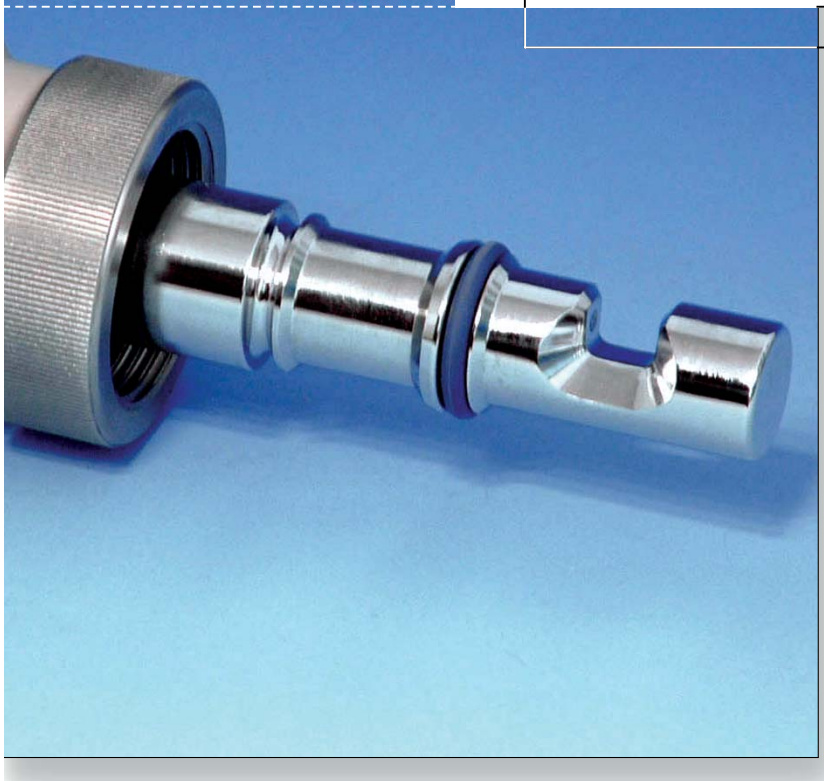
GEA
Process Equipment
Division

Tuchenhagen

VARINLINE®-In-Line Switches

Series TQSB

Phase separation reduces product losses . . .



In process plants of the food and beverage industry different liquids flow through pipelines one after another, i.e. during media push-out or during product changeover. A fast and reproducible detection of the precise switching point in the interphase is crucial to

- **reduce product losses**
- **ensure product quality**
- **reduce waste water loading**

i.e. in breweries

Water	Beer unfiltrated	TQSBK	TQSBY
Water	Beer filtrated		TQSBY
Beer pale	Beer dark		TQSBY
Beer	Yeast	TQSBK	
Water	Cold wort		TQSBY
Water	Rinsing water	TQSBK	TQSBY
CIP new	CIP used	TQSBK	TQSBY

i.e. in dairies

Water	Milk	TQSBK
Water	Yogurt	TQSBK
Milk 1,5%	Milk 3,5 %	TQSBK
Water	Rinsing water	TQSBK
CIP new	CIP used	TQSBK

i.e. in fruit juices

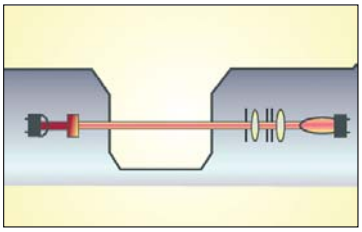
Water	Juice	TQSBK	TQSBY
Juice	Juice	TQSBK	TQSBY
Water	Rinsing water	TQSBK	TQSBY
CIP new	CIP used	TQSBK	TQSBY

i.e. in wineries

Water	Wine	TQSBY
Wine (white)	Wine (red)	TQSBY
Water	Rinsing water	TQSBY
CIP new	CIP used	TQSBY

The Sensor TQSB K resp. Y
is a precise single beam absorption photometer. It measures the attenuation of the light intensity when light passes the process medium. The TQSB sensor, manufactured in stainless steel, is designed for inline operation in process lines and vessels. Its rugged and compact design allows easy adaptation to the process. The measurement head is optimized for sterilization and flow and has a unique window construction from sapphire without sealing.

The sensor **Type K** uses the light in the near infrared (NIR) from 730 till 970 nm for a measurement independent of color changes of the process medium. The sensor **Type Y** uses the light in the visible range (VIS) at 430 nm, this allows a precise measurement of the degree of yellowness of the process medium.

