ROG
Технические характеристики

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Россия (495)268-04-70
Киргизия (996)312-96-26-47
Казахстан (7172)727-132

cgo@nt-rt.ru || https://gavazzi.nt-rt.ru/

ROG4K

EM210 energy analyzer current sensor (20-4000 A)

Description

Current sensor based on the Rogowski principle, to be used in combination with the EM210 analyzer (versions EM210 72D MV5 and EM210 72D MV6) to measure current in single-phase, two-phase and three-phase systems.
Compact, flexible and lightweight, it is suited to all applications and can be installed in all types of switchboards.
Supplied in a kit made up of three different colored pieces to make phase identification easy, it comes with coils with three different diameters and lengths and measures a wide current interval (from 20 to 4000 A).

Benefits

- **Adaptability and flexibility**. Effective for a wide range of currents and available in three different lengths, it can be installed in existent applications and/or with reduced space, on single cables, on cable bundles or high capacity busbars.
- **Accuracy.** The lack of a ferromagnetic core improves measurement accuracy in a wide range of currents and eliminates possible interferences.
- **Simplified system.** The current calculation integrator is included in the EM210 analyzer, thus neither additional wiring nor space are required; the sensor is directly connected to the analyzer.
- **Fast installation.** The opening/closing mechanism makes installation fast even in existent applications. The analyzer only requires two cables to be connected per sensor and the installation is made easy by the color (black, orange, blue) on the connection cable.

Operating principle

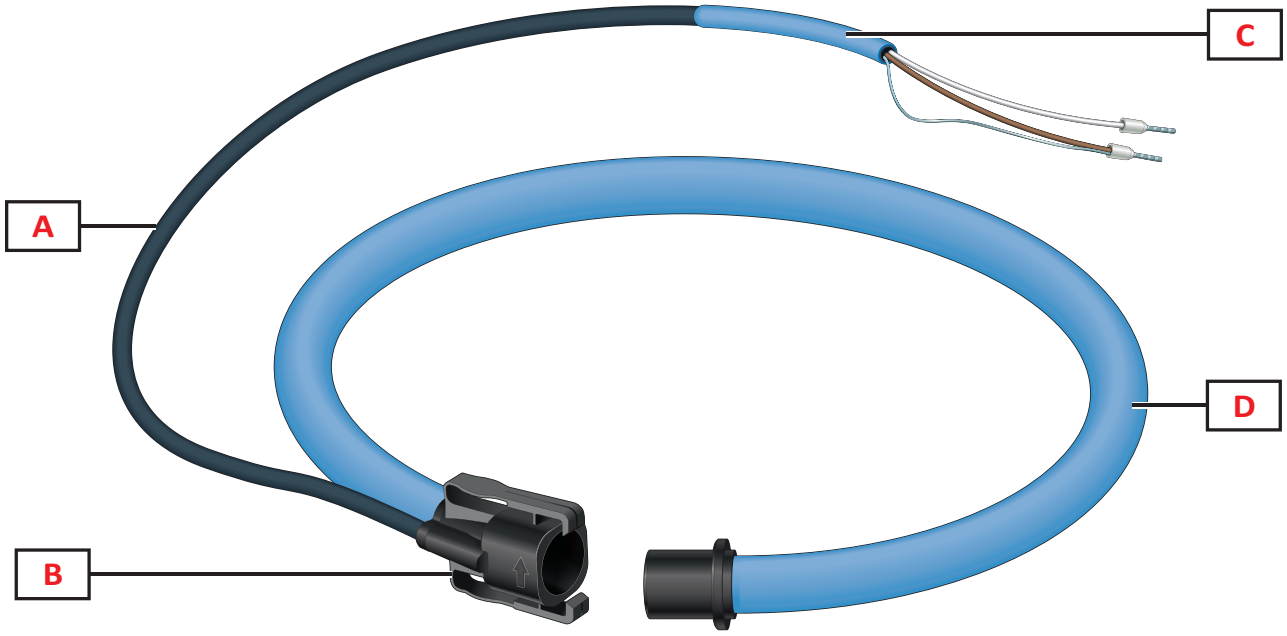
The Rogowski sensor is an alternating current measurement device.
Unlike current sensors with ferromagnetic core, the linearity of the Rogowski sensor makes it specifically indicated to measure high currents.
Its operating principle is very simple: a voltage signal dependent on the primary current trend, which can be reconstructed using an integration process, is generated at the ends of the coil positioned around a conductor.
Unlike traditional Rogowski sensors, ROG4K does not require an external integrator with additional power supply since measurement is entirely controlled by the analyzer.

