

Charge Amplifier

for Industrial Use

Type 5037B...

This instrument is housed in a rugged, sealed plastic case and can be supplied as a one or three channel version, already adjusted or adjustable in situ (see order designation Page 4).

- Industrial charge amplifier for on-site application
- Rugged, sealed case per degree of protection IP65
- Range can be supplied adjusted to a specific sensor
- Option: Semiconductor reset instead of relay reset
- Conforming to **CE**



Description

The charge amplifier is designed for industrial use and converts the piezoelectric measurement signal into a proportional voltage signal.

The highly sensitive charge input range of ± 20 pC yields a maximum output voltage of ± 10 V.

Application

This industrial charge amplifier is particularly suited in all applications where smallest forces or – in the indirect force measuring – strain with a low measurement signal occur. The version with semiconductor reset (...Y39) is used at high cycle rates. Since no moving parts are in use, the entire measuring system virtually operates maintenance free.

Technical Data

Charge Amplifier

Number of channels		
Type 5037B1...		1
Type 5037B3...Y39		3
Measuring range FS		
adjustable in situ	pC	$\pm 200 \dots \pm 1\ 000$
already adjusted (specify in the order)	pC	$\pm 20 \dots \pm 650\ 000$
Gain, continuously adjustable with potentiometer		
	v	1 ... 5

Connections

Input signal/optional	
BNC neg.	IP60
TNC neg.	IP65
KIAG 10-32 neg.	IP65
Screw connection M13x1 for protective tubing	IP67
Fischer connection plug DBEE 103A015-18	IP60

Interface

Digital Input		
Operate, Measure (Low)	V/mA	<7/1,5
Reset (High or open)	V	>8

General Data

Output signal	V	± 10
Output current	mA	$\leq \pm 5$
Output impedance	Ω	≈ 10
Error, referred to FS = 10 V		
after adjustment	%	<0,2
Linearity	%	<0,2
Noise (0,1 Hz ... 10 MHz)	mV _{pp}	≤ 5
Cable noise	pC _{rms} /pF	$< 2 \cdot 10^{-5}$

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This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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Frequency range (-3 dB, $\leq \pm 200\,000\text{ pC}$) kHz		$\approx 0 \dots > 30$
Drift at 25 °C (typ./max.)	pC/s	$< \pm 0,03 (< \pm 0,07)$
Drift with semiconductor reset ...Y39		
at 25 °C (60 °C)	pC/s	$< \pm 0,1 (< \pm 0,5)$
Power supply	VDC	± 15
Current		
Type 5037B1... +15 V (-15 V)	mA	$\approx 30 (\approx 15)$
Type 5037B3... +15 V (-15 V)	mA	$\approx 80 (\approx 40)$
Working temperature range	°C	0 ... 60
Weight		
Type 5037B1...	g	≈ 180
Type 5037B3...	g	≈ 360
Conformity to EC Directive		
EMC Emission		EN 50081-2
EMC Immunity		EN 50082-1

Installation

The unit is screw mounted by means of four screws. The signal ground is case isolated. The supply ground is connected to the signal ground.

