

Haze Control

Photometric Converter for optek dual-scattering and absorption sensors



- Factory set zero point
- Drift free factory calibration
- Drift free zero point
- No recalibration
- Process control functions via Remote or PROFIBUS[®] PA
- User defined units (e.g. ASBC, FTU, ppm)
- Correlate process data with laboratory data collected from optek DT9011
- 7 menu languages selectable: German, English, French, Dutch, Spanish, Portuguese and Russian

The Haze Control is a powerful, microprocessor-based photometric converter. The Haze Control is built off the C4000 design, but has been engineered specifically for high precision haze (turbidity) measurements. The Haze Control converter operates with the optek DTF16 (11°/90° scattered light) and additionally with a sensor AF16, AS16 or AS56 (NIR absorption) e.g. to detect yeast pushes.

The menu-based software is easy to use and configure and is available in German, English, French, Dutch, Spanish, Russian and Portuguese.

The high contrast white display is easy to read and remains configurable. The graphic display can show absorbance, turbidity and concentration in real time, and in any unit of measure such as CU, ppm, EBC, FTU and g/l. These measurements may also be displayed as text, bar graphs or trend values.

The Haze Control software includes adjustable signal damping, 16 linearization tables, and advanced calculation capabilities. An additional feature is the secondary zero for additional offset as well as a slope adjustment.

This manual adjustment can be used to compensate for long-term process related disturbances.

An integrated data logger captures vital process information for quality assurance and plant control records.

This data is easily transferred to a PC via an RS232 port.

The Haze Control series converters provide multiple analog and relay outputs for direct measurement and control.



An optional remote card allows process functions such as product switching, ranging, remote zeroing, and hold to be triggered remotely from other process control instruments or systems.

The Haze Control series converters are now available with an optional PROFIBUS[®] PA interface, which fulfills the Application Profile for Process Automation Version 3.01 with amendment 2. Using cyclic as well as acyclic data traffic the measuring results can be read out together with their corresponding information and product specific settings such as limits of the measuring range and the names of the units. The converter has eight product selections that can be independently configured. Each product can be setup with four measurement results, three alarm points, up to eight offset + slope sets and up to sixteen linearization tables. These pre-configured products can be changed locally or via access to an individual register via the bus.



Configuration

Haze Control

Configuration Haze Control	HC4301	HC4321	HC4351	HC4402	HC4422	HC4452
Inputs for optek sensors	3	3	3	4	4	4
mA-Inputs (4-20 mA)	-	2	-	-	2	-
Remote-inputs	-	7	-	-	7	-
PROFIBUS® PA interface	-	-		-	-	
Relay-outputs	3	3	3	3	3	3
Failsafe (active)	1	1	1	1	1	1
mA-outputs	2	2	2	4	4	4
Lamp outputs for optek sensors	1	1	1	2	2	2
Permitted sensor combinations						
1 sensor DTF16	x	x	x	x	x	x
2 sensors DTF16 + AF16				x	x	x
2 sensors DTF16 + AS16				x	x	x
2 sensors DTF16 + AS56				x	x	x



DTF16
Triple beam scattered light optical design
11°/90° scattered light with simultaneous light compensation



AS16
Single Channel Absorption Sensor



AF16
Single Channel Absorption Sensor



AS56
Single Channel Absorption Sensor

Technical Data

Converter Haze Control



Housing:

19"-version for Rack-mounting (front IP40 / rear IP20), 3 U/42 HP

Housing materials:

stainless steel

Display:

LCD-graphic display 240 x 128 pixel, LED-background illuminated
Display-update: 0.5 seconds

1 LED (green): power on

3 LED (yellow): alarm I, II, III

1 LED (red-flashing): lamp failure

Display modes:

Numeric with bargraph, continuous trend-line and others configurable in any combination

Software tools:

- product definition: 8 user-configurable products
- 8 offset + slope sets
- linearization: 16 user-configurable tables
- auto zero: local or remote activated zero
- calibration: scattered light (11° and 90°), mA Input/Output
- damping: selectable symmetric or asymmetric signal damping from 0 to 99.9 seconds
- memory: upon power failure, non-volatile memory retains all configurations and logged data
- password protection: codes for three levels