Applications

Indicated for retail and industrial solutions, especially for retrofitting and/or contexts with reduced available space where installing a current sensor with ferromagnetic core is difficult.
It is especially indicated to measure:

- industrial or building system load
- single machine load with high current absorption

Structure



Area	Description
A	Analyzer connection cable
B	Coil opening/closing mechanism
C	Colored sensor identification
D	Coil

Features

General

Material	Coil and EM210 connection cable: thermoplastic rubber, self-extinguishing degree V-0 (UL 94) Opening/closing mechanism: PA6, self-extinguishing V-0 (UL 94)
Protection degree	IP52
EM210 connection cable	Type: 1000 V (UL Style 20940) External diameter: 5 mm Cables: 2, section 0.1288 mm2 (26 AWG) Length: 2 m (customizable up to 50 m, upon request subject to minimum quantities)
Overvoltage category	Cat. III1000 V @50/60 Hz Cat. IV600 V @50/60 Hz
Pollution degree	2
Insulation	double electrical insulation
Mounting	Cable Busbar

Dimensions (mm) and weight					
Code key	Coil length (mm)	Coil thickness (mm)	External coil diameter (mm)	Maximum conductor diameter (mm)	Weight (g)
ROG4K1002M4003X	400	12	139	115	130
ROG4K1002M6003X	600	12	203	179	160
ROG4K1002M9003X	900	12	299	275	200

Environmental specifications

Operating temperature	From -20 to +70 °C/from -4 to +158 °F
Storage temperature	From -20 to +70 °C/from -4 to +158 °F
Maximum altitude	2000 m

NOTE: R.H. < 85 % non-condensing.

Conformity

Directives	2014/35/EU (LVT - Low Voltage)
Standards	EN61010-1
Approvals	CE cULus

Electrical specifications

Primary current	From 20 to 4000 A
Output signal	100 mV/kA @50 Hz
Operating frequency	From 45 to 65 Hz
Accuracy	±1%
Linearity	±0.2%
Position sensitivity	±2% (primary conductor near the opening/closing mechanism)
External field influence	±0.5% maximum
Temperature drift	±0.07% per °C
Internal resistance	30 Ω/400 mm
Dielectric strength	7.4 kV ac for 1 minute (connection cable wires and coil)

Connection Diagrams

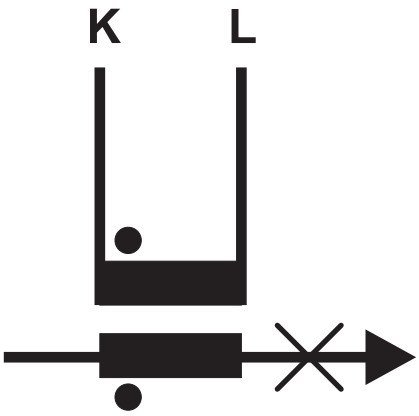


Fig. 1 *Current connection*

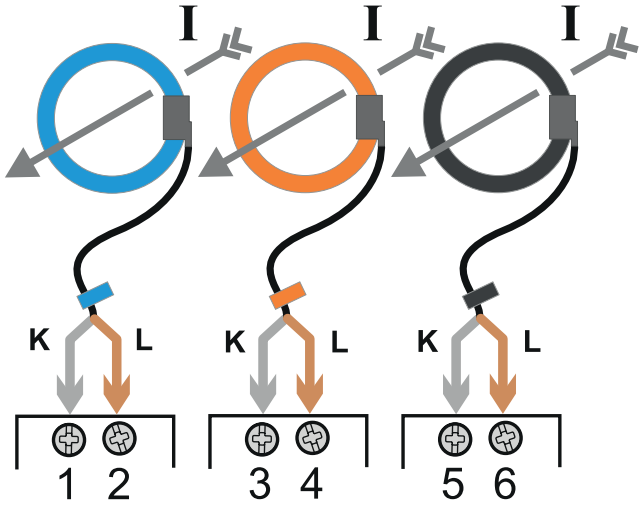


Fig. 2 *Connection with EM210, K=white, L=brown*

References

Order code

ROG4K 100 2M ☐ 3X

Enter the code, replacing the symbol ☐ with the coil length (3 digits). Lengths available: 400, 600, 900 mm.
Note: different cable lengths and kits with single coil available upon request (subject to minimum order quantities).

