

# Charge amplifier

## 3-Channel submersible

Type 5189A...

Submersible charge amp for 3-comp force sensors with V3 connector for applications in fresh water.

- The Type 5189A\_ charge amp is suitable for the following 3-comp force sensors: Type 9017C, 9027C, 9047C, 9067C, 9077C (sensors are not part of delivery).
- Switchable ranges and reset/operate allow a large field of applications

### Description

The Type 5189 is a submersible and compact 3-channel universal charge amplifier. Packaged in a welded stainless steel housing, it meets the highest requirements and can be used in various applications such as towing tanks, wave tanks, rotating shafts etc. The measuring range can be ordered with 10 000 pC, 30 000 pC or 100 000 pC. Using an electrical contact the amplifier can be operated in a partial range (approx. 10%) for high resolution requirements and allow reset/operate. The cable length and time constants (long and short) can be ordered according to customer requirements.

### Application

The scope of this charge amplifier is in water or underwater measurement applications such as:

- Liquid sloshing tests
- Tow tank tests of ships
- Aircraft ditching
- Rotating application



### Technical data

Type		5189A1	5189A2	5189A3
Range I	pC	10 000	30 000	100 000
Range II	pC	1 050	2 730	10 500
Sensitivity range I	mV/pC	0.45	0.15	0.045
Sensitivity range II	mV/pC	4.23	1.65	0.423

