

# ANALOG SENSORS

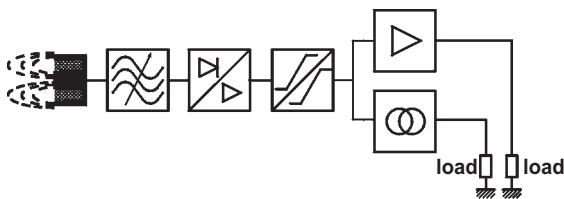
## ■ Features

- Analog sensors give a signal output which is proportional to sensing distance.
- Analog sensors give both a voltage signal 0-10V, and current signal 0-20mA.
- Analog sensors may be used for distance, thickness control of conveyor belts, detection of unevenness, positioning, continuous level-control, max-control with variable hysteresis as well as for counting and control, to name but a few, they are particularly suited for use in measuring techniques and control systems and are PLC-compatible.

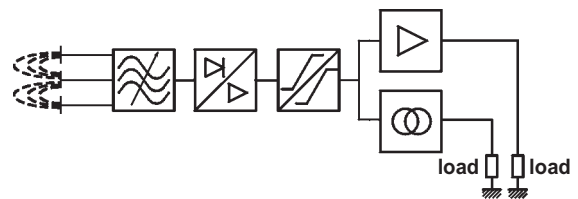
## ■ General

In common with capacitive and inductive sensors the analog sensor also consists of a transistor oscillator. The oscillator current will be influenced by the approach of metals and electric conductive media to the inductive analog sensors or by metals and all non-metals.

### ● Inductive analog sensor



### ● Capacitive analog sensor



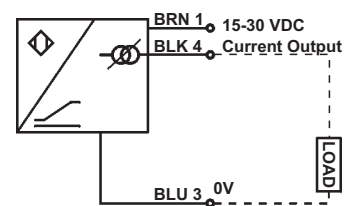
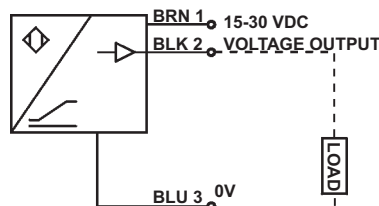
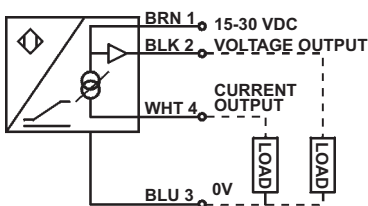
## ■ Control Output

The measured signal will give a voltage output of 0-10V to a load of  $>4.7\text{K}$  or a current output of 0-20mA to a load of 0-200 $\Omega$ . The control outputs of the analog sensor are short circuit proof.

\*: Current and Voltage Output

\*: Voltage Output

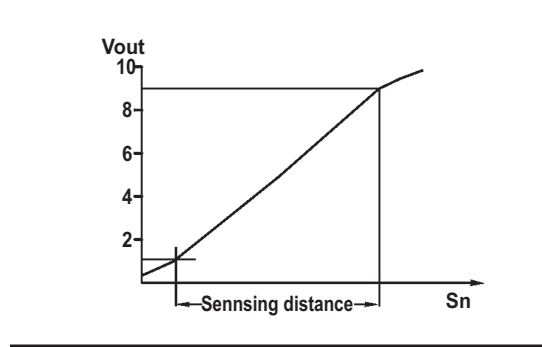
\*: Current Output



# ANALOG SENSORS

## ■ Measurement Range

The measurement range determines over which sensing range a proportional output signal can be given. The measurement range is shown for operation of the analog sensor with a mild steel(ST 37) actuator. The sides of this actuator are equal in length to the diameter of the sensor being utilized. Actuation of an analog sensor with metals other than mild steel will result in a reduced measurement range.



## ■ Linearity

The linearity error of the output characteristic shows the deviation from an ideal straight line between starting and ending values. The linearity is expressed as a percentage error of the measured range final value.

## ■ Reproduceability/Resolution

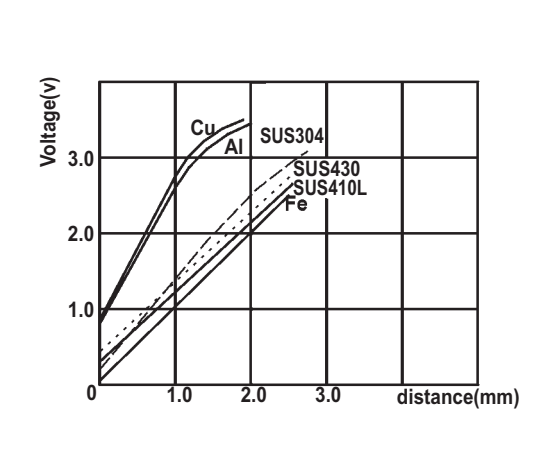
The reproduceability is the deviation between consecutive measurements when the same measurement point is utilized repeatedly. The reproduceability is referenced to constant temperature and supply voltage conditions.

## ■ Temperature Error

The temperature error gives the deviation of the output signal with a constant sensing distance but with varying ambient temperatures. The temperature error is expressed as a percentage of the final value.

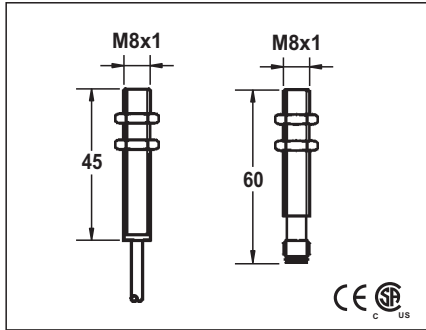
## ■ Output Characteristic Graph for Non-ferrous Metals

The standard sensing object is iron. Note the use of non-ferrous metals may alter the characteristic. Special sensors for non-ferrous metals are also available. For more information please contact factory.

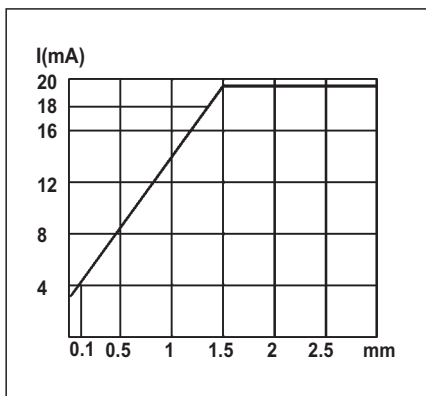


INDUCTIVE CURRENT OUTPUT ANALOG SENSOR

M 8
○
0.1-1.5 mm
Nickel plated brass
○



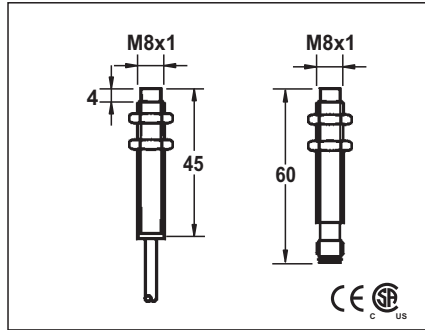
18-30VDC
<10%
<35mA
-
4-20mA/400 Ω Max.
<5%
0.02mm
0°C ~ +50°C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



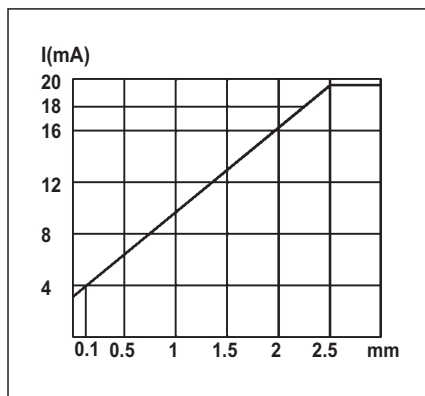
FCM1-081.5G-I3U2	19	FCM1-081.5G-ICU3

4φ 3x0.15	-
approx.40g	approx.15g

M 8
○
0.1-2.5mm
Nickel plated brass
○



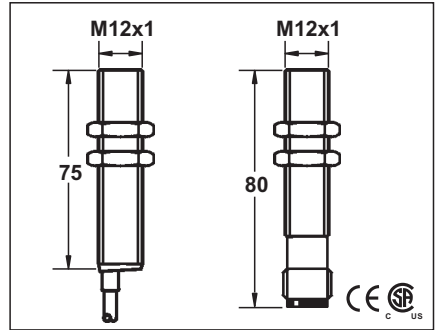
18-30VDC
<10%
<35mA
-
4-20mA/400 Ω Max.
<5%
0.02mm
0°C ~ +50°C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



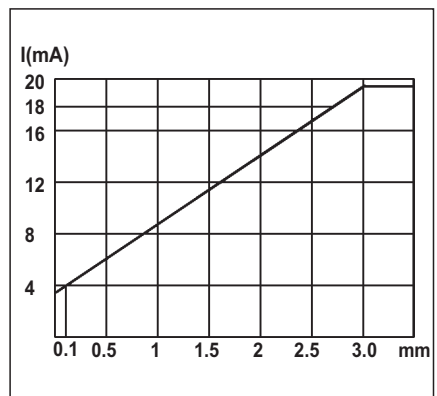
FCM2-082.5G-I3U2	19	FCM2-082.5G-ICU3

4φ 3x0.15	-
approx.40g	approx.15g

M 12
●
0.1-2.5mm
Nickel plated brass
○



18-30VDC
<10%
<35mA
-
4-20mA/400 Ω Max.
<5%
0.02mm
0°C ~ +50°C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

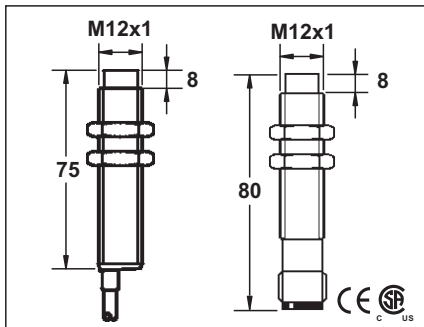


FCM1-122.5G-I3U2	19	FCM1-122.5G-IRU4

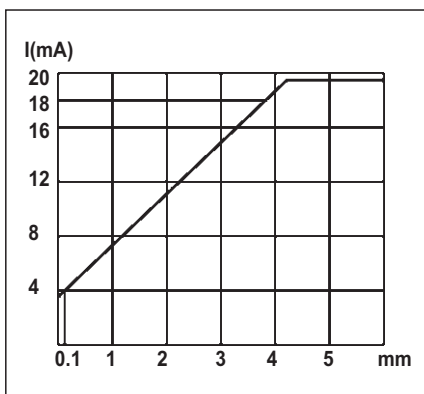
4φ 3x0.15	-
approx.67g	approx.30g

## INDUCTIVE CURRENT OUTPUT ANALOG SENSOR

M 12
○
0.1-4 mm
Nickel plated brass
○



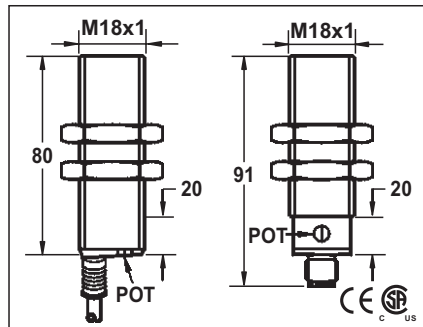
18-30VDC
<10%
<35mA
-
4-20mA/400 Ω Max.
<5%
0.02mm
0°C ~ +50°C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