Dimension

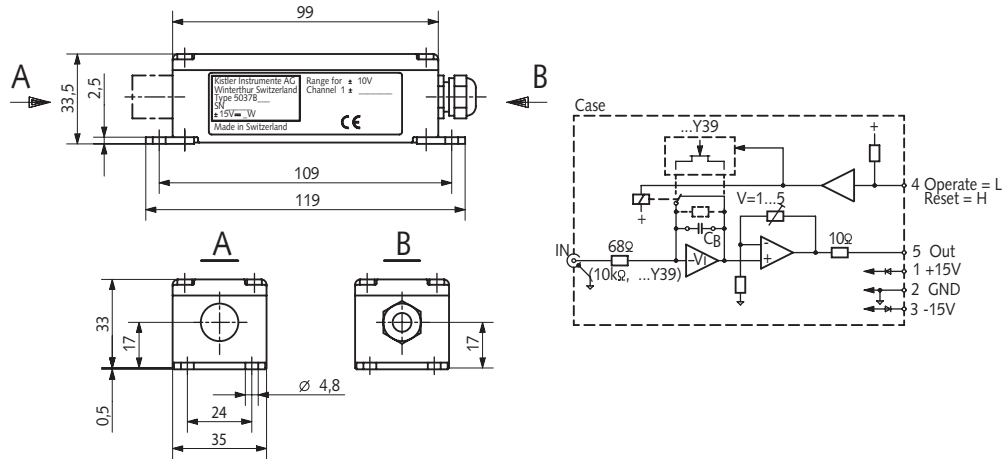


Fig. 1: 1-channel Charge Amplifier Type 5037B1...

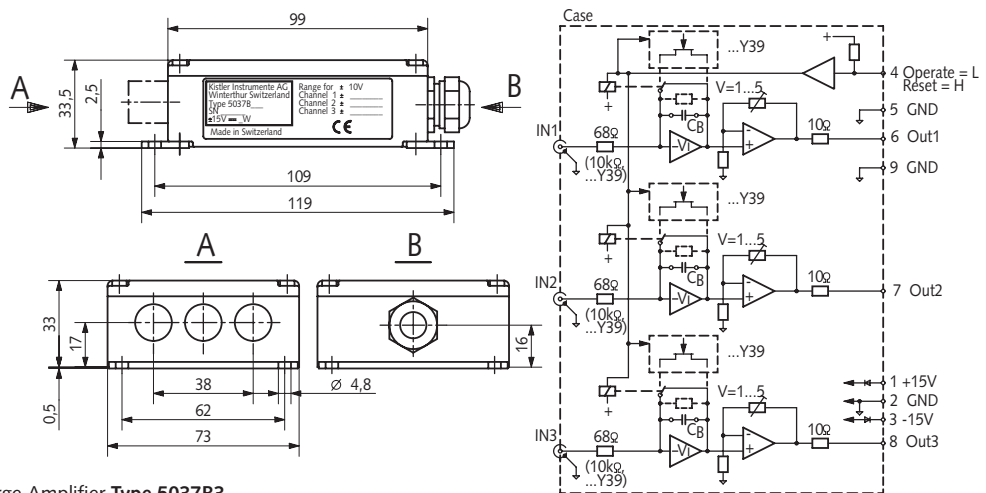


Fig. 2: 3-channel Charge Amplifier Type 5037B3...

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Measuring connections

Input

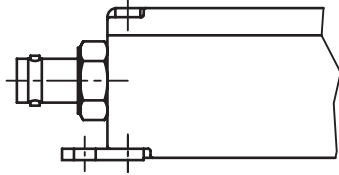


Fig. 3: BNC neg., Type 5037Bxxx1

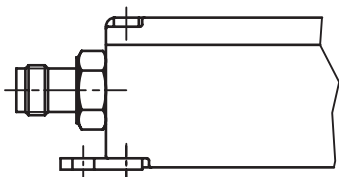


Fig. 4: TNC neg., Type 5037Bxxx2

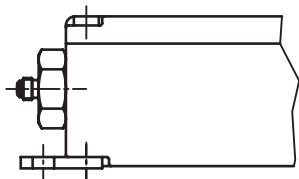


Fig. 5: KIAG 10-32 neg., Type 5037Bxxx3

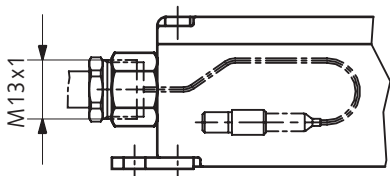


Fig. 6: Mini-coax. pos. – Screw connection M13x1 for protection hose, Type 5037Bxxx4/Typ 5037B3xxx5