Data logger:

4 simultaneous results with approx. 25.000 points (resolution max. 1/second), cycle memory

System clock:

accuracy approx. 1 minute / month, battery life about 15 years

Operation:

18 push button keyboard

Linearity (converter):

typically < 0.1 %, max. 0.5 %

Accuracy (converter):

typically < 0.3 %, max. 0.5 %

Language:

English, German, French, Spanish, Dutch, Portuguese, Russian

mA-inputs:

optional 2 x 4 -20 mA, galvanically isolated,
• accuracy: < 0.5 % • resolution: < 0.05 % • load: 200 Ohm

Remote-inputs:

optional 7 x 18 - 29 V DC, typically 6.0 mA, for:

- product choice
- measuring range
- zero adjustment (remote-zero)
- hold

PROFIBUS® PA interface:

optional PROFIBUS® PA profile, version 3.01 with amendment 2; voltage range: 9...32 V; power consumption 18 mA, functionally galvanically isolated to circuits which cannot become dangerously active (SELV / PELV)

optek detector inputs:

3 or 4 inputs for optek sensors, 1 mA to 500 pA

mA-outputs:

2 or 4 x 0/4 - 20 mA (NAMUR)

galvanically isolated, min. 500 V DC

• accuracy: < 0.5 % • resolution: < 0.05 % • load: 0 - 600 Ohm

Relay-outputs:

3 independent software-configurable relay contacts (0 - 50 V AC, 0 - 75 V DC, 0 - 2 A) with status indicator (LED) for alarm or status feedback.

configurable initiation delays: 0 to 999 sec.

Failsafe:

1 SPDT contact to alarm in case of lamp or system failure (active)

Lamp outputs:

1 or 2 x lamp supply (4.5 – 8.5 V DC) for optek-sensors

Serial communication:

RS232 bi-directional interface

Ambient conditions:

during operation (no direct light):

-converter: -10 °C to +55 °C (+14 °F to +131 °F)

-with housing S19-42: -20 °C to +45 °C (-4 °F to +113 °F)

-with housing B19-42: -10 °C to +40 °C (+14 °F to +104 °F)

-transport: -20 °C to +70 °C (-4 °F to +158 °F)

EN 61010-1 / 2002-08 / class 2 / category II

Internal operating temperature:

-20 °C +75 °C (-4 °F to +167 °F)

Power Supply (fixed):

115/230 V AC selectable or 24 V AC/DC

Power consumption:

max. 50 VA

Cable length:

up to 1312 ft. (400 m), depending on sensor

Certificates:

ISO 9001:2000, GS, CE

Use with DTF16, AF16, AS16- and AS56-series sensors and probes!

Options

IP65-version

for front panel mounting with gasket IP65 front side

T19-42

portable table top housing front IP40 / rear IP20

B19-42

polymere enclosure for wall mounting, IP66

S19-42

stainless steel enclosure for wall mounting, IP65

PC-Transfer Software

Software Haze Control PC-Transfer and manuals on CD-ROM

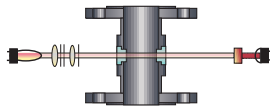
PROFIBUS® PA

PROFIBUS® PA profile, version 3.01 with amendment 2



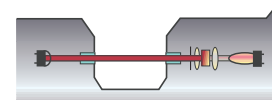
Turbidity • Color • Concentration

PROFI
BUS



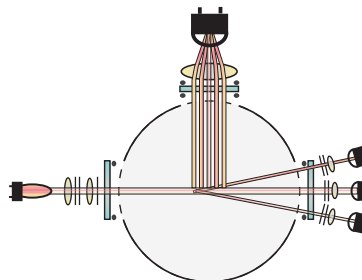
Sensor AF16

VIS and NIR Absorption, Single Channel
Concentration and Color Measurement



Probe AS16/AS56

VIS and NIR Absorption, Single Channel
Concentration and Color Measurement




DTF16

Triple beam scattered light optical design
11°/90° scattered light with simultaneous light
compensation



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