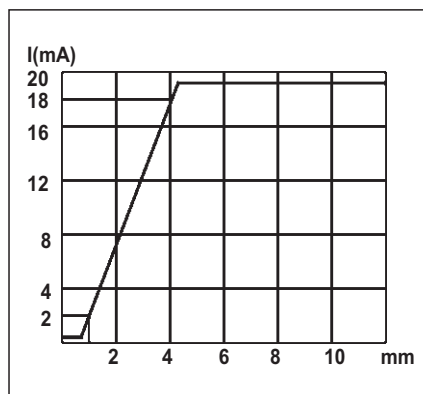
FCM2-1204G-I3U2	19	FCM2-1204G-IRU4

4 φ 3x0.15	—
approx.67g	approx.30g

M 18
●
1-4 mm
Nickel plated brass
○



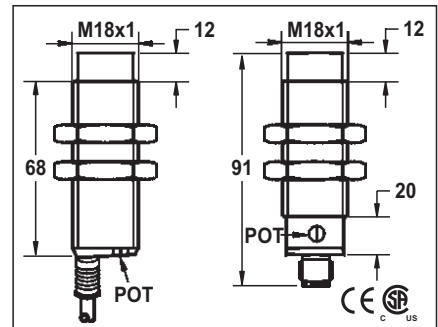
18-30VDC
<10%
15mA
-
0-20mA/200 Ω Max.
<10%(Sr)
0.02mm
0°C-70°C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



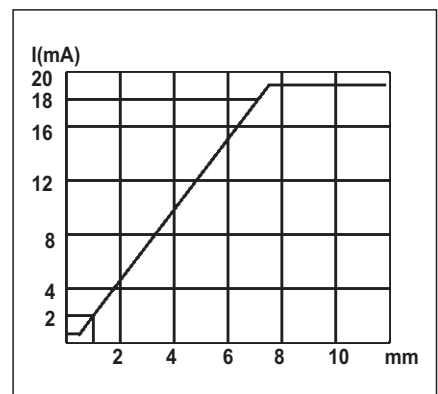
FCM1-1804G-I3U2	19	FCM1-1804G-IRU4

5.0 φ 44x0.1	—
approx.142g	approx.69g

M 18
○
1-7 mm
Nickel plated brass
○



18-30VDC
<10%
15mA
-
0-20mA/200 Ω Max.
<10%(Sr)
0.02mm
0°C-70°C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

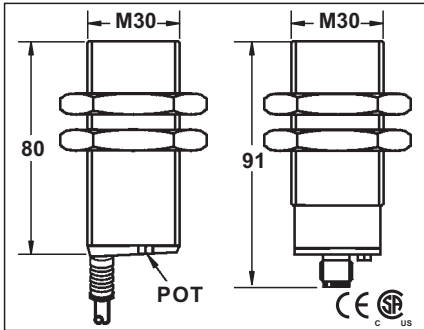


FCM2-1807G-I3U2	19	FCM2-1807G-IRU4

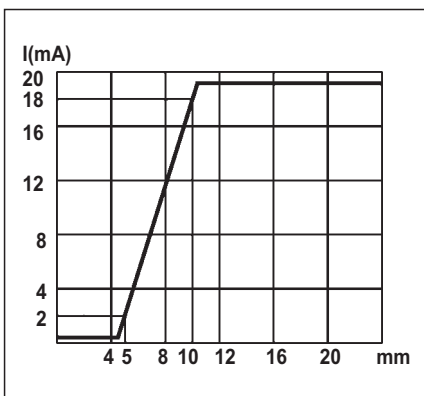
5.0 φ 44x0.1	—
approx.142g	approx.69g

# INDUCTIVE CURRENT OUTPUT ANALOG SENSOR

M 30
●
5-10 mm
Nickel plated brass
○



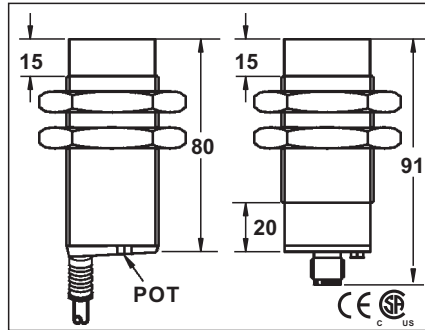
18-30VDC
<10%
15mA
-
0-20mA/200 Ω Max.
<10%(Sr)
0.02mm
0°C-70°C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



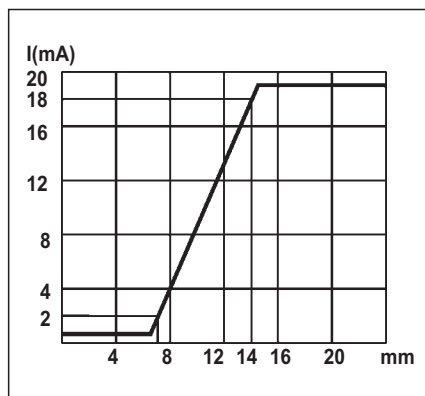
FCM1-3010G-I3U2	19	FCM1-3010G-IRU4


5.8φ3x0.5	—
approx.252g	approx.187g

M 30
○
7-14 mm
Nickel plated brass
○



18-30VDC
<10%
15mA
-
0-20mA/200 Ω Max.
<10%(Sr)
0.02mm
0°C-70°C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

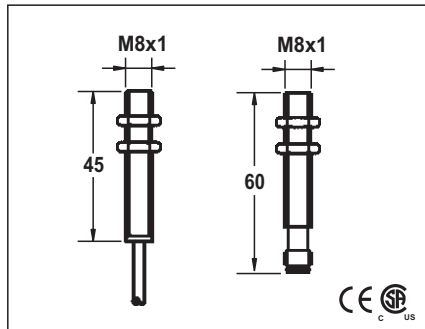


FCM2-3014G-I3U2	19	FCM2-3014G-IRU4


5.8φ3x0.5	—
approx.252g	approx.187g

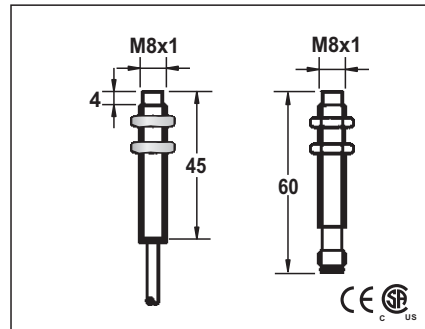
## INDUCTIVE VOLTAGE OUTPUT ANALOG SENSOR

M 8
●
0.1-1.5 mm
Nickel plated brass
○



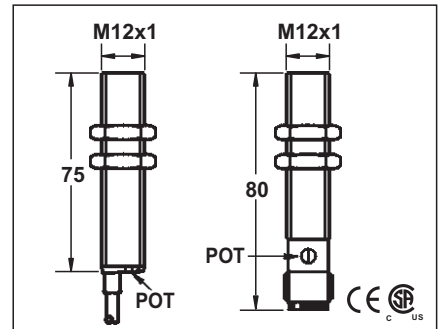
18-30VDC
<10%
<35mA
0-10VDC / ≥2KΩ
-
<5%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

M 8
○
0.1-2.5 mm
Nickel plated brass
○

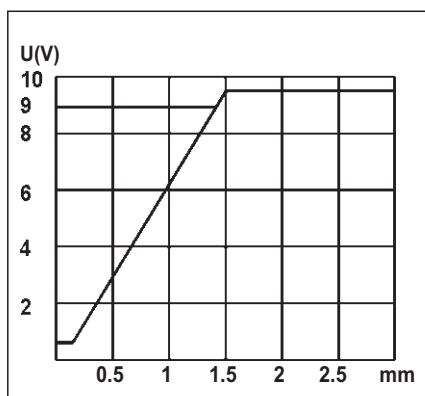


18-30VDC
<10%
<35mA
0-10VDC / ≥2K
-
<5%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

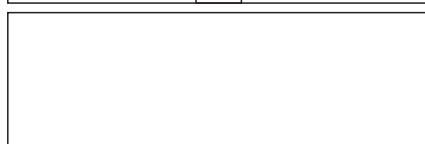
M 12
●
0.3-2.5 mm
Nickel plated brass
○



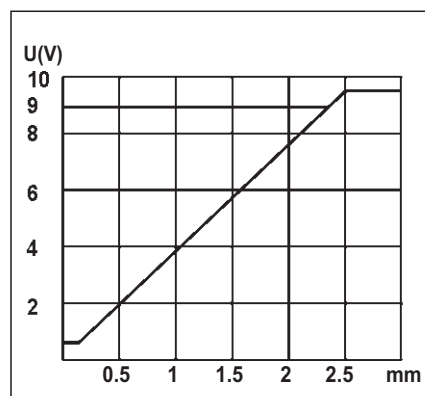
18-30VDC
<10%
<35mA
0-10VDC / ≥2K
-
<5%(Sr)
0.02mm
0 ° C-70 ° C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



