Dispensing Valve Type EFC

Electronic Flow Control Valve
EFC the new electronic dispensing valve from AVS-Römer

Motorised dispensing valve for regulating the flow volume of liquids and gases.

The position of the precision throttle, which is connected directly to a linear motor, determines the flow rate.

In conjunction with the proven ELSA push-in connectors made from PPSU, this valve is also used in the food industries.

The control electronics integrated in the valve housing allow the setting of the motor via an analog voltage signal, whereby the flow rate can be adjusted almost continuously.

A set position can also be maintained unpowered due to the stepper motor technology.

Other features:
- less dead space
- materials and constructional design especially optimised for food applications
- low hysteresis
- simple control
- easy connection using ELSA plug-in connector

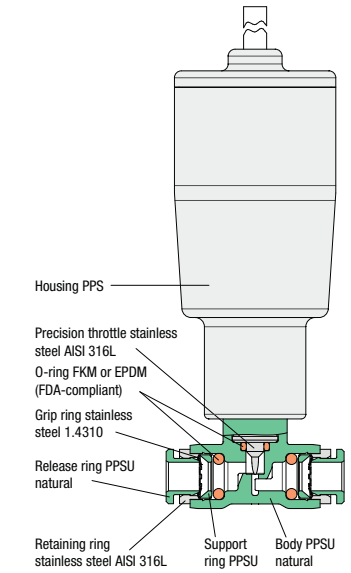
Variations / options:
- other seal materials
- other nominal diameters
- other voltage ranges
- other characteristics of the valve by variation of the stem tip or A/D converter characteristics

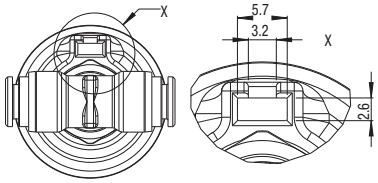
CHARACTERISTICS

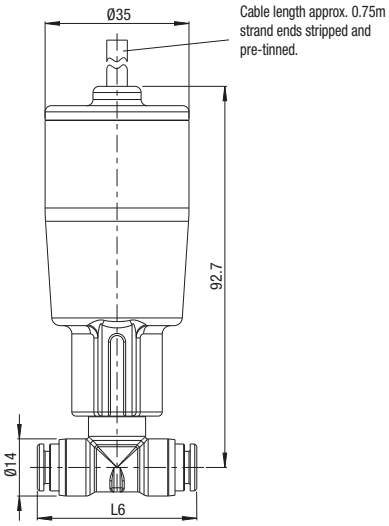
GENERAL	
Constructional design	Motorised precision tapered throttle
Product name	Electronic flow control valve
Product type	EFC-958-P3...-024-10
Nominal diameter	DN 0.5, DN 1, DN 1.5, DN 2 and DN 3
Connection	ELSA push-in connectors for pipe/tube OD 4 or OD 6
Ambient temperature	0°C to +60°C
Medium temperature	0°C to +80°C
Medium viscosity	up to approx. 25 mm^2/s
Body material	PPSU (KTW-approved, NSF-certified)
Spindle material	1.4404
O-ring material	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
Housing material	PPS GF40 (UL94-V0)
Mounting method	via M3 DIN 931 hexagonal bolts in the groove or spring clips with inside diameter 18-22 mm (not included)
Mounting position	Preferably upright
Approval	NSF/ANSI 169
PNEUMATIC - HYDRAULIC	
Nominal pressure	PN 8
Pressure range	0 to 8 bar
Flow rate	KV value, Qnn value according to the table
Medium	Gases or liquids which do not corrode the materials specified.
Contamination	The upstream connection of a filter with a mesh size of 0.1 mm is recommended (e.g. SMF-958-P3-…-100)
Cycle duration	700 ms at 30% ED (completely open to completely closed or vice versa)
Response time	< 150 ms
Time delay	After adjustment the valve does not respond until after a 400 ms time delay (shorter on request)
ELECTRIC	
Nominal voltage	24 V DC ± 10%
Control signal	Voltage: 0-10 V sampling rate: 100 ms
Power consumption Pmax	Approx. 15 W during adjustment, < 1 W during standing time
Duty cycle	30% ED (corresponds to the proportion of active adjustment time in the overall process time)
Electrical Connection	0.75 m, 4-pin screened cable (LiYCY 4 x AWG 24), strand ends pre-tinned.
Protection class	IP65

Caution! PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!

