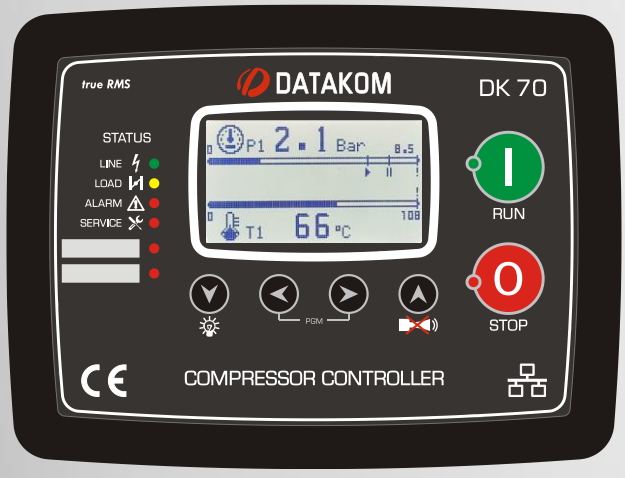

DK-70

INTERNET BASED COMPRESSOR CONTROLLER

DESCRIPTION

DK-70 is a next generation compressor controller providing control of a screw or piston type air compressor driven by electric motor.

DK-70 offers wide internet-based communication capabilities satisfying tomorrow's needs. It allows remote monitoring and control over internet. A mobile phone app is also available for ease of use.

The unit incorporates all functions needed in a compressor control panel, eliminating the need for extra modules in the panel and lowering panel cost.

The early start function analyzes the air consumption trend and starts the compressor before the pressure falls below the low set limit.

Using the Weekly Schedule Program and Pressure Calendar functions, the compressor can be programmed to start on given hours and days of the week with user defined set pressure values.

The unit is supplied from the utility. Fault contacts and senders are internally supplied, eliminating the need for a supply transformer in the panel.

The 2.9", 128x64 pixel LCD screen displays values in bigger size with graphic support.

The controller is designed to conform to highest industrial standards in safety, vibration, EMC and environmental conditions.

Firmware updates can be done easily via the USB port.

The device can be monitored and programmed via USB, RS-485, Ethernet, WIFI and GPRS using the Windows based free PC software.

Rainbow Scada web service enables central remote monitoring and control of an unlimited number of compressors.

FEATURES

- ***Ethernet port (optional)***
- ***GSM-2G-3G-4G-NB/IOT-SMS (optional)***
- ***WiFi connection (optional)***
- ***Embedded Web server***
- ***Web monitoring & programming & control***
- ***Canbus multi-compressor operation (opt.)***
- ***Modbus RS-485 (optional)***
- ***RS-232 (optional)***
- ***Modbus TCP/IP- SNMP***
- ***USB Flash Drive socket (optional)***
- ***USB GPS support***
- ***USB Device Port***

FUNCTIONS

- ***Equal aging, multiple compressor control***
- ***Weekly schedule and pressure calendar***
- ***5 independent service counters***
- ***Star / Delta starting***
- ***0-10V and 4-20mA frequency inverter control***
- ***8 programmable relay outputs***
- ***8 programmable digital inputs***
- ***3 pressure sender inputs***
- ***4 temperature sender inputs***
- ***Adjustable sender curves***
- ***Current, voltage, power and phase sequence protections***
- ***V & I harmonic display and oscilloscope***
- ***Fully closed front panel (IP65 with gasket)***

CONNECTIONS

- ***3 phase 4 wire***
- ***3 phase 3 wire, 2 CTs***
- ***2 phase 3 wire, 2 CTs***
- ***1 phase 2 wire***

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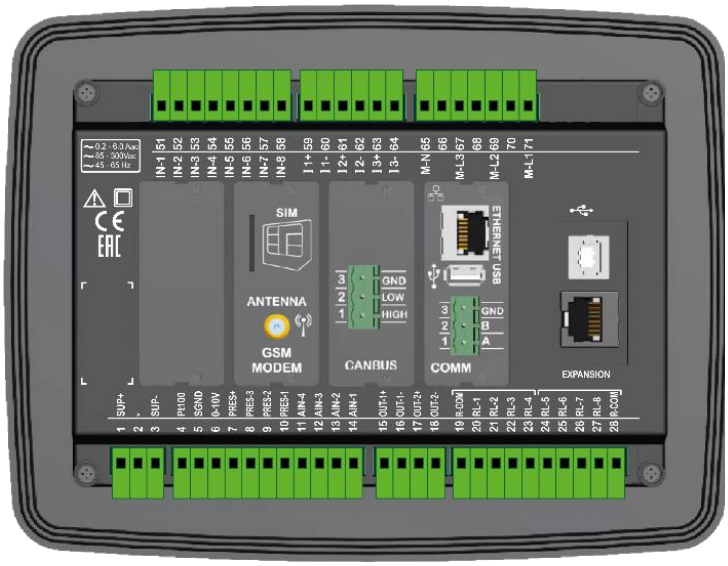
PLUG-IN MODULES