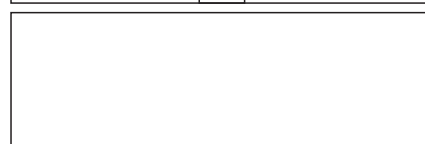
FCM1-081.5G-V3U2	20	FCM1-081.5G-VCU3



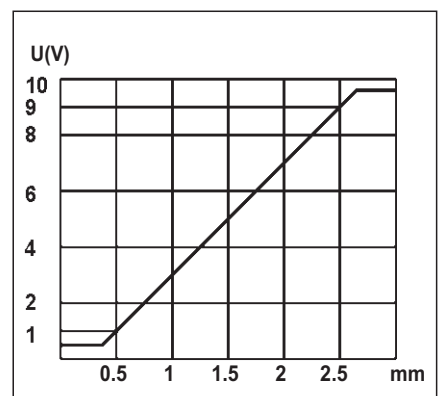
3 φ 3x0.15	—
approx.40g	approx.15g



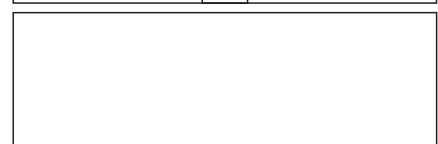
FCM2-082.5G-V3U2	20	FCM2-082.5G-VCU3



3 φ 3x0.15	—
approx.40g	approx.15g



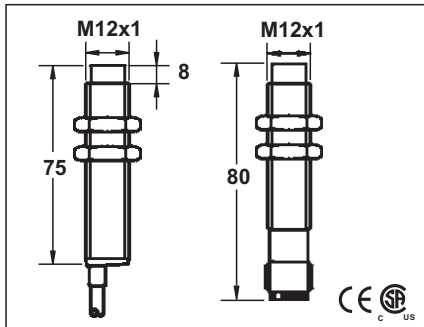
FCM1-122.5G-V3U2	20	FCM1-122.5G-VRU4



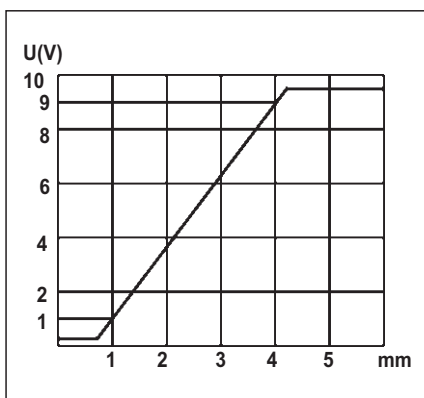
4 φ 3x0.15	—
approx.67g	approx.30g

## INDUCTIVE VOLTAGE OUTPUT ANALOG SENSOR

M 12
○
1-4 mm
Nickel plated brass
○



18-30VDC
<10%
<35mA
0-10VDC / $\geq 2K\Omega$
-
<5%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

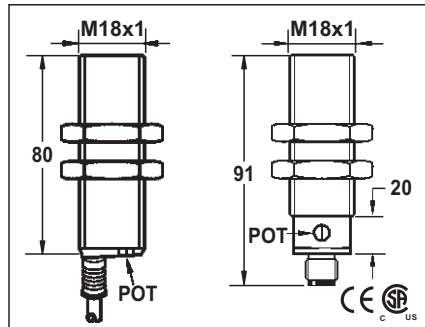


FCM2-1204G-V3U2	20	FCM2-1204G-VRU4

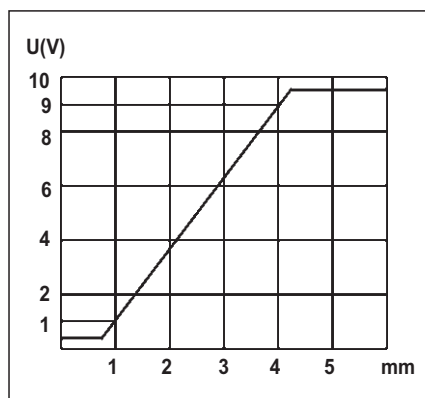
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4 $\phi$ 3x0.15	—
approx.67g	approx.30g

M 18
●
1-4 mm
Nickel plated brass
○



18-30VDC
<10%
15mA
0-10VDC / $\geq 4.7K\Omega$
-
<10%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

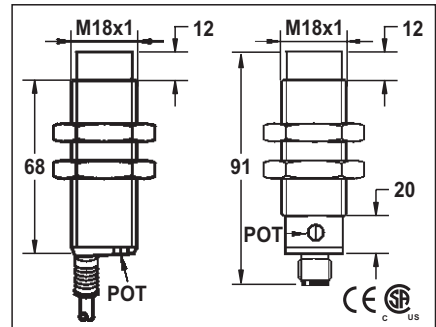


FCM1-1804G-V3U2	20	FCM1-1804G-VRU4

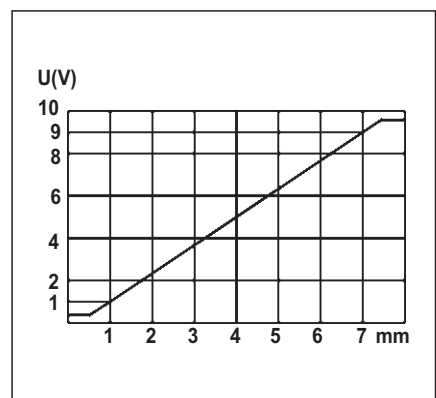
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5.0 $\phi$ 44x0.1	—
approx.142g	approx.60g

M 18
○
1-7 mm
Nickel plated brass
○



18-30VDC
<10%
15mA
0-10VDC / $\geq 4.7K\Omega$
-
<10%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



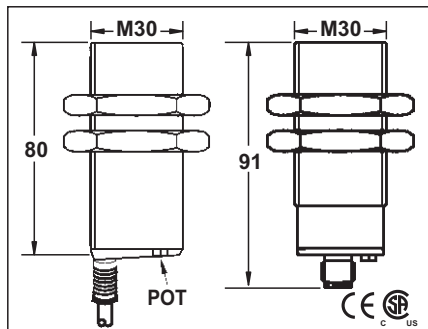
FCM2-1807G-V3U2	20	FCM2-1807G-VRU4

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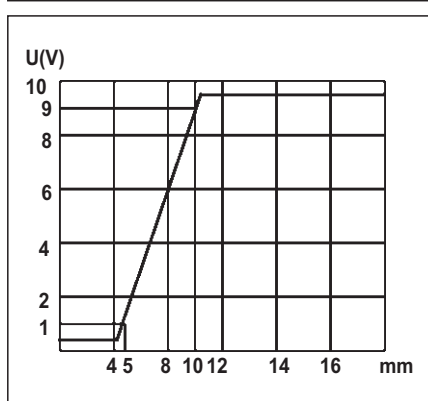
5.0 $\phi$ 44x0.1	—
approx.142g	approx.60g

# INDUCTIVE VOLTAGE OUTPUT ANALOG SENSOR

M 30
●
5-10mm
Nickel plated brass
○



18-30VDC
<10%
15mA
0-10VDC / $\geq 4.7K\Omega$
-
<10%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

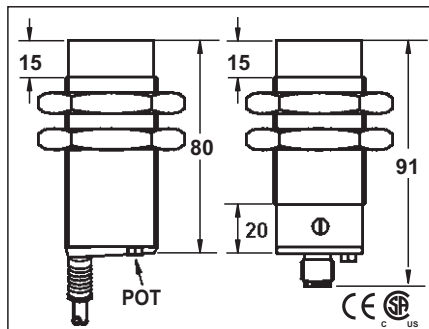


FCM1-3010G-V3U2	20	FCM1-3010G-VRU4

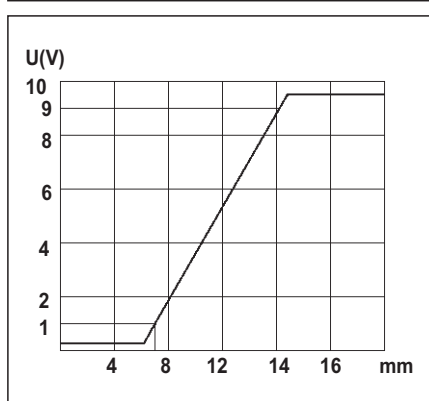
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5.8 $\phi$ 3x0.5	-
approx.252g	approx.110g

M 30
○
7-14mm
Nickel plated brass
○



18-30VDC
<10%
15mA
0-10VDC / $\geq 4.7K\Omega$
-
<10%(Sr)
0.02mm
0 °C-70 °C
5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



FCM2-3014G-V3U2	20	FCM2-3014G-VRU4

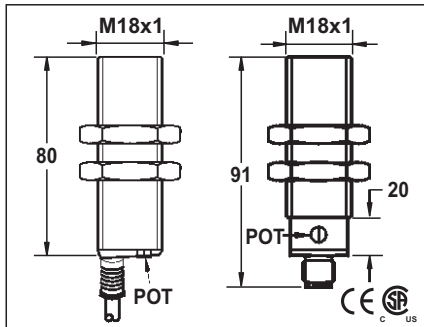
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5.8 $\phi$ 3x0.5	-
approx.246g	approx.110g



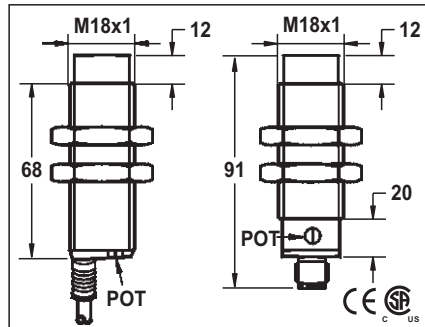
## INDUCTIVE VOLTAGE AND CURRENT OUTPUT ANALOG SENSOR

M 18
●
1-4 mm
Nickel plated brass
○



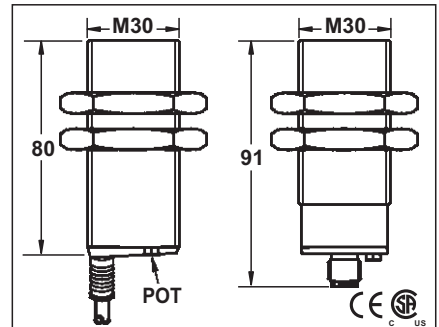
18-30VDC
<10%
15mA
0-10VDC/ $\geq 4.7K\Omega$
0-20mA/0-200
<10%(Sr)
0.02mm
0 °C-70 °C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

M 18
○
1-7 mm
Nickel plated brass
○

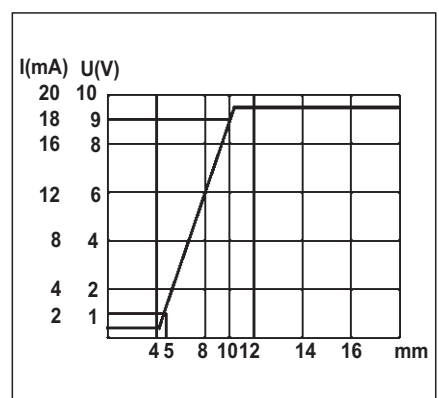
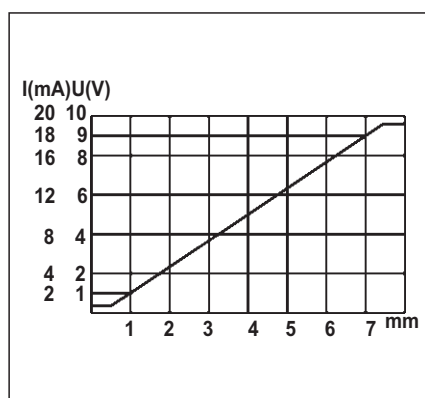
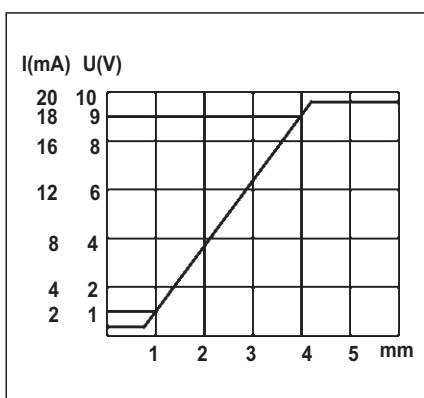