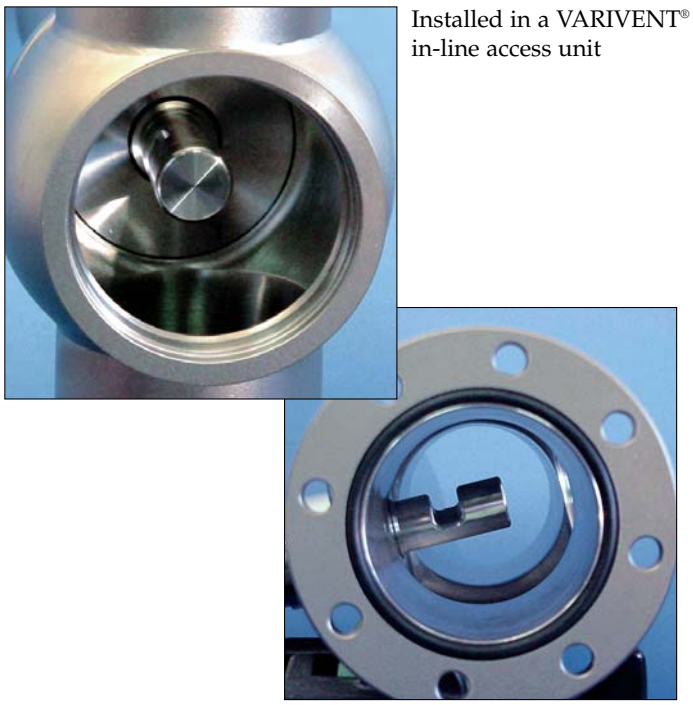


The Converter TQSB
detects from the photo-current changes in the light intensity in the sensor. The resulting output signal is proportional to the concentration of substances in the process medium. Two independent setpoints and a mA-output are available for alarm and monitoring. An additional relay output (FAIL-SAFE) is built-in for remote sensing of lamp or power failure. The basic calibration is carried out in concentration units (CU). One CU is defined as the negative decadic logarithm of the light intensity. Or in other words, an increase of 1 CU corresponds to an attenuation of the light by 90 %. These units can be easily converted and also displayed in different units (i.e. EBC or FTU).

Technical Data – In-Line Switch TQSB

Sensor TQSB

Process temperature	0 - 80°C (32 - 176°F) peak: 0 - 100°C (32 - 212°F)
Ambient temperature	0 - 40°C (32 - 104°F)
Process pressure	10 bar
Windows	Sapphire (without sealing)
OPL	5 mm
Gaskets	EPDM (FDA)
Material	1.4435 (316L) wetted parts electropolished R_a < 0,8 µm 1.4571 (316 Ti) (housing)
Process connection	25 mm (Ø 25 H7)
Insertion depth	40 mm
Cable lengths	10 m (30 ft.)
Light source	approx. 2 - 3 years lifetime
Protection	IP65
Wavelengths	**TQSB/K**: NIR 730-970 nm **TQSB/Y**: VIS 430 nm



Installed in a VARIVENT® in-line access unit

Technical Data

Converter TQSB

Measuring ranges	4 (0 - 0,5 ... 4 CU)
mA-output:	4 - 20 mA (galv. isolated/0-500 Ω)
Display	LED, 3-digits
Alarm	2 adjustable SPDT contacts
Alarm setting	in 1% steps of the measuring range
FAIL-SAFE	1 SPDT contact (active)
Resolution	< 1% of the measuring range
Response time (T90)	1 sec.
Ambient temperature	0 - 50° C (32 - 122°F)
Power supply	115/230 VAC, 47...64 Hz/ 24 V AC/DC (optional)
Power consumption	30 VA
Housing	19" (3HE - 21TE)

Field housing (IP66)

Accessories

- **VARIVENT® In-line access unit**

Metric (DIN 11850)	from DN 50
ISO (DIN EN ISO 1127)	from DN 40
Inch OD	from 2"
Inch IPS	from 2"

- **TQSB VARIVENT® adapter**

- **Field housing stainless steel** (2 x TQSB)
- **Field housing plastic** (1 x TQSB)
- **Field housing plastic** (2 x TQSB)

GEA Tuchenhagen
Process Equipment Division

A company of mg technologies group

Tuchenhagen GmbH · Am Industriepark 2-10 · D-21514 Büchen
Tel.: +49-4155/4924 02 · Fax: +49-4155/4924 28 · fc-sales@tuchenhagen.de · www.tuchenhagen.com

646e-03