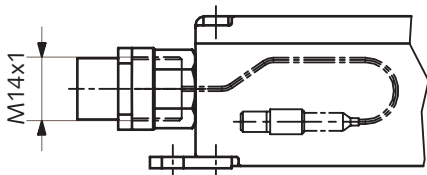


Fig. 7: Fischer connector DBEE103A015-18, Type 5037Bxxx7

Output/Power Reset-Operate

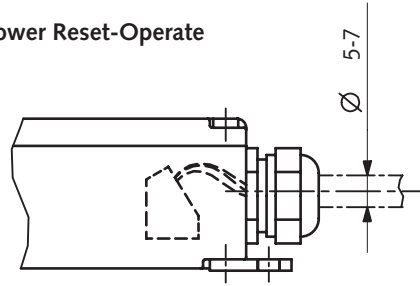


Fig. 8: Terminal screws 1,5 mm²/Screwing PG7, Type 5037B1...

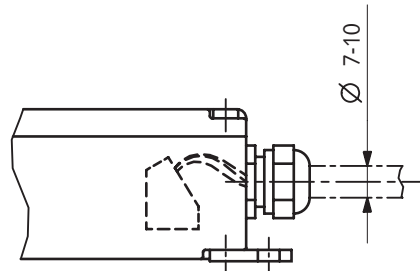


Fig. 9: Terminal screws 1,5 mm²/Screwing PG9, Type 5037B3...

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Included Accessories

- None

Art. No./Type

Optional Accessories

- None

Art. No./Type

Ordering Examples

Example 1

- Charge amplifier, three channels
- nonadjusted, to be adjusted in situ for $\pm 200 \dots \pm 1\,000 \text{ pC} \hat{=} \pm 10 \text{ V}$
- Inputs mini-coax pos., (with 1 screw connection M13x1 for protection hose)
- Semiconductor reset

Type 5037B3115Y39

Example 2

- Charge amplifier, single-channel
- Adjusted for $\pm 15\,000 \text{ pC} = \pm 10 \text{ V}$
- Input BNC neg.
- Semiconductor reset

Type 5037B1211Y39

Example 3

- Charge amplifier, single-channel
- Adjusted to sensor Type ... SN ... for a range of ... (kN, bar, ...) $\hat{=} 10 \text{ V}$
- Input TNC neg.

Type 5037B1212

Ordering Key

		Type 5037B	1	□	□	□	□
1 channel, 1 range		1					
Range							
nonadjusted, to be adjusted in situ		1					
$\pm 200 \dots \pm 1\,000 \text{ pC} \hat{=} \pm 10 \text{ V}$							
calibrated as specified in the order		2					
$\pm 20 \dots \pm 650\,000 \text{ pC} \hat{=} \pm 10 \text{ V}$							
Input Stage of the Amplifier							
MOSFET		1					
Connections for Measured Signal Input							
BNC neg.		1					
TNC neg. (für IP65)		2					
KIAG 10-32 neg.		3					
Mini-coax pos. (with screwing M13x1 for protection hose)		4					
Only Type 5037B3...		5					
Mini-coax pos. (with only one piece screwing M13x1 for protection hose)							
Fischer DBEE103A015-18		7					
Semiconductor reset		Y39					

		Type 5037B	3	□	□	□	□	Y39
3 channels, 1 range/channel		3						
Range								
nonadjusted, to be adjusted in situ		1						
$\pm 200 \dots \pm 1\,000 \text{ pC} \hat{=} \pm 10 \text{ V}$								
calibrated as specified in the order		2						
$\pm 20 \dots \pm 650\,000 \text{ pC} \hat{=} \pm 10 \text{ V}$								
Input Stage of the Amplifier								
MOSFET		1						
Connections for Measured Signal Input								
BNC neg.		1						
TNC neg. (für IP65)		2						
KIAG 10-32 neg.		3						
Mini-coax pos. (with screwing M13x1 for protection hose)		4						
Only Type 5037B3...		5						
Mini-coax pos. (with only one piece screwing M13x1 for protection hose)								
Fischer DBEE103A015-18		7						
Semiconductor reset		Y39						

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