18-30VDC
<10%
15mA
0-10VDC/ $\geq 4.7K\Omega$
0-20mA/0-200
<10%(Sr)
0.02mm
0 °C-70 °C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
30Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

M 30
●
5-10mm
Nickel plated brass
○



18-30VDC
<10%
15mA
0-10VDC/ $\geq 4.7K\Omega$
0-20mA/0-200
<10%(Sr)
0.02mm
0 °C-70 °C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



FCM1-1804G-M4U2	17	FCM1-1804G-MRU4
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FCM2-1807G-M4U2	17	FCM2-1807G-MRU4
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FCM1-3010G-M4U2	17	FCM1-3010G-MRU4
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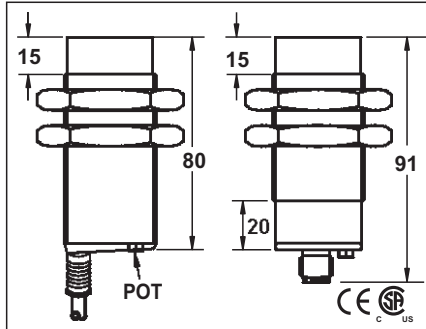
5.0 $\phi$ 44x0.1	—
approx.142g	approx.60g

5.0 $\phi$ 44x0.1	—
approx.138g	approx.58g

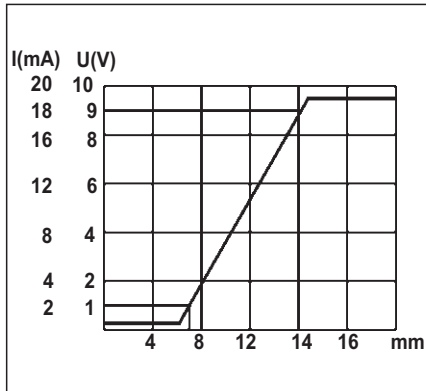
5.8 $\phi$ 4x0.5	—
approx.252g	approx.110g

# INDUCTIVE VOLTAGE AND CURRENT OUTPUT ANALOG SENSOR

M 30
○
7-14mm
Nickel plated brass
○



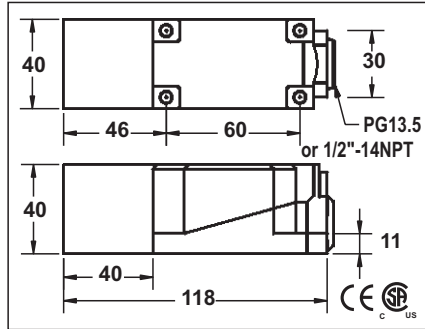
18-30VDC
<10%
15mA
0-10VDC/ $\geq 4.7K\Omega$
0-20mA/0-200
<10%(Sr)
0.02mm
0 °C-70 °C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
30Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



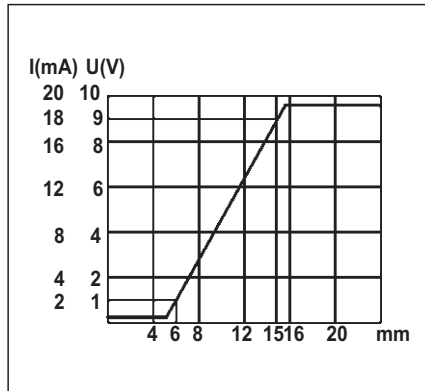
FCM2-3014G-M4U2	17	FCM2-3014G-MRU4
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5.8 $\phi$ 4x0.5	-
approx.246g	approx.110g

Q 40
●
6-15mm
PBT
○



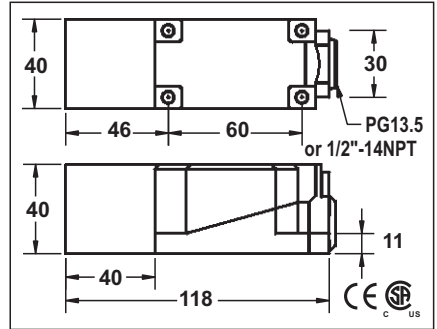
18-30VDC
<10%
15mA
0-10VDC/ $\geq 4.7K\Omega$
0-20mA/0-200
<10%(Sr)
0.02mm
0 °C-70 °C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
100Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



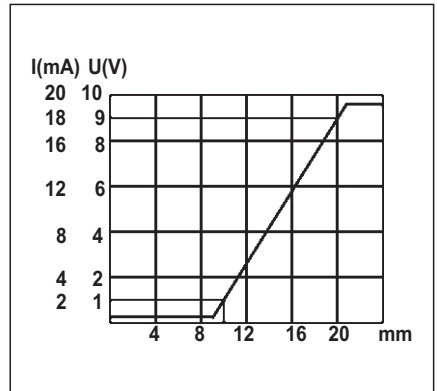
FQP1-4015G-M4U	17
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approx.242g
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Q 40
○
7-20mm
PBT
○



18-30VDC
<10%
15mA
0-10VDC/ $\geq 4.7K\Omega$
0-20mA/0-200
<10%(Sr)
0.02mm
0 °C-70 °C
<5%(Sr)
NO
YES
IP67
PNP-ANALOG
30Hz
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



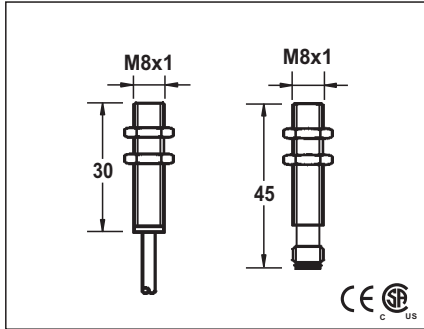
FQP2-4020G-M4U	17
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approx.242g
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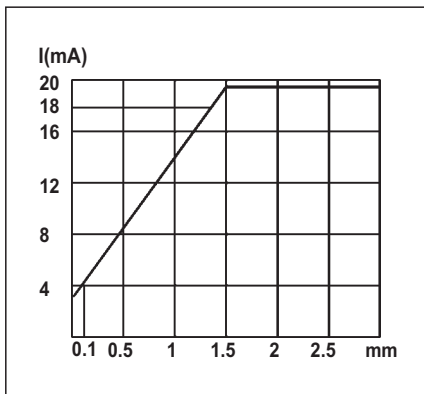


## INDUCTIVE CURRENT OUTPUT SHORT FORM ANALOG SENSOR

<b>M8</b>
●
0.1-1.5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
-
0-20mA/200 Ω Max.
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2, Part 7.4.1 / IEC 60947-5-2, Part 7.4.2
PBT

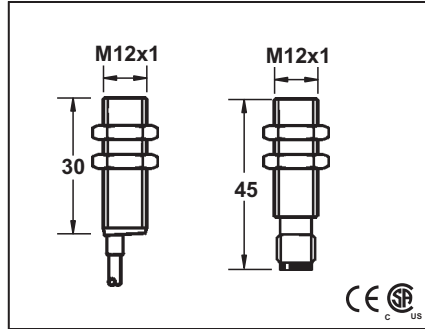


FCM1-081.5G-I3S2	19	FCM1-081.5G-ICS3

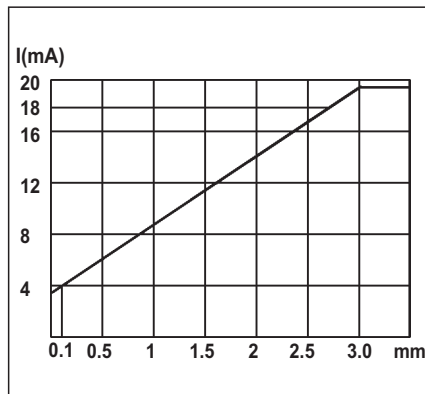
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4 φ3x0.15	-
approx.142g	Approx.69g

<b>M12</b>
●
0.1-2.5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
-
0-20mA/200 Ω Max.
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2, Part 7.4.1 / IEC 60947-5-2, Part 7.4.2
PBT

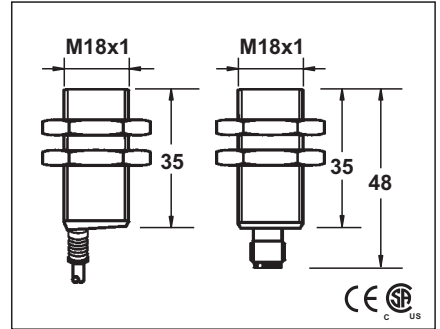


FCM1-122.5G-I3S2	19	FCM1-122.5G-IRS4

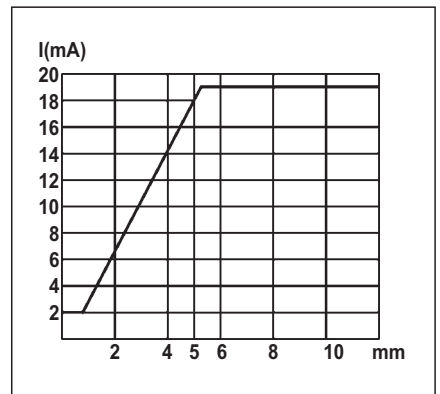
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4 φ3x0.15	-
Approx.132g	

<b>M18</b>
●
1-5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
-
0-20mA/200 Ω Max.
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2, Part 7.4.1 / IEC 60947-5-2, Part 7.4.2
PBT



FCM1-1805G-I3S2	19	FCM1-1805G-IRS4

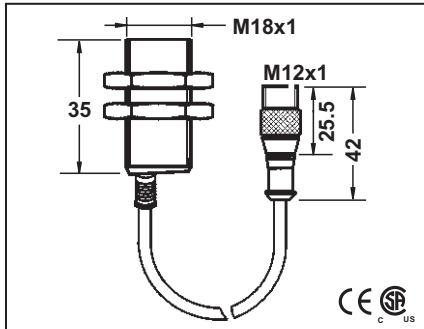
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5.0 φ44x0.1	-
approx.142g	Approx.69g