Further reading

Information	Document	Where to find it
Instruction manual	Instruction manual - ROG4K	
Analyzer Datasheet	EM210 Datasheet	
Analyzer installation and use instructions	EM210 installation and use instructions	

CARLO GAVAZZI compatible components

Purpose	Component name/code key	Notes
Measure and view connected load consumption (230 V L-N, 400 V L-L ca)	EM21072DMV53XOXX	1 pulse output, see relevant datasheet
	EM21072DMV53XOSX	1 pulse output, 1 RS485 port, see relevant datasheet
Measure and view connected load consumption (120 V L-N, 230 V L-L ca)	EM21072DMV63XOXX	1 pulse output, see relevant datasheet
	EM21072DMV63XOSX	1 pulse output, 1 RS485 port, see relevant datasheet

ROG4X

Rogowski coil for EM50 and EM210

Benefits

- **Adaptability and flexibility**. Effective for a wide range of currents and available in three different lengths, it can be installed in existent applications and/or with reduced space, on single cables, on cable bundles or high capacity busbars.
- **Accuracy.** The lack of a ferromagnetic core improves measurement accuracy in a wide range of currents and eliminates possible interferences.
- **Simplified system.** The current calculation integrator is included in the EM210 or EM50 analyzer, thus neither additional wiring nor space are required; the sensor is directly connected to the analyzer.
- **Fast installation.** The opening/closing mechanism makes installation fast even in existent applications. The analyzer only requires two cables to be connected per sensor and the installation is made easy by the color (black, orange, blue) on the connection cable.

Description

Current sensor based on the Rogowski principle, to be used in combination with the EM210 analyzer (versions EM210 72D MV5 and EM210 72D MV6) or with the EM50 analyzer (RG5 version) to measure current in single-phase, two-phase and three-phase systems.
Compact, flexible and lightweight, it is suited to all applications and can be installed in all types of switchboards.
Supplied in a kit made up of three different colored pieces to make phase identification easy, it comes with coils with three different diameters and lengths and measures a wide current interval from 20 to 1000 A with EM50 and up to 4000 A with EM210.

Operating principle

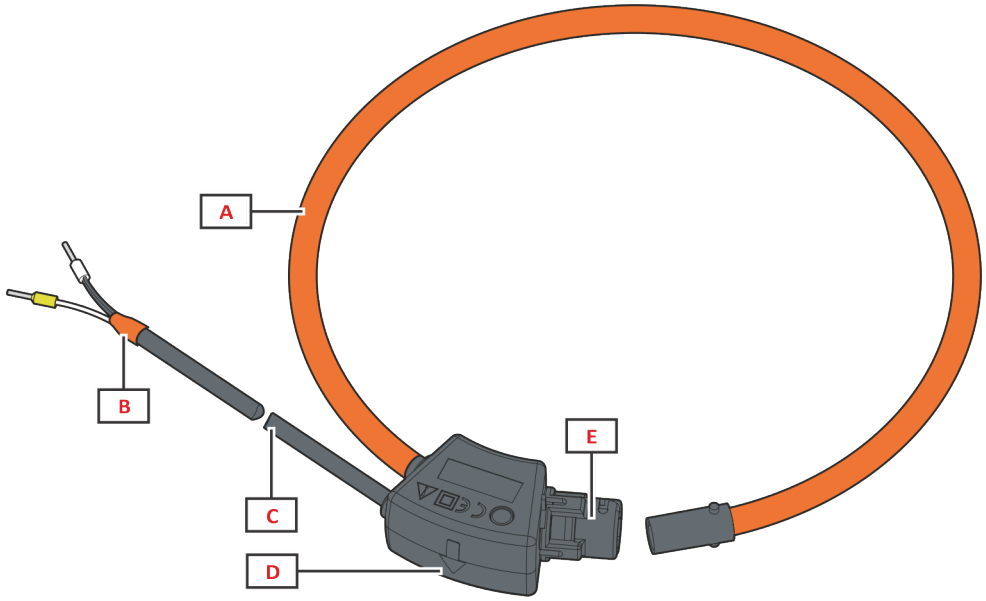
The Rogowski sensor is an alternating current measurement device.
Unlike current sensors with ferromagnetic core, the linearity of the Rogowski sensor makes it specifically indicated to measure high currents.
Its operating principle is very simple: a voltage signal dependent on the primary current trend, which can be reconstructed using an integration process, is generated at the ends of the coil positioned around a conductor.
Unlike traditional Rogowski sensors, ROG4X does not require an external integrator with additional power supply since measurement is entirely controlled by the analyzer.