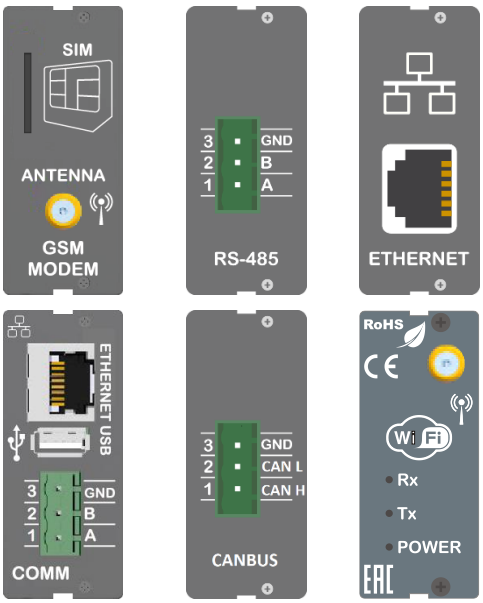
- 2G GSM Modem
- 3G-2G GSM Modem
- 4G-3G-2G GSM Modem (CAT-4)
- NB/IOT, CAT-M1, 2G GSM Modem
- Wi-Fi (802.11 b/g/n)
- Ethernet 10/100 Mbits
- USB Host
- RS-232 (isolated)
- RS-485 (isolated)
- Canbus (isolated)

COMMUNICATION

- Central Monitoring
- Embedded Web Server
- USB
- GPS (geo-location)
- SMS
- E-mail
- Modbus
- Modbus TCP/IP
- SNMP 1.0 with trap
- HTML
- SNTP

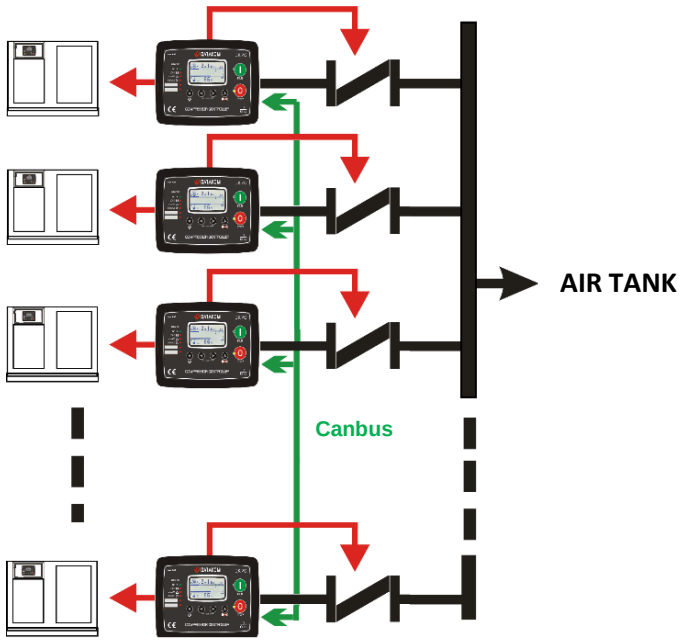


Controller Rear View



Plug-in modules

MULTIPLE COMPRESSOR OPERATION



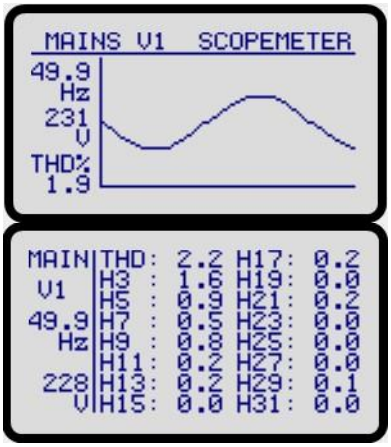
Multiple compressor operation mode is designed for situations which require parallel operation of multiple compressors.

Multiple operation mode saves energy by running only the minimum number of compressors in case of low air consumption. This mode also provides equal aging among compressors in a group.