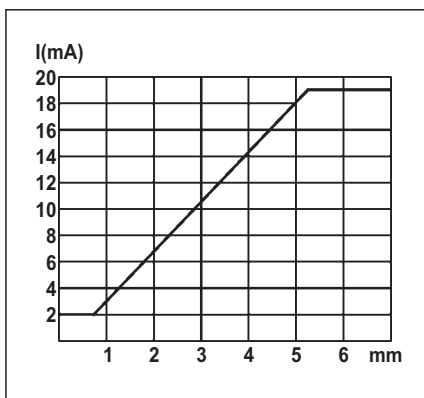
# INDUCTIVE CURRENT OUTPUT SHORT FORM ANALOG SENSOR

## M 18

●
1-5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
-
0-20mA/200 Ω Max.
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



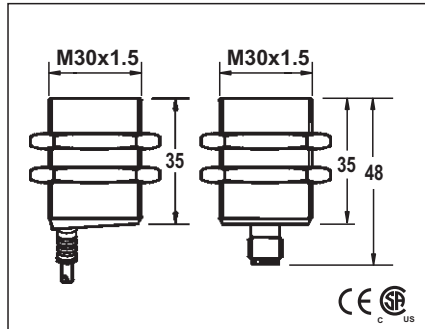
FCM1-1805G-I3S0.2/P	19



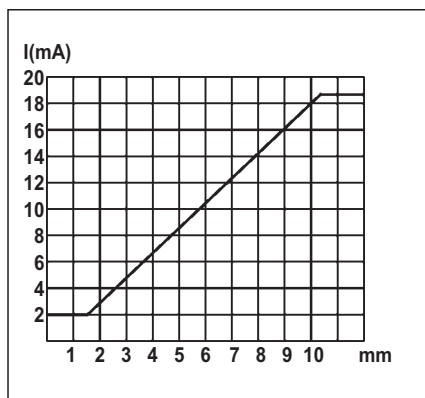
5.0 φ44x0.1
Approx.132g

## M 30

●
2-10 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
-
0-20mA/200 Ω Max.
<10%(Sr)
≤0.24mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



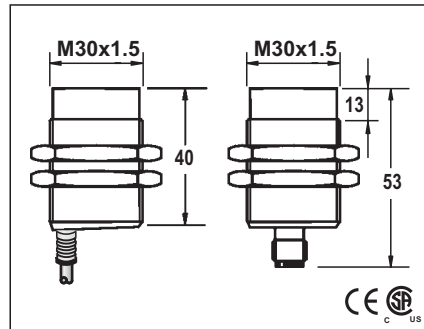
FCM1-3010G-I3S2	19	FCM1-3010G-IRS4



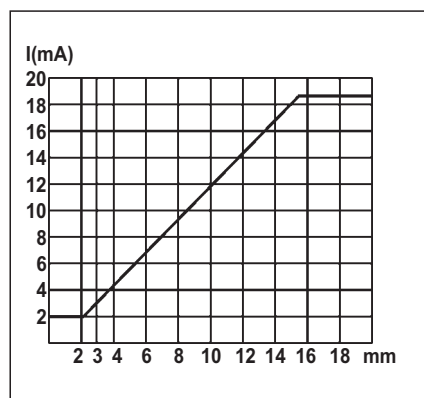
5.8 φ4x0.5	-
Approx.180g	Approx.110g

## M 30

○
3-15 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10mA
-
0-20mA/200 Ω Max.
<10%(Sr)
≤0.24mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



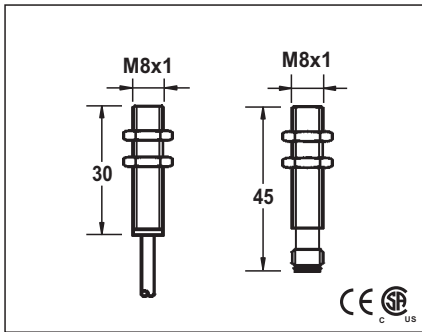
FCM2-3015G-I3S2	19	FCM2-3015G-IRS4



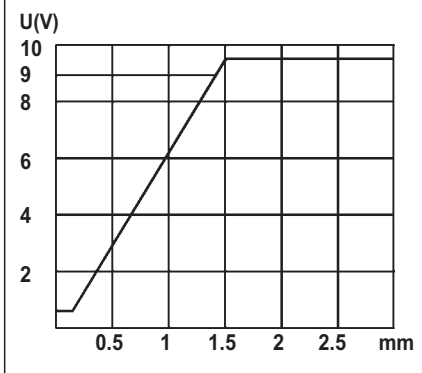
5.8 φ4x0.5	-
Approx.217g	Approx.207g

## INDUCTIVE VOLTAGE OUTPUT SHORT FORM ANALOG SENSOR

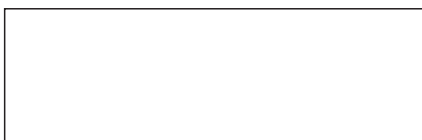
<b>M8</b>
●
0.1-1.5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10mA
0-10VDC / ≥4.7KΩ
-
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

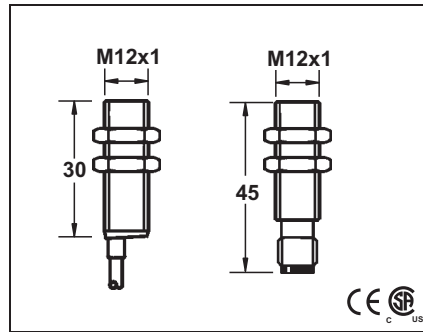


FCM1-081.5G-V3S2	20	FCM1-081.5G-VCS3

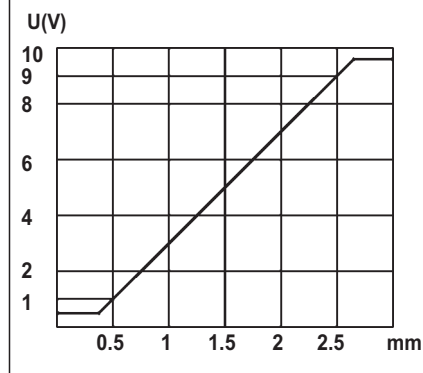


4.0 φ3x0.15	-
approx.142g	Approx.69g

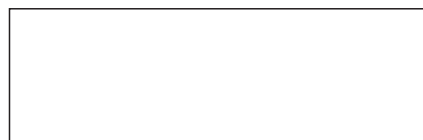
<b>M12</b>
●
0.1-3.0 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
0-10VDC / ≥4.7KΩ
-
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

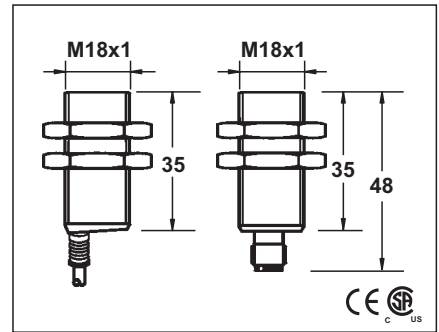


FCM1-1203G-V3S2	20	FCM1-1203G-VRS4

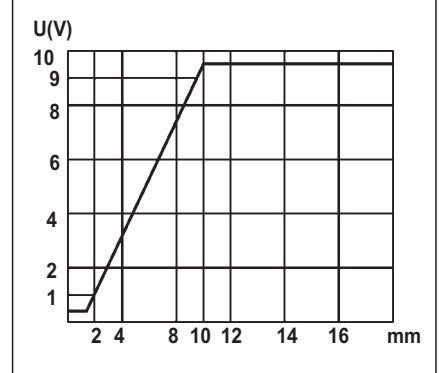


4.0 φ3x0.15	-
Approx.132g	

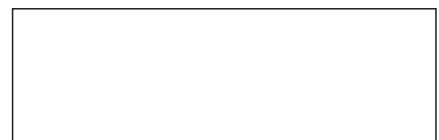
<b>M18</b>
●
1-5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
0-10VDC / ≥4.7KΩ
-
<10%(Sr)
≤0.24mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



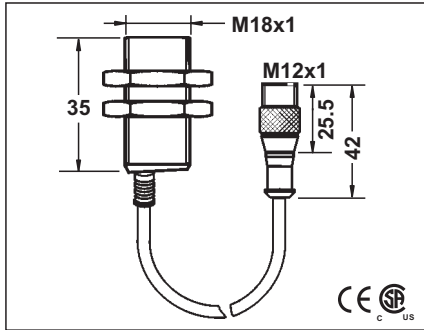
FCM1-1805G-V3S2	20	FCM1-1805G-VRS4



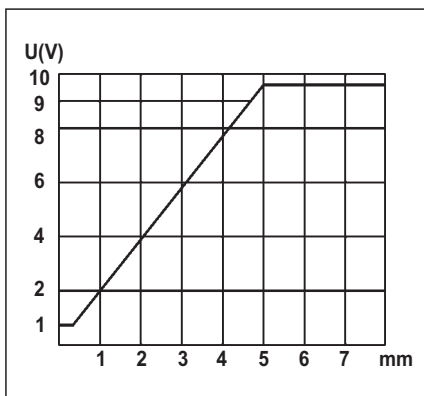
5.0 φ44x0.1	-
Approx.180g	Approx.110g

INDUCTIVE COLTAGE OUTPUT SHORT FORM ANALOG SENSOR

M 18
●
1-5 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
0-10VDC / ≥4.7KΩ
-
<10%(Sr)
≤0.12mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

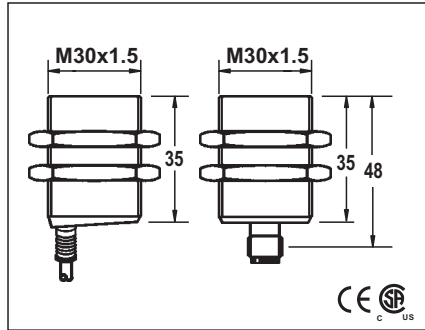


FCM1-1805G-V3S0.2/P	20

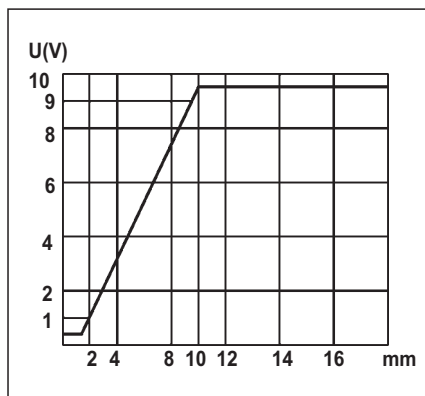


5.0 φ44x0.1
Approx.132g

M 30
●
2-10 mm
Nickel plated brass
○



15-30VDC
≤15%
≤10.0mA
0-10VDC / ≥4.7KΩ
-
<10%(Sr)
≤0.24mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

