230/400V utility network. It provides fail contact and sensor supplies internally, removing the need for a supply transformer in the panel.

Utility mains voltages and frequency can be read on the unit. It offers low/high voltage and phase order protections.

The 2.9” wide, 128x64 pixels graphical screen displays values in bigger size and with graphic support.

The logic level Modbus RTU communication port of the unit allows computer connection providing monitoring and program parameter adjusting.

Optically isolated digital inputs feature noise filtering allowing fault-free operation in electrically noisy environments.

The unit provides 5 relay outputs rated at 5 Amps.

The unit configuration may be done through the front panel or using the free PC software. The PC software is available for free download at manufacturer’s website.

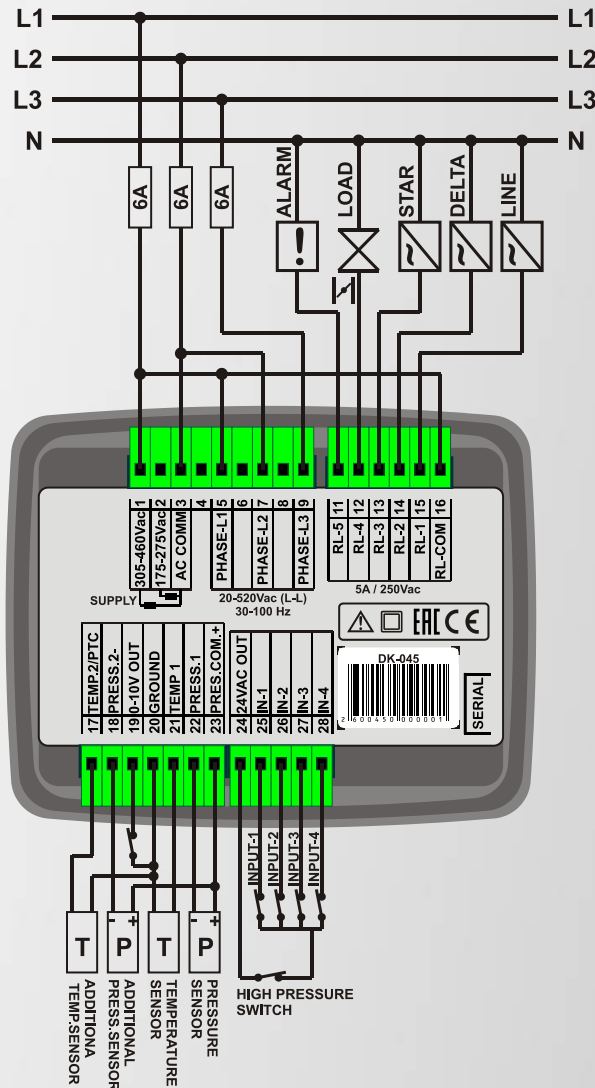
It is possible to monitor and record the unit using the free RAINBOW+ software.

### FEATURES

- **Graphical LCD screen: 128x64 pixels, 2.9”**
- **Automatic operation from output pressure**
- **Voltage protection relay function**
- **Phase order protection relay function**
- **Analog speed control output**
- **Multiple compressor support**
- **Flexible motor hours calculation algorithm**
- **Early start function preventing pressure drop**
- **Dryer control function**
- **History records**
- **5 independent service counters**
- **Supports various topologies**
- **Displays utility mains voltages**
- **No external transformer needed**
- **Star / Delta start-up**
- **Load solenoid control**
- **5 programmable relay outputs**
- **Optically isolated, programmable digital inputs**
- **2 pressure sensor inputs**
- **2 temperature sensor inputs**
- **Adjustable sensor characteristics**
- **Logic level serial port**
- **MODBUS-RTU communications**
- **Password protected front panel programming**
- **Low panel depth, easy installation**
- **Wide operating temperature range**
- **Sealed front panel (IP65 with gasket)**



## CONNECTION DIAGRAM



## TECHNICAL SPECIFICATIONS

**Supply Voltage:** 305 – 460 VAC (COMM-400V)  
175 - 275VAC (COMM-230V)

**Supply Frequency:** 50 - 60Hz nominal ( $\pm$  %10)

**Power Consumption:** < 4 VA

**Measurement Inputs:**

**Voltage:** 20 - 520 V AC (Phase-Phase)

10 - 300 V AC (Phase-Neutral)

**Frequency:** 30 - 100 Hz

**Burden:** < 0.1VA per phase

**Accuracy:** **Voltage:** % 0.5 + 1 digit

**Frequency:** % 0.5 + 1 digit

**Relay Outputs:** 5A @ 250V AC

**Digital Inputs:**

**Supply:** Provided internally.

**Active Level:** external contact < 3 K-ohms

**Isolation:** opto-isolated, 1000V AC, 1 min.

**Pressure inputs:** 4-20mA pressure sensor

**Temperature Inputs:** 1000 to 5000 ohms  
(KTY/NTC/PTC sensors)

**Heating Current:** < 0.3mA

**Motor PTC Input:** gives fault over 2000 ohms

**Serial Port:**

**Signal Type:** logic levels

**Communication:** Modbus RTU

**Data Speed:** 9600 bauds

**Operating Temperature:** -20°C to +70 °C

(-40°C to +70 °C with display heater option)

**Storage Temperature:** -40°C to +80 °C

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

**Protection Degree:** IP 65 (front, with gasket)

IP 30 (back)

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

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

**Dimensions:** 133x107x46mm (WxHxD)

**Panel Cutout:** 117x87mm minimum

**Weight:** 350 gr

**EU Directives:**

2006/95/EC (LVD)

2004/108/EC (EMC)

**Reference standards:**

EN 61010 (safety)

EN 61326 (EMC)