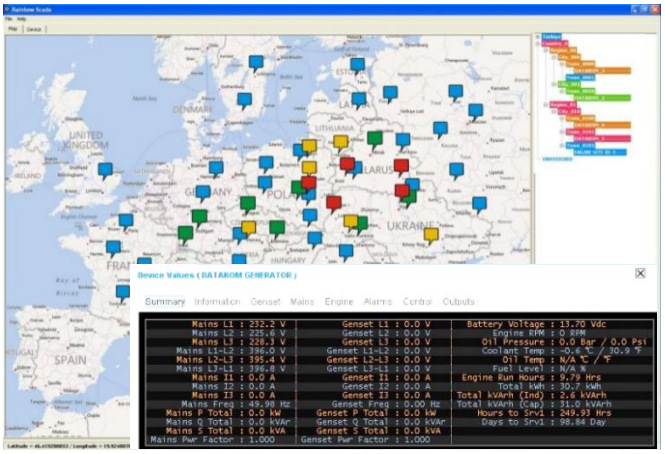
The controller can operate up 32 compressors simultaneously.

The communication necessary to perform multiple operation is conducted over the optional CANBUS plug-in module.

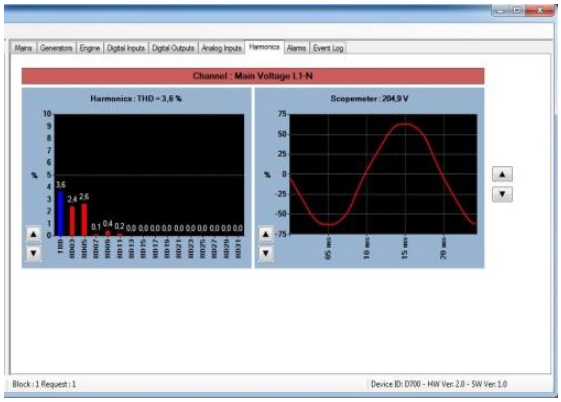
WAVEFORM & HARMONICS



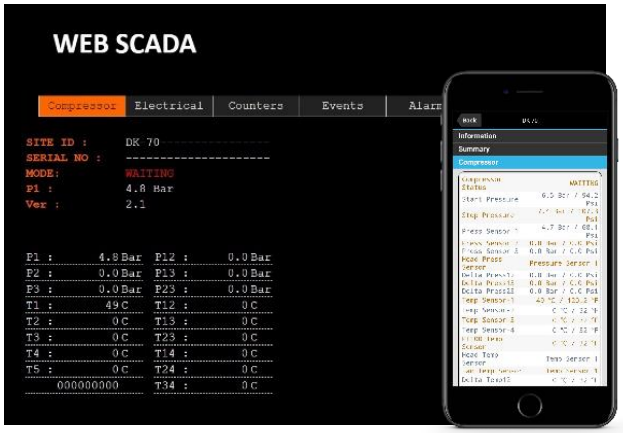
RAINBOW SCADA CENTRAL MONITORING



RAINBOW PLUS SOFTWARE



EMBEDDED WEB SERVER



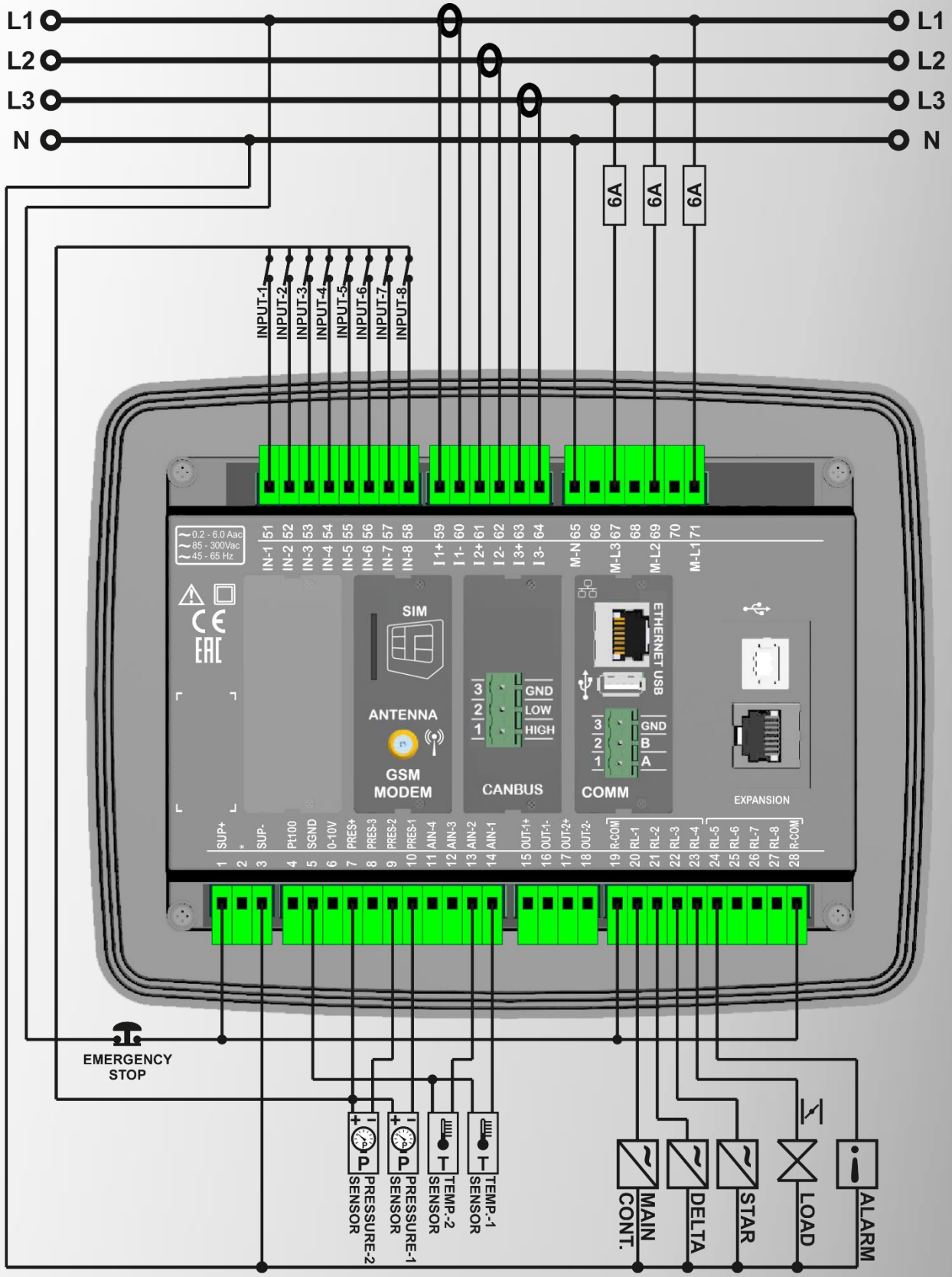
TECHNICAL SPECIFICATIONS

Power supply input: 85-300V-AC or 88-400V-DC
Frequency: DC or 50/60/400Hz nominal (± %10)
Power consumption: 7W maximum
Measuring range: 0-300 V-AC Ph-N, 0-520V Ph-Ph
Frequency range: 0-500 Hz.
Burden: < 0.1VA per phase
VT Range: 0.1/1 – 6500.0 / 1
Current inputs: Use suitable CTs. ../5A or …/1A
Burden: < 0.5VA per phase
CT Range: 5/5A- 5000/5A
kW Range: 0.1kW - 65000 kW
Accuracy:
Power(kW,kVAr):1.0%+2 digit
Voltage, Current, Frequency, Pf: 0.5%+1digit
4-20mA Analog inputs: 3
Accuracy: 12 bit
NTC/PTC Analog inputs: 3
Measurement Range: 1k-ohm to 100k-ohm
Heating current: < 0.3mA
Accuracy: 12 bit
PT100 Input:
Measurement range: 75 to 240 ohms
Accuracy: 12 bit