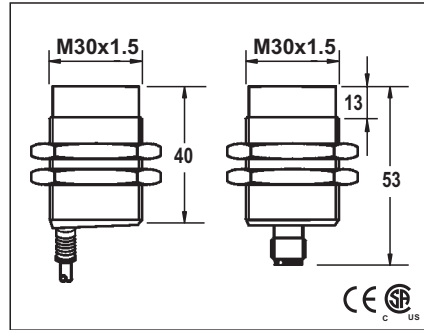


FCM1-3010G-V3S2	20	FCM1-3010G-VRS4

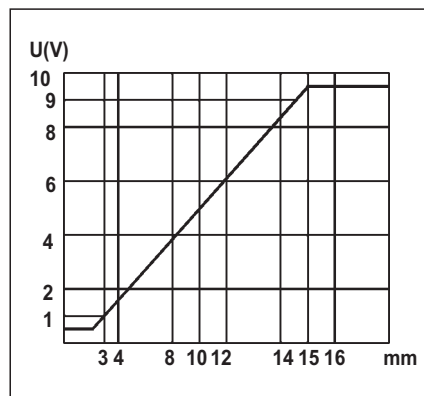


5.8 φ4x0.5	—
Approx.180g	Approx.110g

M 30
○
3-15 mm
Nickel plated brass
●



15-30VDC
≤15%
≤10mA
0-10VDC / ≥4.7KΩ
-
<10%(Sr)
≤0.24mm
-10°C ~ +70°C
<5%(Sr)
YES
YES
IP67
0...10V
500Hz
≤1.0ms
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



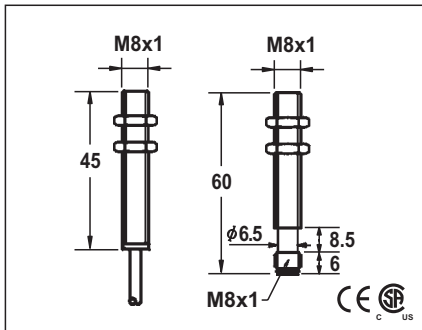
FCM2-3015G-V3S2	20	FCM2-3015G-VRS4



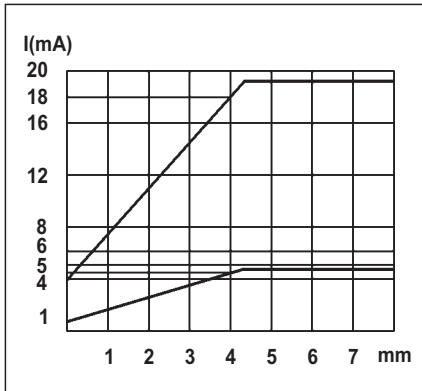
5.8 φ4x0.5	—
Approx.217g	Approx.207g

## INDUCTIVE CURRENT OUTPUT LONG DISTANCE ANALOG SENSOR

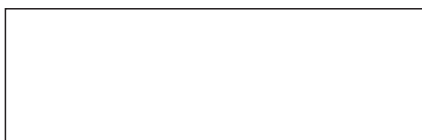
M 8
●
0-4 mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
-
1-5mA/4-20mA 400 Max.
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1.6KHz(at s=2mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV(contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

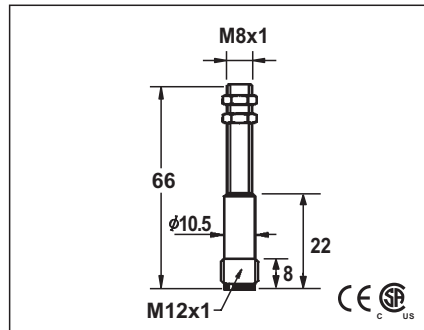


LCM1-0804G-I3U2	20	LCM1-0804G-ICU3

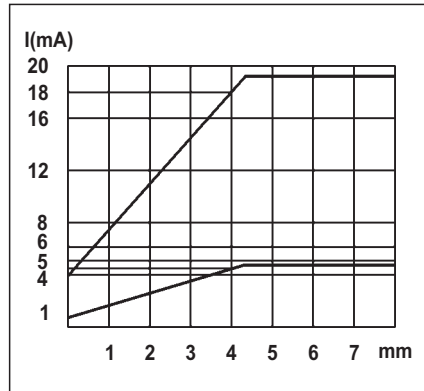


4 φ 3x0.15	—
approx.40g	approx.15g

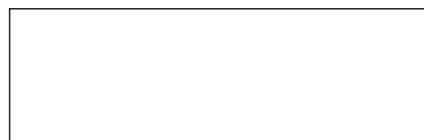
M 8
●
0-4 mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
-
1-5mA/4-20mA 400 Max.
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1.6KHz(at s=2mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV(contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

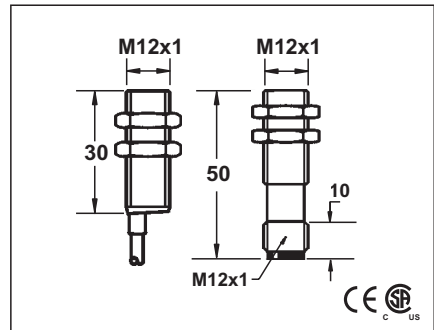


LCM1-0804G-IRU4	20

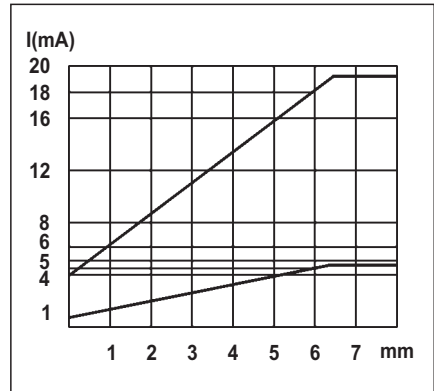


—
Approx.25g

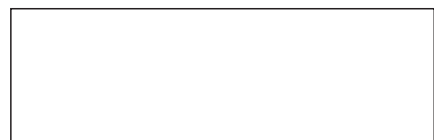
M 12
●
0-6 mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
-
1-5mA/4-20mA 400ΩMax.
<5%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1KHz(at s=3mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV(contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



LCM1-1206G-I3S2	19	LCM1-1206G-IRS4

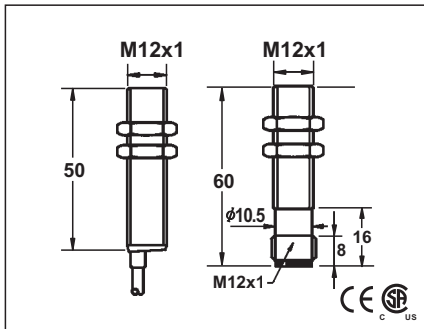


4.0 φ 3x0.15	—
approx.67g	approx.30g

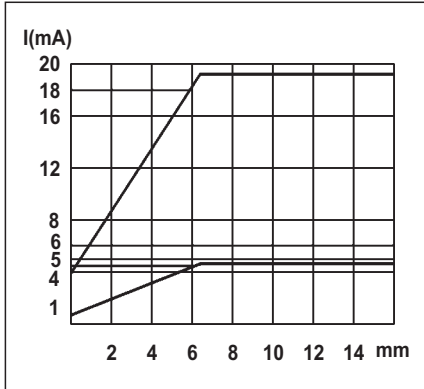


## INDUCTIVE CURRENT OUTPUT LONG DISTANCE ANALOG SENSOR

<b>M 12</b>
●
0-6 mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
-
1-5mA/4-20mA 400ΩMax.
<5%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1KHz(at s=3mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

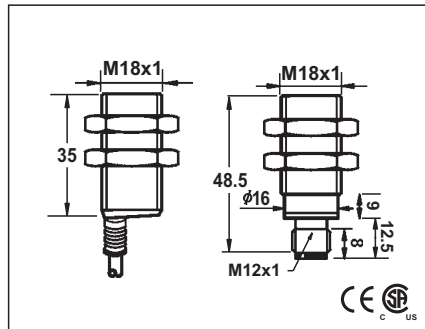


LCM1-1206G-I3U2	19	LCM1-1206G-IRU4

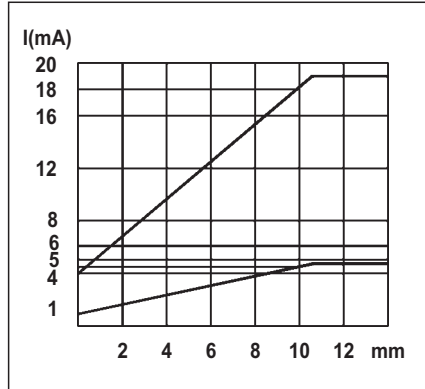


4.0 φ 3x0.15	—
approx.83g	approx.48g

<b>M 18</b>
●
0-10 mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
-
1-5mA/4-20mA 200ΩMax.
<5%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
500 Hz(at s=5mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

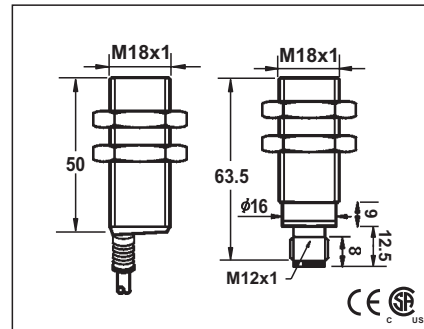


LCM1-1810G-I3S2	19	LCM1-1810G-IRS4

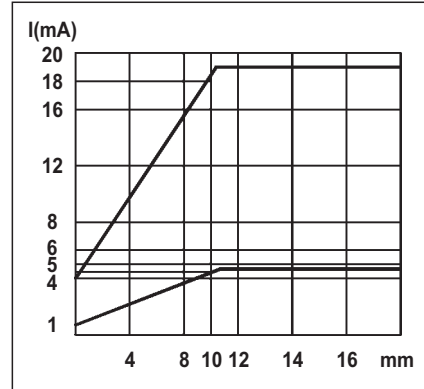


5.0 φ 44x0.1	—
Approx.138g	Approx.58g

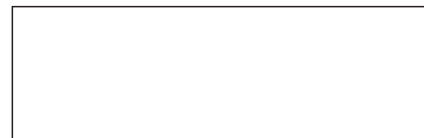
<b>M 18</b>
●
0-10mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
-
1-5mA/4-20mA 200ΩMax.
<10%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
500 Hz(at s=5mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