Applications

Indicated for retail and industrial solutions, especially for retrofitting and/or contexts with reduced available space where installing a current sensor with ferromagnetic core is difficult.
It is especially indicated to measure:

- industrial or building system load
- single machine load with high current absorption

Structure



Area	Description
A	Coil
B	Colored sensor identification
C	Analyzer connection cable
D	Arrow for current flow direction
E	Coil opening/closing mechanism

Features

General

Material	Thermoplastic rubber, self-extinguishing degree V-0 (UL 94)
Protection degree	IP67
Connection cable to analyzer	Type: AWM STYLE 21223 Wires: section 0.34 mm² (3x22 AWG) Length: 2 m
Overvoltage category	Cat. III 1000 V Cat. IV 600 V
Pollution degree	2
Insulation	Halogen free polyethylene for output cable
Mounting	Cable Busbar

Dimensions (mm) and weight				
Code key	Coil length (mm)	Coil thickness (mm)	External coil diameter (mm)	Weight (g)
ROG4X1002M2503X	250	8.3 ±0.2 mm	90	130
ROG4X1002M3503X	350	8.3 ±0.2 mm	120	140
ROG4X1002M6003X	600	8.3 ±0.2 mm	200	170
ROG4X1002M9003X	900	8.3 ±0.2 mm	290	200

Environmental specifications

Operating temperature	From -30 to + 80 °C/from -22 to 176 °F
Storage temperature	From -40 to + 80 °C/from -40 to 176 °F
Maximum altitude	2000 m

Conformity

Directives	2014/35/EU (LVT - Low Voltage)
Standards	EN61010-1, EN61010-031, EN61010-2-031, EN61010-2-032
Approvals	CE c UL® US

Electrical specifications

Primary current	From 20 to 4000 A (with EM210) from 20 to 1000 A (with EM50)
Output signal	100 mV/1 kA @50 Hz
Operating frequency	From 40 to 20000 kHz
Accuracy	±1%
Position sensitivity	+/- 1% with respect to the central point
External field influence	±0,5% in the range -30°C ...+70°C
Internal resistance	From 70 to 900 Ω
Dielectric strength	7.4 kV ac for 1 minute (connection cable wires and coil)