Digital inputs: 8, threshold level: < 6V-DC/AC

Relay outputs: 8 (5Amp@250V-AC)
I/O expansion: +32 outputs and +32 digital inputs
4-20mA Analog outputs: 2, 16 bit accuracy
0-10V Analog output: 1, 16 bit accuracy
USB Device: USB 2.0 full speed (1.5-12Mbits)
USB Host (optional): USB 2.0 full speed (1.5-12Mbits)
Ethernet Port (optional): 10/100 Mbits
GSM Modem (optional): 2G-3G-4G-NB/IOT
WIFI (optional): 802.11 b/g/n, 2.4GHz
RS-485 Port(optional): 2400-115200 baud, isolated
RS-232 Port(optional): 2400-115200 baud, isolated
Operation temperature: -20°C ... +70°C
Storage temperature: -40°C ... 80°C
Maximum relative humidity: %95 non-condensing.
IP Protection Rating: IP54 front panel, IP30 back panel.
Dimensions: 211x162x42mm (WxHxD)
Panel Cutout: 176x121mm minimum
Weight: 500gr (approx.)
Enclosure: Flame retardant, ROHS compliant, high temperature ABS/PC
Mounting: Flat surface mounting on a Type 1 enclosure. Rear retaining plastic brackets.

EU Directives:	**Reference Standards:**
2014/35/EC (LVD)	EN 61010 (security)
2014/30/EC (EMC)	EN 61326 (EMC)

CONNECTION DIAGRAM



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