LCM1-1810G-I3U2	19	LCM1-1810G-IRU4

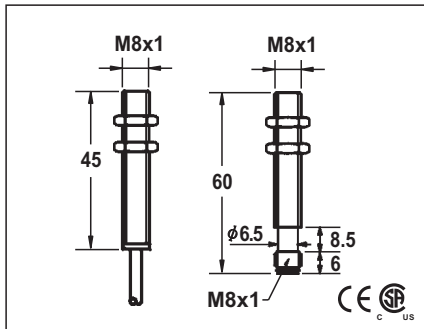


5.0 φ 44x0.1	—
Approx.142g	Approx.69g



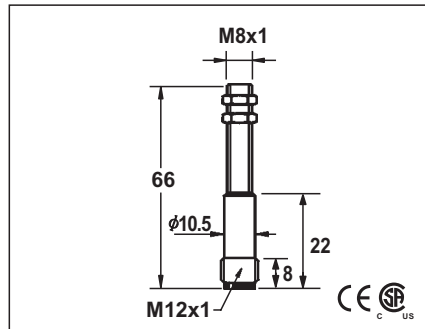
**INDUCTIVE VOLTAGE OUTPUT LONG DISTANCE ANALOG SENSOR**

<b>M 8</b>
●
0-4 mm
Chrome-plated brass
○



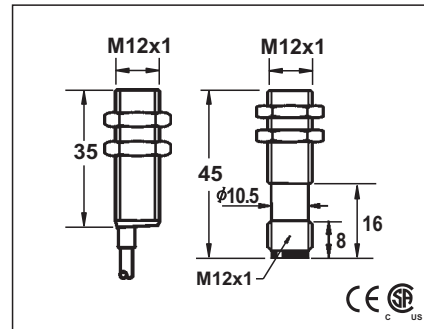
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1.6KHz(at s=2mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

<b>M 8</b>
●
0-4 mm
Chrome-plated brass
○

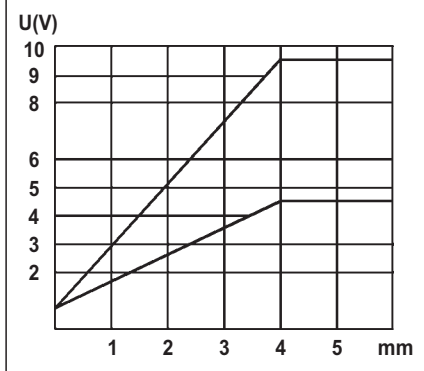


10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1.6KHz(at s=2mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

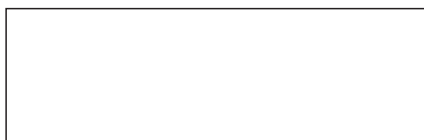
<b>M 12</b>
●
0-6 mm
Chrome-plated brass
○



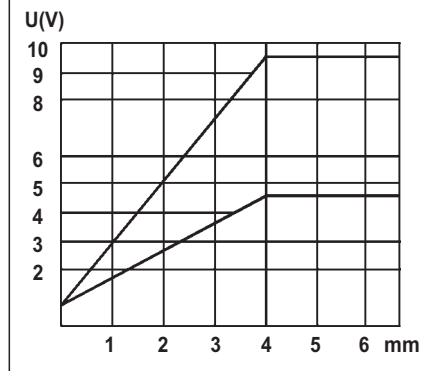
10...30 / 15...30VDC
≤20
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1KHz(at s=3mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



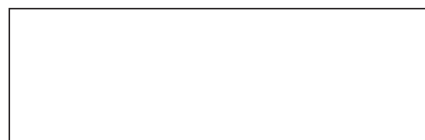
LCM1-0804G-V3U2	20	LCM1-0804G-VCU3



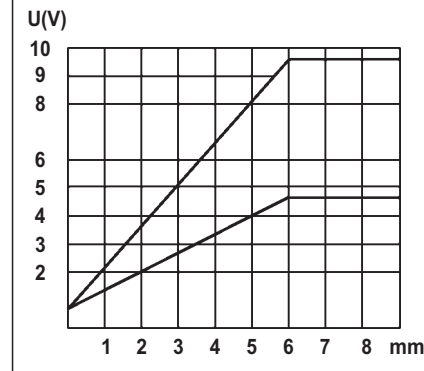
4φ 3x0.15	—
approx.40g	approx.15g



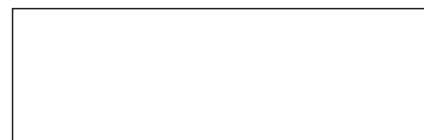
LCM1-0804G-VRU4	20



—
Approx.25g



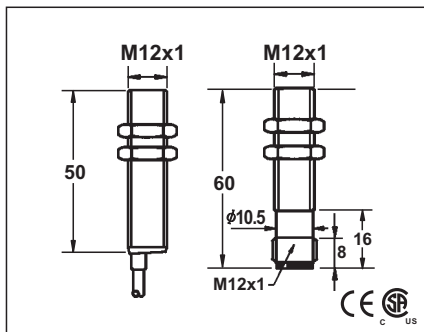
LCM1-1206G-V3S2	20	LCM1-1206G-VRS4



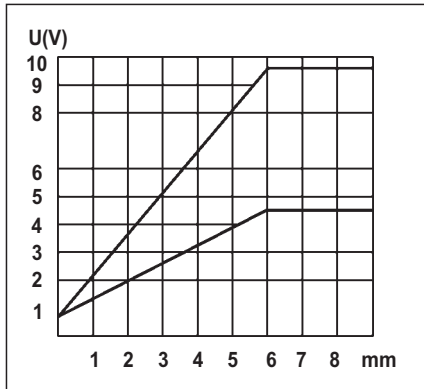
4φ 3x0.15	—
approx.67g	approx.30g

## INDUCTIVE VOLTAGE OUTPUT LONG DISTANCE ANALOG SENSOR

<b>M 12</b>
●
0-6 mm
Chrome-plated brass
○



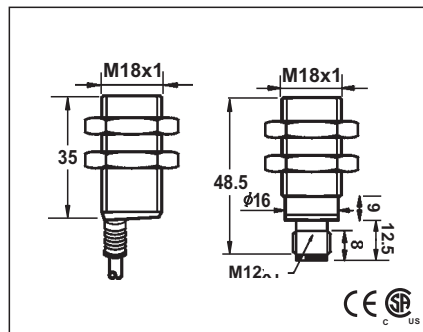
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1KHz(at s=3mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



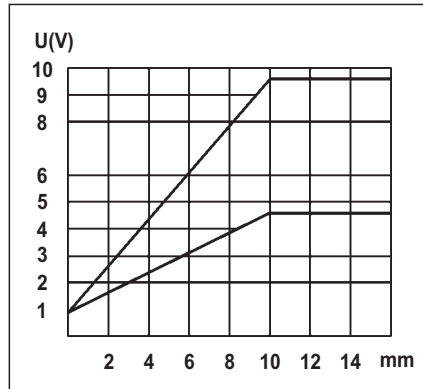
LCM1-1206G-V3U2	20	LCM1-1206G-VRU4


4.0 φ3x0.15	—
approx.83g	approx.48g

<b>M 18</b>
●
0-10 mm
Chrome-plated brass
○



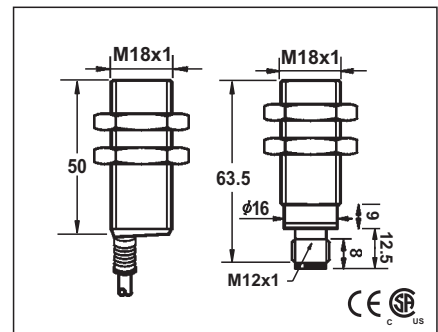
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥4.7KΩ
-
<10%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
500 Hz(at s=5mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



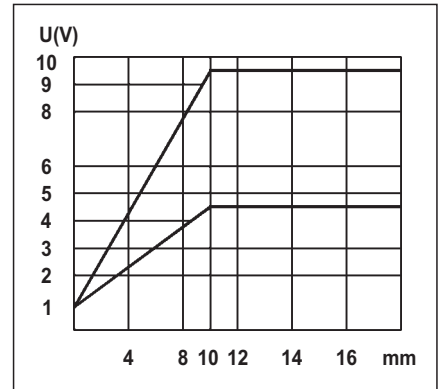
LCM1-1810G-V3S2	20	LCM1-1810G-VRS4


5.0 φ44x0.1	—
Approx.138g	Approx.58g

<b>M 18</b>
●
0-10mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥4.7KΩ
-
<10%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
500 Hz(at s=5mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



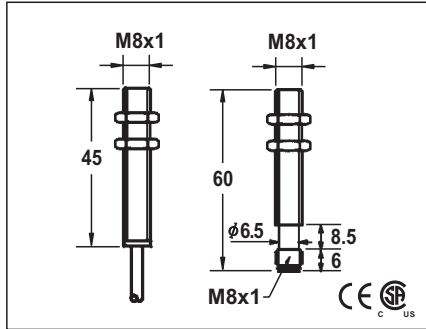
LCM1-3010G-V3U2	20	LCM1-3010G-VRU4


5.0 φ44x0.1	—
Approx.142g	Approx.69g

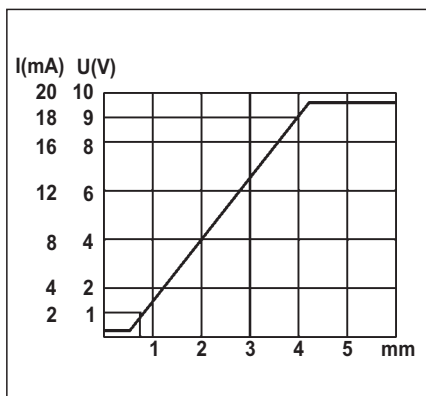


**INDUCTIVE VOLTAGE AND CURRENT OUTPUT LONG DISTANCE ANALOG SENSOR**

M 8
●
0-4 mm
Chrome-plated brass
○



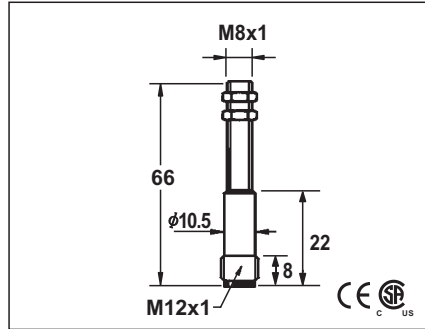
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1.6KHz(at s=2mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV(contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



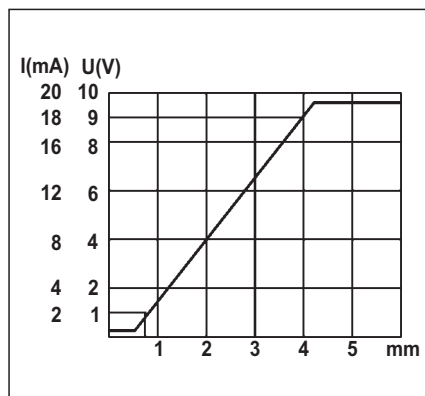
LCM1-0804G-M3U2	17	LCM1-0804G-MCU3
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4φ 3x0.15	—
approx.40g	approx.15g

