JES smart/HUB Operating Unit

Features

• Smart, IoT data acquisition and recording device (data logger)
• DIN rail housing for easy instal lation
• Optional touch LCD display visible in the housing cover
• Integrated Web Server
  ◦ Visualization of recorded data
  ◦ Export of data
  ◦ configuration
• 1 x Ethernet port
  ◦ JSON
  ◦ MODBUS/TCP
  ◦ Connection to smart/CONTROL Server
• 1 x RS-485 galvanically isolated
  ◦ MODBUS RTU
• 2 x Digital input
• 2 x Relay output (changer)
• 1 x HDMI for connecting the optional 7“ touch display
• Expansion modules connected via bus connectors integrated in the DIN rail
  ◦ 4 x RS-485 galvanically isolated
  ◦ 4 x Analog Input*

* planned, but will only be implemented in the case of an order

System

• smart/HUB-DIN IoT data acquisition device for DIN rail mounting
• Optional: smart/HUB-SD2 Sensor Display for displaying status and current measured values
• Optional: smart/HUB-D7 7” touch display connected via HDMI

Operation

smart/HUB is a universal operating unit for collecting, storing or forwarding sensor data in IP networks to a server. Different interfaces are available on the base unit or via extensions for connecting the sensors. Extensions are connected to the base unit via a bus connector integrated into the DIN rail.
The base unit reads the data from sensors from various manufacturers via sensor specific plugins and records them. Protocols such as MODBUS RTU, MODBUS ASCII, Lufft UMB*, 1-wire as well as 4-20 mA analog inputs and digital inputs are supported as standard. Additional plugins can be implemented at any time.
smart/HUB can be expanded into a universal operator panel with a 7“ touch display.
smart/HUB is part of the JES smart/architecture and serves both as an operator panel and as an IoT gateway for sensors without an Ethernet connection. The smart/architecture also includes smart/sensors and smart/CONTROL, a sensor control center for collecting and visualizing all sensor data, central user administration, sensor monitoring, and maintenance control and documentation.
smart/HUB can be used wherever data from sensors from different manufacturers is to be collected and administered in a uniform form in one platform, e.B road weather stations, tunnel sensors.

Advantanges

• Specially developed for use in traffic engineering
• Condition monitoring
• Central administration
• Remote maintenance
• Flexible integration into technology

Application

Tunnels are important infrastructure elements in road networks that facilitate connections between regions. The environmental conditions prevailing therein are influenced by smoke, fog, dust and exhaust gases and should be monitored so as not to expose people to dangers and impairments as they pass through. Fires in particular have had dramatic consequences in the past. At all times, people in the tunnel must be supplied with sufficient breathing air and suitable visibility conditions must be ensured.
Since 1990, JES Elektrotechnik GmbH has been developing, installing and maintaining systems for monitoring air quality and lighting conditions in tunnels. Our systems are robust, durable and resistant to the corrosive tunnel atmosphere and work reliably and precisely. They comply with the requirements of Directive 2004/54/EC (minimum safety requirements for tunnels in the trans European road network) and the more precise national directives and regulations:
• Austria: RVS 09.02 Tunnel Equipment
• Germany: RABT guidelines for the equipment and operation of road tunnels
• Switzerland: FEDRO Guidelines and Technical Manual of Operating and Safety Equipment (BSA)
Our product range in the field of tunnel safety includes systems for measuring:
• Toxic gases such as CO, NO, NO2,etc. (extractive or in-situ)
• Visual opacity (extractive or in-situ)
• Airvelocity,direction and temperature
• Luminance (approach path, in-sight section, transition section, inner section)
• Illuminance

Technical Specifications

smart/HUB IoT Gateway, Data logger and Control unit

IoT gateway, data logger and control unit smart/HUB	
Type	smart/HUB
Ethernet	1 x RJ-45
Field bus	1 x RS-485 half-duplex (2-wire)
Relays	2 x SPDT, 60 W (30 VDC, 2 A)
Digital inputs	2 x 24 V input (optically isolated)
Video output	1 x HDMI for connecting a 7” smart/CORE-D7 touch display
Power supply	24 VDC ± 10 %
Power consumption	max. 12 W
Material	Polycarbonate (UL94 V-0)
IP rating	IP 20
Dimensions	107.6 x 89.7 x 60.7 mm
Weight	180 g
Temperature range	-40 .. +60 °C
Humidity range	0 .. 100% relative humidity, non-condensing
Pollution degree	2

smart/HUB IoT Gateway, Data logger and Control unit with display

IoT gateway, data logger and control unit smart/HUB-D2	
Type	smart/HUB
Configuration Code	D2
Ethernet	1 x RJ-45
Field bus	1 x RS-485 half-duplex (2-wire)
Relays	2 x SPDT, 60 W (30 VDC, 2 A)
Digital inputs	2 x 24 V input (optically isolated)
Video output	1 x HDMI for connecting a 7“ smart/CORE-D7 touch display
Integrated display	2.4” touch display, 320 x 240 px
Power supply	24 VDC ± 10 %
Power consumption	max. 12 W
Material	Polycarbonate (UL94 V-0)
IP rating	IP 20
Dimensions	107.6 x 89.7 x 60.7 mm
Weight	200 g
Temperature range	-20 .. +60 °C
Humidity range	0 .. 100% relative humidity, non-condensing
Pollution degree	2

Accessories

smart/HUB-485 4 x RS-485 Extension

4 x RS-485 extension	
Type	smart/HUB-485
Power supply	via bus extender
Field bus	4 x RS-485 half-duplex (2-wire)
Material	Polycarbonate (UL94 V-0)
IP rating	IP 20
Dimensions	17.8 x 89.7 x 60.7 mm
Weight	200 g
Temperature range	-40 .. +60 °C
Humidity range	0 .. 100% relative humidity, non-condensing
Pollution degree	2

smart/CORE-D7 7" Touch Display

7“ External touch display smart/CORE-D7	
Type	smart/CORE-D7
Display type	Super Fine TFT (SFT)
Diagonal screen size	7” (177.8 mm)
Display area	149.76 x 93.60 mm
Resolution	1280 x 800 px
Luminance	500cd/m^2
Touch type	capacitive
Backlight	LED - white
Operating voltage	24 VDC ± 10 %
Currrent consumption	180 mA
Connections	1 x HDMI, 1 x USB
Operating temperature	-20 .. +60°C
Humidity range	0 .. 100% relative humidity, non-condensing
Pollution degree	2
Dimensions	approx. 202 x 146 mm
Weight	725 g