Illustration







Dispensing Valve, Type EFC

Product group	PN	Amb. temp.	Med. temp.
	8	T_{min} 0°C, T_{max} +60°C	T_{min} 0°C, T_{max} +80°C

NSF COMPONENT

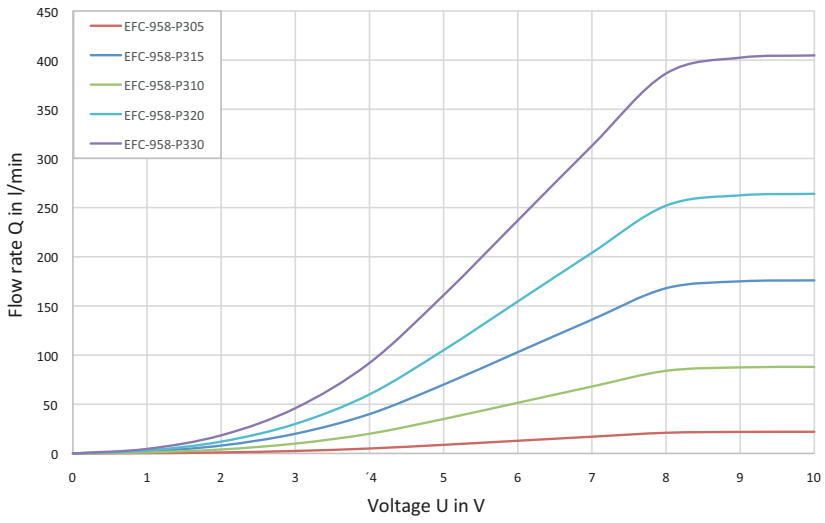
Plastic PPSU

LiCYC 4 x AWG 24

red	+24 V	Supply
black	GND	Supply earth
brown	0-10 V	Control signal
orange	GND	Signal earth
yellow		Cable screen

for tube OD	DN	Kv-value water [l/min]	Qnn value air [l/min]	L6	Sealant material	Type	Order number	Price
4	0.5	0 - 0.25	5-15	38	FKM	EFC-958-P305-4FF-024-10	690531	o. r.
4	0.5	0 - 0.25	5-15	38	EP DM	EFC-958-P305-4PF-024-10	690529	o. r.
6	0.5	0 - 0.25	5-15	39	FKM	EFC-958-P305-6FF-024-10	690527	o. r.
6	0.5	0 - 0.25	5-15	39	EPDM	EFC-958-P305-6PF-024-10	690525	o. r.
4	1	0 - 0.75	5-50	38	FKM	EFC-958-P310-4FF-024-10	690532	o. r.
4	1	0 - 0.75	5-50	38	EPDM	EFC-958-P310-4PF-024-10	690530	o. r.
6	1	0 - 0.75	5-50	39	FKM	EFC-958-P310-6FF-024-10	690528	o. r.
6	1	0 - 0.75	5-50	39	EPDM	EFC-958-P310-6PF-024-10	690526	o. r.
4	1.5	0 - 1.35	5-85	38	FKM	EFC-958-P315-4FF-024-10	690510	o. r.
4	1.5	0 - 1.35	5-85	38	EPDM	EFC-958-P315-4PF-024-10	690507	o. r.
6	1.5	0 - 1.35	5-85	39	FKM	EFC-958-P315-6FF-024-10	690504	o. r.
6	1.5	0 - 1.35	5-85	39	EPDM	EFC-958-P315-6PF-024-10	690501	o. r.
4	2	0 - 1.8	5-120	38	FKM	EFC-958-P320-4FF-024-10	690511	o. r.
4	2	0 - 1.8	5-120	38	EPDM	EFC-958-P320-4PF-024-10	690508	o. r.
6	2	0 - 1.8	5-120	39	FKM	EFC-958-P320-6FF-024-10	690505	o. r.
6	2	0 - 1.8	5-120	39	EPDM	EFC-958-P320-6PF-024-10	690502	o. r.
6	3	0 - 2.4	5-190	39	FKM	EFC-958-P330-6FF-024-10	690506	o. r.
6	3	0 - 2.4	5-190	39	EPDM	EFC-958-P330-6PF-024-10	690503	o. r.

Characteristic Curve: Input Pressure 8 bar, 0-10 V, Medium: Air (open discharge)



Conductivity Sensor, Type ICS

Inline **C**onductivity **S**ensor
ICS the new inline conductivity sensor from AVS-Römer

Inline conductivity sensor for conductivity measurement of liquid media.