M 8
●
0-4 mm
Chrome-plated brass
○



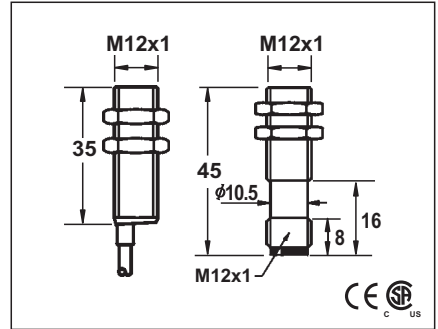
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1.6KHz(at s=2mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV(contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



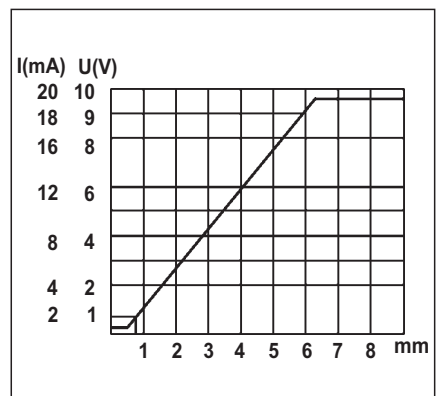
LCM1-0804G-MRU4	17
-----------------	----

—	—
Approx.25g	—

M 12
●
0-6 mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1KHz(at s=3mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV(contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT

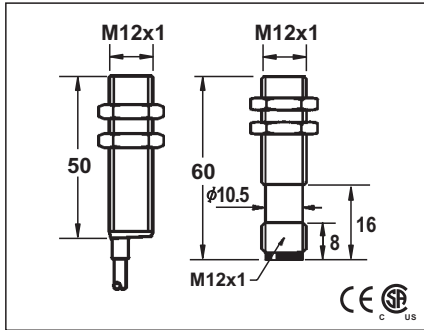


LCM1-1206G-M3S2	17	LCM1-1206G-MRS4
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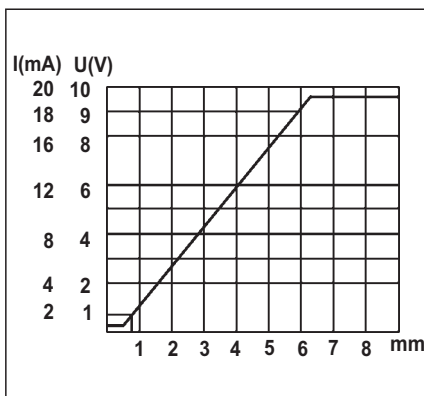
4φ 3x0.15	—
approx.67g	approx.30g

## INDUCTIVE VOLTAGE AND CURRENT OUTPUT LONG DISTANCE ANALOG SENSOR

<b>M 12</b>
●
0-6 mm
Chrome-plated brass
○



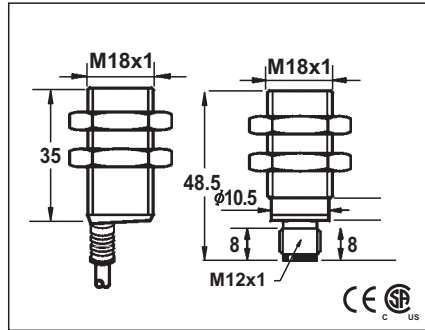
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥2KΩ
-
<5%
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
1KHz(at s=3mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



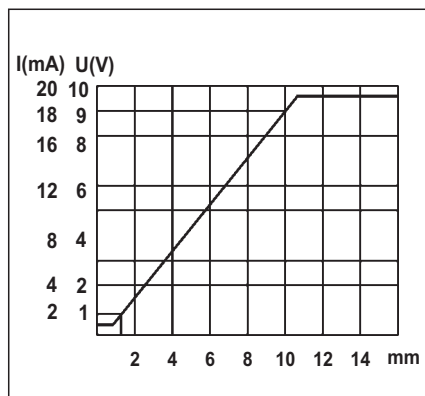
LCM1-1206G-M3U2	17	LCM1-1206G-MRU4

4.0 φ3x0.15	—
approx.83g	approx.48g

<b>M 18</b>
●
0-10 mm
Chrome-plated brass
○



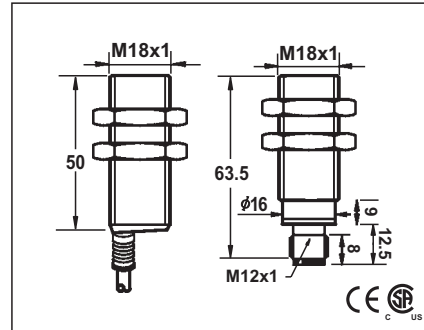
10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥4.7KΩ
-
<10%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
500 Hz(at s=5mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



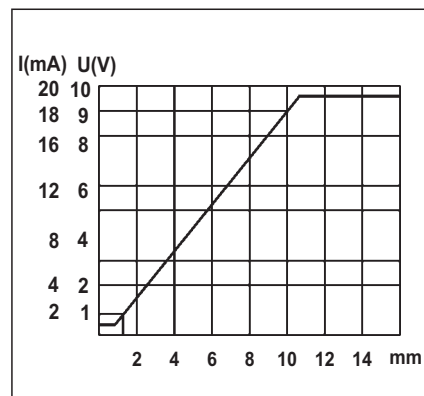
LCM1-1810G-M3S2	17	LCM1-1810G-MRS4

5.0 φ44x0.1	—
Approx.138g	Approx.58g

<b>M 18</b>
●
0-10mm
Chrome-plated brass
○



10...30 / 15...30VDC
≤20%
≤10mA
0-5V/0-10VDC ≥4.7KΩ
-
<10%(Sr)
-
-25°C ~ +70°C
≤5%(0...+70°C) / ≤10%(-25...0°C)
YES
YES
IP67
0...5V 1...5mA / 0...10V 4...20mA
500 Hz(at s=5mm)
-
RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
PBT



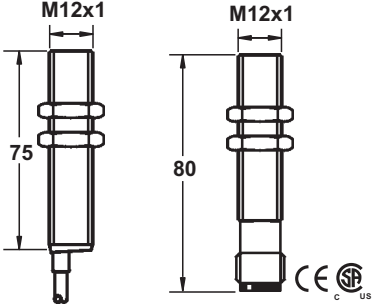
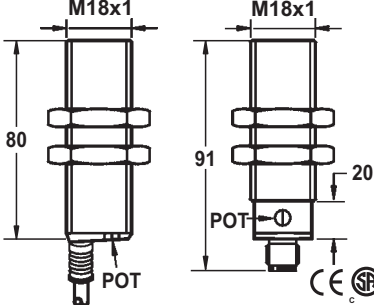
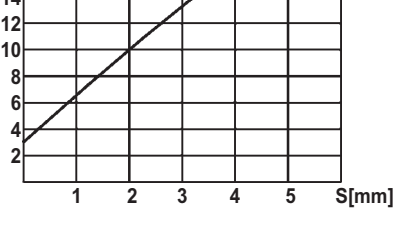
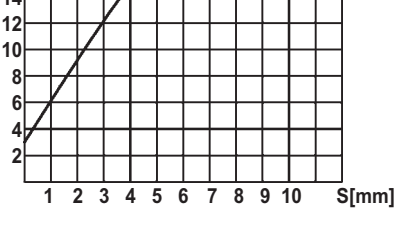
LCM1-1810G-M3U2	17	LCM1-1810G-MRU4

5.0 φ44x0.1	—
Approx.142g	Approx.69g





## CAPACITIVE CURRENT OUTPUT ANALOG SENSOR

Diameter	M12		M18			
● Shielded      ○ non-shielded	●		●			
Sensing Distance Sn mm	0-5mm		0-8mm			
Housing Material	nickel plated brass		nickel plated brass			
● With LED      ○ Without LED	○		○			
Dimensions (Unit: mm)						
Supply Voltage	15-30VDC		15-30VDC			
Max. Ripple	5%		5%			
No Load Current	45mA		45mA			
Working Area	0-5 mm		0-5 mm			
Linear Area	0-3.5 mm		0-3.5 mm			
Output Current/Load Resistor	4-20mA/0-200 Ω		4-20mA/0-200 Ω			
Linearity	<10%(Sr)		<10%(Sr)			
Repeat Accuracy	0.2mm		0.2mm			
Ambient Temperature	0 °C-60 °C		0 °C-60 °C			
Temperature Drift	0.05mm/ °C		0.05mm/ °C			
Short Circuit Protection	YES		YES			
Reverse Polarity Protection	YES		YES			
protection Degree	IP67		IP67			
Output signal	PNP-ANALOG		PNP-ANALOG			
Time Delay Before Availability	-		-			
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		RFI>3V/m / EFT>1KV / ESD>4KV (contact)			
Shock / Vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2			
Material Active Face	PBT		PBT			
Characteristics						
Inductive Voltage Output						
Inductive Current Output						
Inductive Voltage & Current output						
Capacitive Voltage Output						
Capacitive Current output	CCM1-1205G-I3U2	20	CCM1-1205G-IRU4	CCM1-1808G-I3U2	20	CCM1-1808G-IRU4
Capacitive Voltage & Current Output						
Remark						
Cable 2M (PVC)	4 φ3x0.15	-		5.0 φ44x0.1	-	
Weight	approx.83g		approx.48g	approx.142g		approx.60g

# CAPACITIVE CURRENT OUTPUT ANALOG SENSOR

Diameter	M30		
● Shielded      ○ non-shielded	○		
Sensing Distance Sn mm	0-30m		
Housing Material	nickel plated brass		
● With LED      ○ Without LED	○		
Dimensions (Unit: mm)			
Supply Voltage	15-30VDC		
Max. Ripple	5 %		
No Load Current	45mA		
Working Area	0-5 mm		
Linear Area	0-3.5 mm		
Output Current/Load Resistor	4-20mA/0-200Ω		
Linearity	<10%(Sr)		
Repeat Accuracy	0.2mm		
Ambient Temperature	0 °C-600 °C		
Temperature Drift	0.05mm/ ° C		
Short Circuit Protection	YES		
Reverse Polarity Protection	YES		
protection Degree	IP67		
Output signal	PNP-ANALOG		
Time Delay Before Availability	-		
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		
Shock / Vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		
Material Active Face	PBT		
Characteristics			
Inductive Voltage Output			
Inductive Current Output			
Inductive Voltage & Current output			
Capacitive Voltage Output			
Capacitive Current output	CCM2-3030G-I3U2	20	CCM2-3030G-IRU4
Capacitive Voltage & Current Output			
Remark			
Cable 2M (PVC)	5.8φ3x0.5	-	
Weight	approx.246g	approx.150g	