Connection Diagrams

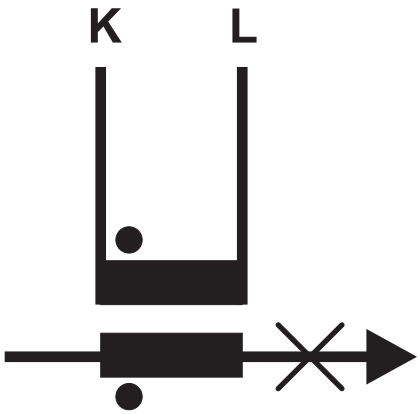


Fig. 1 *Current connection*

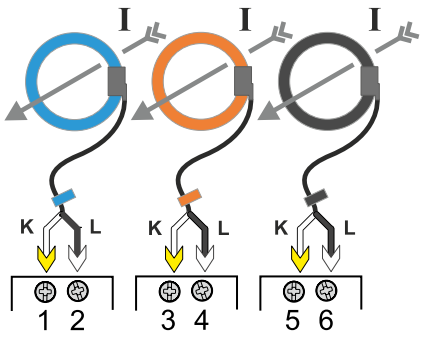


Fig. 2 *Connection with EM210,K=white (yellow ferrule), L=black (white ferrule)*

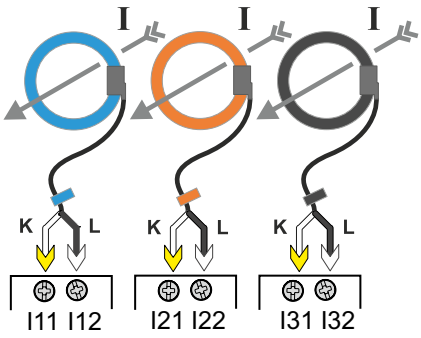


Fig. 3 *Connection with EM50, K=white (yellow ferrule), L=black (white ferrule)*

References

Order code

ROG4X 100 2M ☐ 3X

Enter the code, replacing the symbol ☐ with the coil length (3 digits). Available lengths: 250, 350, 600, 900 mm.
Note: different cable lengths and kits with single coil available upon request (subject to minimum order quantities).

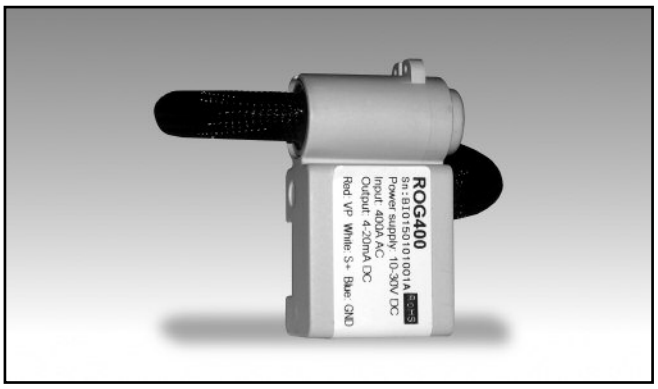
Further reading

Information	Document	Where to find it
Instruction manual	Instruction manual - ROG4X	
Analyzer Datasheet	EM210 Datasheet	
Analyzer installation and use instructions	EM210 installation and use instructions	
Analyzer Datasheet	EM50 Datasheet	
Analyzer installation and use instructions	EM50 installation and use instructions	

CARLO GAVAZZI compatible components

Purpose	Component name/code key	NOTES
Measure and view connected load consumption (230 V L-N, 400 V L-L ca)	EM21072DMV53XOXX	1 pulse output, see relevant datasheet
	EM21072DMV53XOSX	1 pulse output, 1 RS485 port, see relevant datasheet
Measure and view connected load consumption (120 V L-N, 230 V L-L ca)	EM21072DMV63XOXX	1 pulse output, see relevant datasheet
	EM21072DMV63XOSX	1 pulse output, 1 RS485 port, see relevant datasheet
Measure and view connected load consumption (up to 347 V L-N, up to 600 V L-L)	EM50DINRG53HRSX	1 pulse output, 1 relay output, 1 RS485 port, see relevant datasheet

Accessories
Split Core AC current sensor
Model ROG400



- **Split core AC current sensor**
- **Primary current up to 400AAC**
- **Output: 4 to 20mADC**
- **Accuracy: 1% full scale**
- **Max primary cable diameter: 40 mm**

Product Description

The ROG400 is a split core AC TRMS current sensor able to measure a primary current (up to 400A) from a single phase power cable.
The output signal is proportional to the measured input with a range from 4mA to 20mADC. The sensor has to be fixed directly around the main primary cable.

Ordering Key

ROG 400

AC current sensor
Measuring range

Type Selection

Ordering code	Input range	Output range	Min	Max
ROG400	from 0 to 400AAC	from 4 to 20mA	0AAC = 4mA	400AAC = 20mA