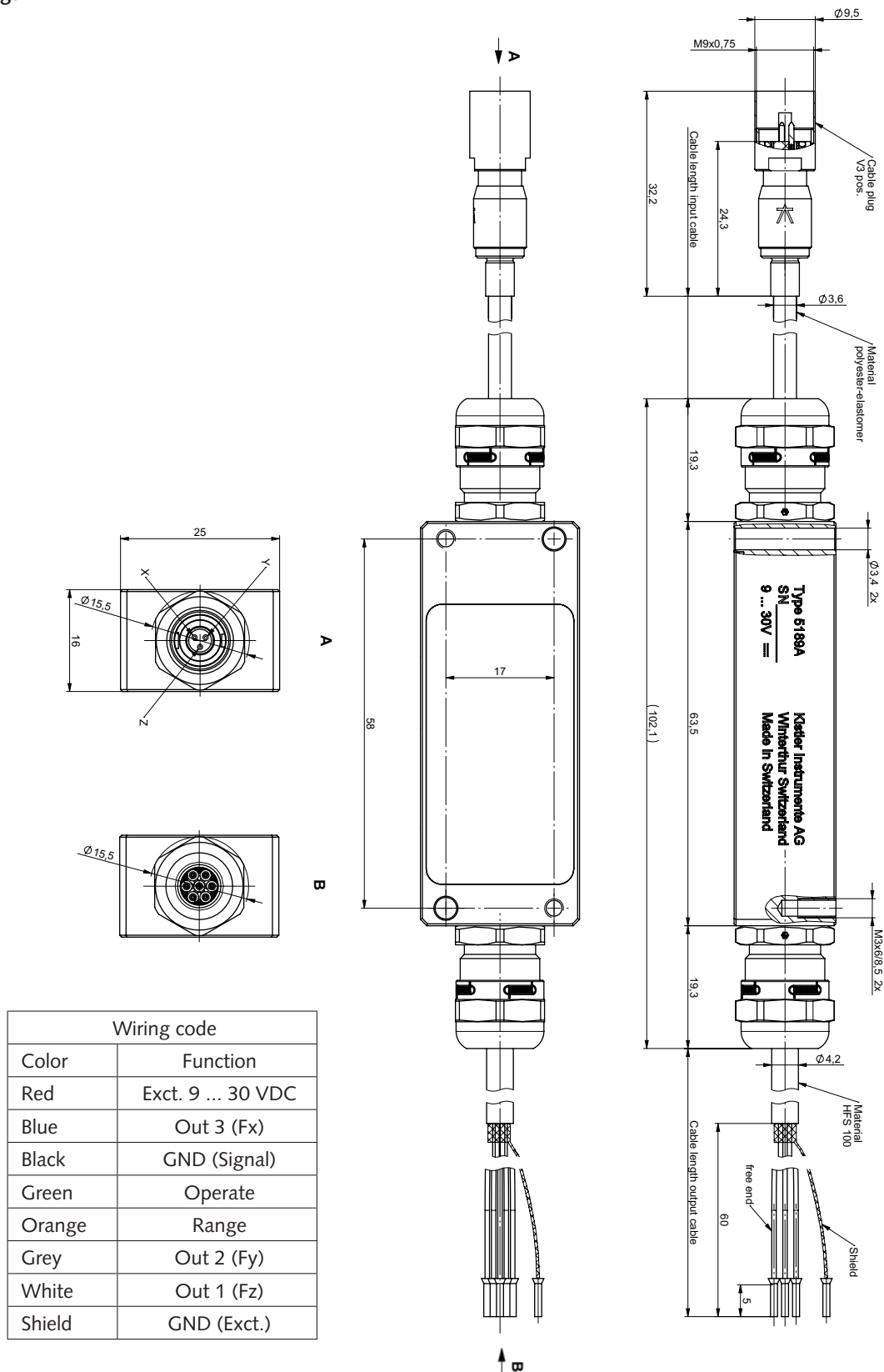
### Charge inputs

Range I	pC	30 000
Range II	pC	12 000
Output voltage nominal	mV	±4 500
Output voltage maximal	mV	≈±5 100
Linearity	±%FSO	≤±0.25
Operating temp. range	°C	0 ... 60
Time constant (Range I)		long
Time constant (Range II)		long or short (0.1 s)
Frequency range (-3dB)	kHz	≥10
Noise (0.1 Hz ... 10 kHz)	mVpp	≤5
Drift range I	mV/sec	0.05/0.025/0.01
Drift range II	mV/sec	0.5/0.2/0.1
Overload range I, II	factor	2/2/1.5
Power supply	VDC	9 ... 30
max. residual ripple (1 Hz-100 kHz)	mVpp	<10
Current consumption	mA	<15

### General data

Diameter output cable	mm	Ø4.2
Mounting torque V3 connector on sensor	N·m	1.5 ... 2
Material housing	EN (AISI)	1.4301 (304)
Protection class (with sensor connected)		IP68 up to 10 bar

Drawings



Wiring code	
Color	Function
Red	Exct. 9 ... 30 VDC
Blue	Out 3 (Fx)
Black	GND (Signal)
Green	Operate
Orange	Range
Grey	Out 2 (Fy)
White	Out 1 (Fz)
Shield	GND (Exct.)

5189A\_003-598e-06.23

**Installation**

The housing can be mounted with zip ties or with 2x M3 threads. Command voltages for range and reset/operate:

**Range and operation mode selection**

Wire color	Low (...)	High (...)
Green	Reset	Operate
Orange	Range II	Range I

**Important:** Reset must be active (low) when switching between ranges.

**Included accessories**

Charge Amplifier

**Type/Mat. No.**

5189A...

**Optional accessories**

Vacuum feedthrough

55243907

**Ordering key**

Type 5189A

**Charge ranges**

Small – 10 000 pC	1
Medium – 30 000 pC	2
Large – 100 000 pC	3
Customer specific*	9

**Time constant low range**

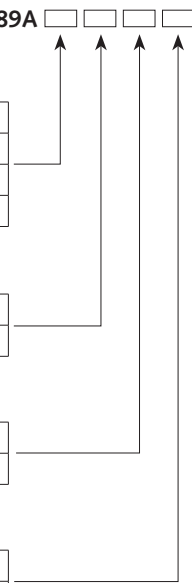
Long	1
Short (0.1 sec)	2

**Cable length input**

1.0 meter	1
Customer specific	9

**Cable length output**

3.0 meter	1
Customer specific	9



5189A\_003-598e-06.23

\* Due to the wide range of configuration options, tailored solutions must be individually adapted to the needs of the customer and cannot be ordered directly. Please contact us for this purpose on our homepage: [www.kistler.com](http://www.kistler.com)