The ceramic conductivity measuring cell in conjunction with the established ELSA push-in connectors made of PPSU finds its use primarily in the food industry.

The integrated sensor electronics are temperature-compensated.

Other features:
- minimal dead space
- temperature-compensated evaluation electronics
- materials and constructional design especially optimised for food applications

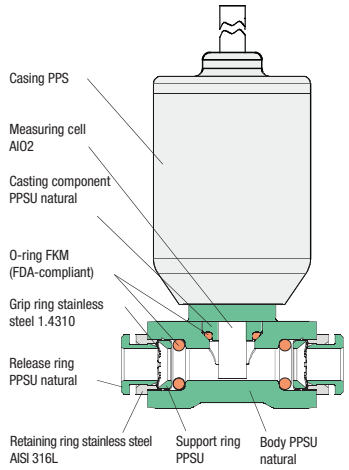
Variations / options:
- other material for seal

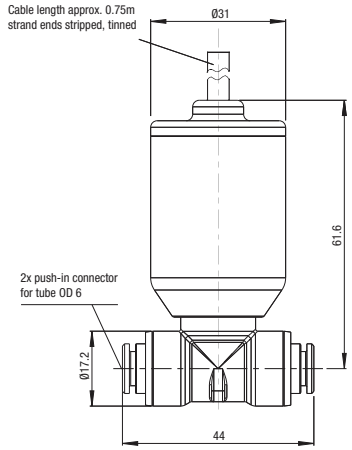
CHARACTERISTICS

GENERAL		
Constructional design	Ceramic conductivity measuring cell	
Product name	Conductivity Sensor	
Product type	ICS-958P3-...	
Nominal diameter	DN 4	
Connection	ELSA push-in connectors for pipe/tube OD 6	
Ambient temperature	0°C to +60°C	
Medium temperature	0°C to +140°C	
Medium viscosity	up to approx. 35 mm^2/s	
Body material	PPSU (KTW- NSF- certified)	
Measuring cell material	Al_2O_3, Pt, glass	
O-ring material	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)	
Mounting method	using spring clip, internal width Ø 30-32 (not included in scope of supply)	
Mounting position	Preferably upright	
Approval	NSF/ANSI 169	
PNEUMATIC - HYDRAULIC		
Nominal pressure	PN 16	
Pressure range	Technical vacuum up to maximum allowable operating pressure OP in accordance with the specification table	
Flow rate	Kv-value in accordance with the specification table	
Medium	Gases or liquids which do not corrode the materials specified	
ELECTRIC		
Supply voltage	9 to 36 V DC	
Conductivity output signal	0 to 5 V DC (linear over the entire measurement range)	
Temperature output signal	0 to 5 V DC (linear over the entire measurement range)	
Electrical Connection	4-pole screened cable 0.75 m (LiYCY 4xAWG24)	
Protection class	IP65	
MEASURING CELL	Conductivity	Temperature
Measuring range	0.2 to 20 mS/cm	0 to 140°C
Accuracy	± 2% F.S.	± 1°C
Temperature error	± 1% F.S.	-
Response time	< 1 s	< 1 s

Caution! PPSU should not be used in contact with aromatic hydrocarbons, oxidising acids, acetone, chlorinated hydrocarbons, ethers or ketones! Also, PPSU should not be placed directly in contact with anaerobic adhesives!