Input specifications

Rated inputs	System type: 1-phase
Current type	Galvanic insulation by means of the coil
Current range	See the above type selection table
Accuracy (Analogue output) (@25°C ±5°C, R.H. ≤60%, 45 to 65 Hz)	In: see below , In = Imax
ROG400	In = 400A
For all the models	1.0% full scale
Linearity	≤ 0.2% of reading from 5 to 100% In
Additional errors	
Position sensitivity	±1.0% of full scale for cable with diameter > 20mm.
External field influence due to external parallel cables	±0.5% of full scale (influence on measurement of other cables if distance from coil to other cables is >20mm.
Temperature drift	≤150ppm/°C
Sampling rate	3.6kHz
Current Overloads	
Continuous	5 x In
Frequency	45 to 65 Hz
Measurements method	1- Phase AC coupled TRUE RMS current.
Measurement noise	
ROG400	<5 µA

Output specifications

Analogue outputs		Max output rating	22mADC
Number of output	1	Power-on delay until valid output	<2s
Range	From 4mADC to 20mADC		
Scale	4 mADC = 0AAC, 20mADC = In		

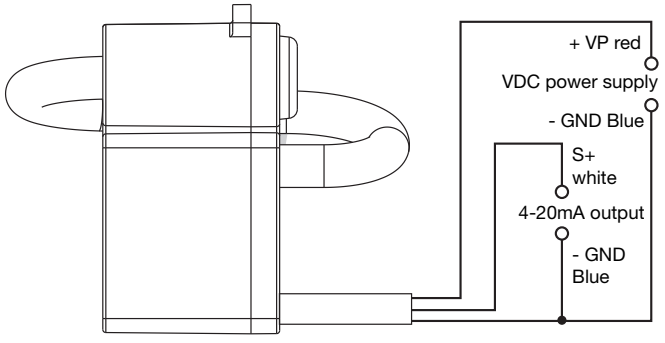
Power supply specifications

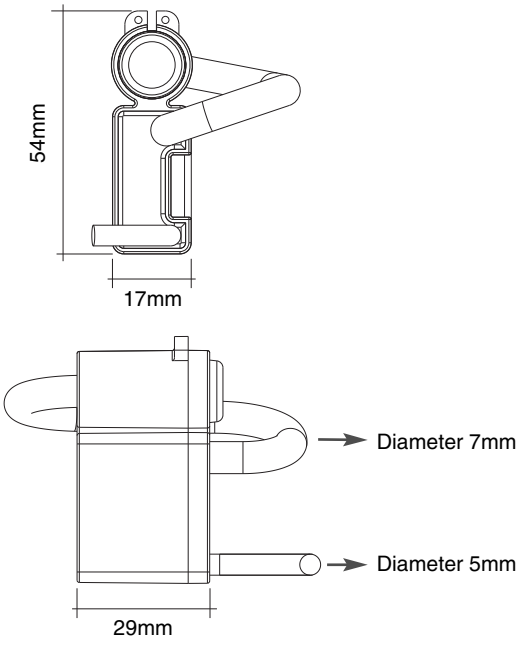
Power Supply	From 10VDC (min) to 30VDC (max)	**Power consumption**	<40mA

General specifications

Operating temperature	-20 to +65°C (-4 to 149°F) (R.H. < 95% non-condensing)	Immunity to conducted disturbances	10V/m from 150KHz to 80MHz
Storage temperature	-20 to +70°C (-4 to 158°F) (R.H. < 95% non-condensing)	**Standard compliance**	
Installation category	Cat. III (IEC60664, EN60664)	Safety	IEC60664, IEC61010-1 EN60664, EN61010-1
Insulation (for 1 minute)	6kV VRMS between input and output	**Approvals**	CE
Dielectric strength	6kVAC RMS for 1 minute	**Housing**	
Noise rejection		Dimensions (WxHxD)	29 x 54 x 17.4 mm
CMRR	100 80dB, 48 to 62 Hz	Material	Nylon PA66, self-extinguishing: UL 94 V-0
EMC	According to EN61000-6-2	Output cable	3m, double insulation
Electrostatic discharges	15kV air discharge;	**Weight**	Approx. 170 g (packing included)
Burst	On primary current cable and analogue 4-20mA output circuit: 4kV	**Coil dimension**	
		Length	185 mm
		Diameter	8 mm
		Primary cable diameter	40 mm

Wiring diagram and dimension





По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Россия (495)268-04-70
Киргизия (996)312-96-26-47
Казахстан (7172)727-132

cgo@nt-rt.ru || https://gavazzi.nt-rt.ru/