Illustration





Conductivity Sensor, Type ICS

Product group	PN	Max. Allow. OP at ambient temp.
	16	T_{min} 0°C, T_{max} +60°C

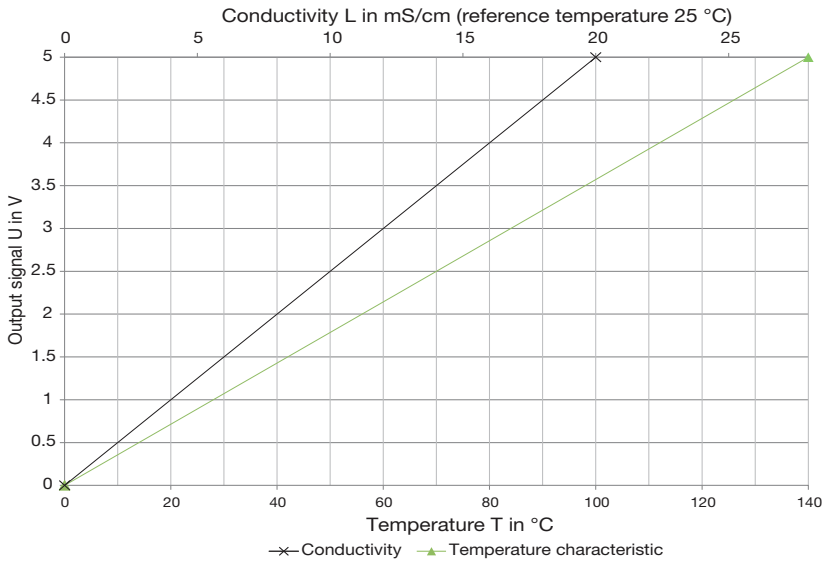
NSF COMPONENT — Plastic PPSU

LiCYC 4xAWG24

black	9-36 V	Supply voltage
brown	GND	Supply earth
red	0-5 V	Temperature output signal
orange	0-5 V	Conductivity output signal
yellow		Cable screen

for tube OD	DN	Kv-value water [l/min]	Allow. OP [bar] at medium temp. 20°C	100°C	140°C	Seal material	Type	Order number	Price
6	4	8.1	16	12	6	FKM (FDA-compliant)	ICS-958P3-6FF	390602	o. r.
6	4	8.1	16	12	6	EPDM (FDA-compliant)	ICS-958P3-6PF	390601	o. r.

Characteristic Curve 0-20 mS/cm or 0-140°C 0-5 V



Pressure Sensor, Type IPS

Inline **P**ressure **S**ensor
IPS the new inline pressure sensor from AVS-Römer

Inline pressure sensor for measuring pressure of liquid and gaseous media.

The ceramic pressure measuring cell combined with the proven ELSA push-in connector made from PPSU is mainly used in the food industries.

Other features:
- minimal dead space
- temperature-compensated elavation electronics
- materials and constructional design especially optimised for food applications

Variations / options:
- other tube connections
- other material for seal
- other pressure range

CHARACTERISTICS

GENERAL	
Constructional design	Ceramic pressure measuring cell
Product name	Inline pressure sensor
Product type	IPS-958P3-...
Nominal diameter	DN 2.5 up to DN 6
Connection	ELSA plug fittings for pipe/tube OD 4 to OD 8
Ambient temperature	0°C to +60°C
Medium temperature	0°C to +140°C
Medium viscosity	up to approx. 35 mm^2/s
Body material	PPSU (KTW-approved, NSF-certified)
Measuring cell material	Al_2O_3
O-ring material	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
Mounting method	by spring clip, internal width Ø18-22 mm (not included in scope of supply)
Mounting position	Preferably upright
Approval	NSF/ANSI 169
PNEUMATIC - HYDRAULIC	
Nominal pressure	up to PN 16 in accordance with the specification table
Pressure range	0 bar up to allowable operating pressure OP in accordance with the specification table
Flow rate	Kv-value in accordance with the specification table
Medium	Gases or liquids which do not corrode the materials specified
ELECTRIC	
Supply voltage	5 V DC
Voltage tolerance	± 10%
Output voltage	0.5-4.5 V DC (ratiometric)
Electrical Connection	0.75 m 3-pole screened cable (LiYCY 3 x AWG 26), strand ends pre-tinned.
Protection class	IP65
ACCURACY	
Total error	± 1.5 % FS
Temperature error zero point	< ± 0.02 % FS/K
Temperature margin of error	-0.012 % FS/K
Response time	< 2 ms

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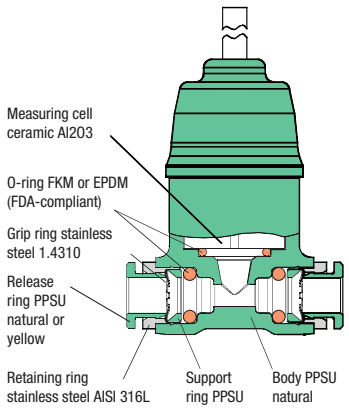
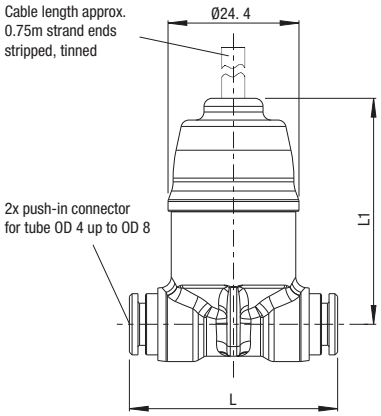
Illustration





Pressure Sensor, Type IPS

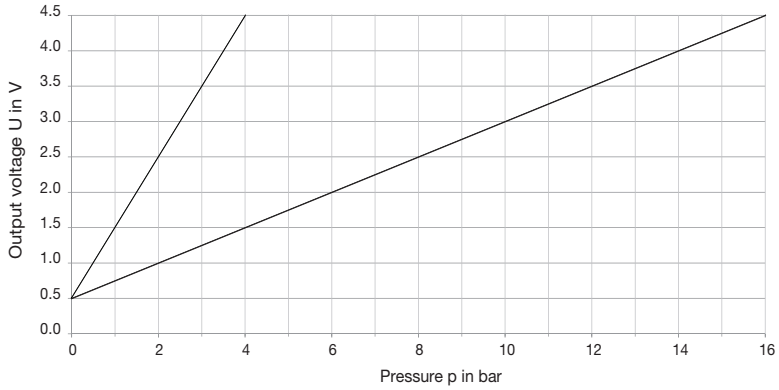
Product group	Max. Allow. OP at ambient temp. T_{min} 0°C, T_{max} +60°C

NSF | Plastic PPSU

LiCYC 3xAWG26			
yellow			Cable screen
black		+5 V	Supply
red		0.5-4.5 V	Output signal
brown		GND	Earth

for tube OD	DN	Kv-value water [l/min]	PN	Allow. OP [bar] at medium temp. 20°C	100°C	140°C	L	L1	Seal material	Type	Order number	Price
4	2.5	2.4	4	4	4	4	38	42	FKM (FDA-compliant)	IPS-958P3-4FF-04	390564	o. r.
4	2.5	2.4	4	4	4	4	38	42	EPDM (FDA-compliant)	IPS-958P3-4PF-04	390565	o. r.
4	2.5	2.4	16	16	12	6	38	42	FKM (FDA-compliant)	IPS-958P3-4FF-16	390553	o. r.
4	2.5	2.4	16	16	12	6	38	42	EPDM (FDA-compliant)	IPS-958P3-4PF-16	390554	o. r.
6	4	8.1	4	4	4	4	39	42	FKM (FDA-compliant)	IPS-958P3-6FF-04	390562	o. r.
6	4	8.1	4	4	4	4	39	42	EPDM (FDA-compliant)	IPS-958P3-6PF-04	390563	o. r.
6	4	8.1	16	16	12	6	39	42	FKM (FDA-compliant)	IPS-958P3-6FF-16	390551	o. r.
6	4	8.1	16	16	12	6	39	42	EPDM (FDA-compliant)	IPS-958P3-6PF-16	390552	o. r.
8	6	24	4	4	4	4	45	43	FKM (FDA-compliant)	IPS-958P3-8FF-04	390576	o. r.
8	6	24	4	4	4	4	45	43	EPDM (FDA-compliant)	IPS-958P3-8PF-04	390577	o. r.
8	6	24	16	16	12	6	45	43	FKM (FDA-compliant)	IPS-958P3-8FF-16	390572	o. r.
8	6	24	16	16	12	6	45	43	EPDM (FDA-compliant)	IPS-958P3-8PF-16	390573	o. r.

Characteristic Curve 0-4 bar or 0-16 bar 0.5-4.5 V (ratiometric)



Temperature Sensor, Type ITS

Inline **T**emperature **S**ensor
ITS the new inline temperature sensor from AVS-Römer

Inline temperature sensor for measuring temperature of liquid and gaseous media.

The ceramic temperature sensor combined with the proven ELSA push-in connector made from PPSU is mainly used in the food industries.

Other features:
- fast response time
- minimal dead space
- materials and constructional design especially optimised for food applications

Variations / options:
- other hose connections
- other materials for seal

CHARACTERISTICS

GENERAL	
Constructional design	Ceramic temperature measuring cell
Product name	Temperature sensor
Product type	ITS-958P3-...
Nominal diameter	2.5 DN or DN 4
Connection	ELSA push-in connectors for pipe/tube OD 4 or OD 6
Ambient temperature	0°C to +60°C
Medium temperature	0°C to +135°C
Medium viscosity	up to approx. 35 mm^2/s
Thermal time constant	< 2 s (water)
Body material	PPSU (KTW-approved, NSF-certified)
Sensor housing material	Al_2O_3
O-ring material	FKM (FDA-compliant) or EPDM (NSF-, KTW-approved)
Approval	NSF/ANSI 169
PNEUMATIC - HYDRAULIC	
Nominal pressure	PN 20
Pressure range	Technical vacuum up to maximum allowable operating pressure OP in accordance with the specification table
Flow rate	Kv-value in accordance with the specification table
Medium	Gases or liquids which do not corrode the materials specified
ELECTRIC	
Electrical Connection	2-pin PVC ribbon cable AWG 24, 0.75 m, UL AWM style 2651, 300 V, 105°C, strand ends pre-tinned

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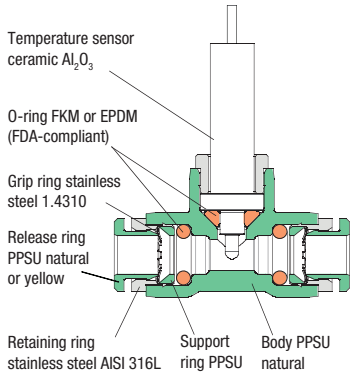
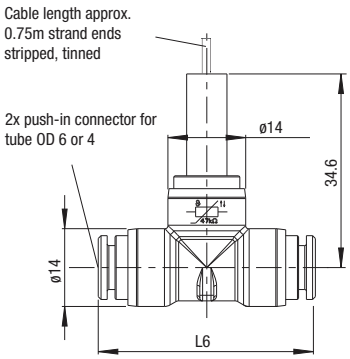
Illustration





Temperature Sensor, Type ITS

Product group	PN 20	Amb. temp. T_{min} 0°C, T_{max} +60°C Med. temp. T_{min} 0°C, T_{max} +135°C	Operating pressure: 0 to max. 20 bar Temperature-dependent	NSF	Plastic PPSU

for tube OD	DN	Kv-value water [l/min]	L6	Sensor-type	Nominal resistance NTC at 25°C Pt100 at 0°C	R Tolerance	B value R25/85	B Tolerance	Sealant material	Type	Order number	Price
4	2.5	2.4	38	NTC	10 kOhm	± 1%	3977 K	± 1%	FKM (FDA-compliant)	ITS-958P3-4FF-NTC10	390517	o. r.
4	2.5	2.4	38	NTC	10 kOhm	± 1%	3977 K	± 1%	EPDM (FDA-compliant)	ITS-958P3-4PF-NTC10	390521	o. r.
6	4.0	8.1	39	NTC	10 kOhm	± 1%	3977 K	± 1%	FKM (FDA-compliant)	ITS-958P3-6FF-NTC10	390518	o. r.
6	4.0	8.1	39	NTC	10 kOhm	± 1%	3977 K	± 1%	EPDM (FDA-compliant)	ITS 958P3-6PF NTC10	390522	o. r.
4	2.5	2.4	38	NTC	47 kOhm	± 1%	3690 K	± 1%	FKM (FDA-compliant)	ITS-958P3-4FF-NTC47	390508	o. r.
4	2.5	2.4	38	NTC	47 kOhm	± 1%	3690 K	± 1%	EPDM (FDA-compliant)	ITS-958P3-4PF-NTC47	390509	o. r.
6	4.0	8.1	39	NTC	47 kOhm	± 1%	3690 K	± 1%	FKM (FDA-compliant)	ITS-958P3-6FF-NTC47	390510	o. r.
6	4.0	8.1	39	NTC	47 kOhm	± 1%	3690 K	± 1%	EPDM (FDA-compliant)	ITS 958P3-6PF NTC47	390511	o. r.
4	2.5	2.4	38	Pt100	100 Ohm	Kl. B	-	-	FKM (FDA-compliant)	ITS-958P3-4FF-PT100	390519	o. r.
4	2.5	2.4	38	Pt100	100 Ohm	Kl. B	-	-	EPDM (FDA-compliant)	ITS-958P3-4PF-PT100	390523	o. r.
6	4.0	8.1	39	Pt100	100 Ohm	Kl. B	-	-	FKM (FDA-compliant)	ITS-958P3-6FF-PT100	390520	o. r.
6	4.0	8.1	39	Pt100	100 Ohm	Kl. B	-	-	EPDM (FDA-compliant)	ITS-958P3-6PF-PT100	390524	o. r.

Characteristic Curve -10 to +135°C 0-250 kΩ