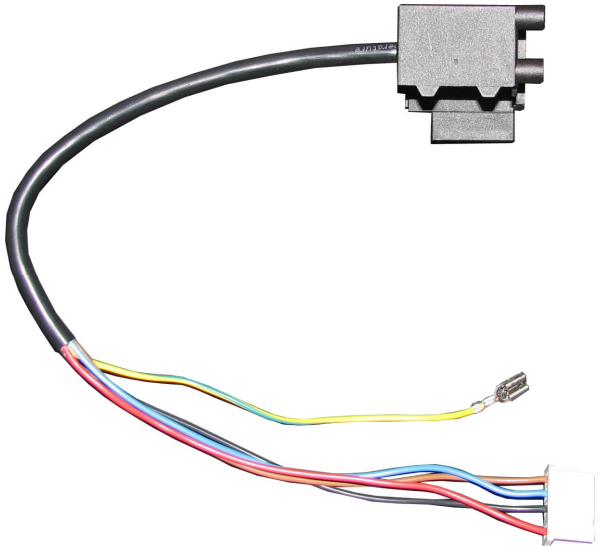
SIEMENS

7630



Electronic Ignition Equipment

TQG4…

The TQG4 consists of a cable for connection to the safety shutoff valves of the VGUxxS gas valves and electronic ignition equipment for use on gas boilers with single- or double-pole ignition.

The TQG4 and this Data Sheet are intended for use by OEMs which integrate the ignition equipment in their products.

Use

Typical field of use are gas boilers equipped with atmospheric burners or condensing boilers with premix burners. The TQG4 electronic ignition equipment is of compact design and delivers high sparking power. It is designed specifically for use with the VGUxxS gas valves. The fastening equipment and the compact design enable the ignition equipment to be installed in confined spaces.

☞ Note!
The scope of delivery of the TQG4 does not include the high-voltage ignition cables.

Warning notes



To avoid injury to persons, damage to property or the environment, the following warning notes must be observed!



The TQG4 generates high voltage. Improper use can lead to faulty insulation, resulting in fire and personal injury.

Do not open, interfere with or modify the equipment!

- All activities (mounting, installation, service work, shut down etc.) must be performed by qualified staff
- Before making any wiring changes in the connection area, completely isolate the plant from mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not observed, there is a risk of electric shock hazard
- Ensure protection against electric shock hazard by providing adequate protection for the connection terminals
- Each time work has been carried out (mounting, installation, service work, etc.), check to ensure that wiring is in an orderly state
- The single electrode igniters are not protected against electric shock hazard. If not observed, there is a risk of electric shock hazard

Planning notes

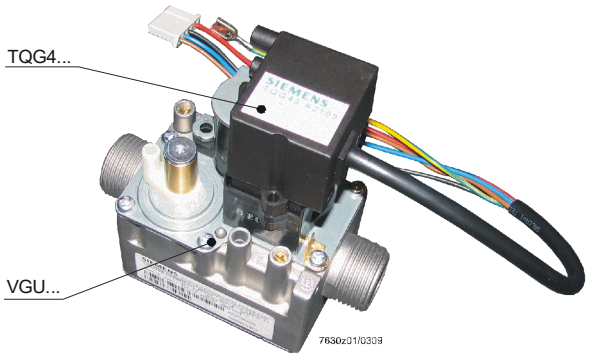
Electric ignition sparks produce high-frequency energy which can adversely affect radio and television reception. The high-voltage cable running to the ignition electrode acts as a transmit antenna. For this reason, the TQG4 features inbuilt filters which prevent high-frequency from ignition cable to other terminals. This ensures compliance with international interference protection regulations. High-frequency energy also spreads as capacitive and inductive energy (not wire-bound), which must be taken into consideration when laying the cables. The ignition cable should be run to the ignition electrode as directly as possible, with no loops in between. It must never be run parallel or very close to other electric cables since otherwise the inbuilt filter of the TQG4 would not suffice

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- Protection against electric shock hazard must be ensured through the way the TQG4 is mounted. Parts carrying high-voltage should be protected against dirt and moisture to ensure sufficient sparking power. Insulate the TQG4 adequately against non-earthed external, exposed parts
- Locate the ignition electrode and ionization probe such that the ignition spark cannot arc over to the ionization probe (risk of electric overloads on the connected burner control)

☞ Recommendation!
Ensure that the TQG4 cannot be removed, therefore the TQG4 should be secured with a suitable fixing screw.

Mounting position of the TQG4 on the VGUxxS gas fitting



Installation notes

The connection of the earthing lug to burner ground must be rigid and electrically conducting.

Electrical connection of the high-voltage ignition cable

Always run the high-voltage ignition cables separately, keeping as much distance as possible from the TQG4 and other cables, and avoid loops and kinks.

Commissioning notes

- High-frequency equipment places special requirements on high-voltage ignition cables and electrodes. Only use high-voltage ignition cables and electrodes that are specifically approved for the TQG4
- An important prerequisite for ensuring operating safety is the correct sizing and adjustment of the spark gap. Adjust it such that safe ignition is ensured under all permissible operating conditions
- The location of the TQG4, the high-voltage ignition cables and the spark gap on the burner have a considerable impact on the generation of electromagnetic interference. The notes relating to the laying of high-voltage ignition cables and adequate earthing of both the TQG4 and the burner must be observed

Standards and certificates

Applied directives:

- Low-voltage directive 2014/35/EC
- Electromagnetic compatibility EMC (immunity) 2014/30/EC

Compliance with the regulations of the applied directives is verified by the adherence to the following standards / regulations:

- Household and similar electrical appliances - Safety Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections DIN EN 60335-2-102
- Household and similar electrical appliances - Safety Part 1: General requirements DIN EN 60335-1

EAC compliance (Eurasia compliance)

TQG42.A02xx, TQG42.A04xx, TQG42.A05xx, and TQG43.A21xx only: UKCA conformity mark (UK compliance)

China RoHS
Hazardous substances table:
http://www.siemens.com/download?A6V10883536

Disposal notes

The TQG4 contains electrical and electronic components and must not be disposed of together with domestic waste. Local and currently valid legislation must be observed.

Type summary (further types on request)

Article no.	Type	Connector	Operating voltage for VGUxxS gas fitting				Versions
			Input TQG4	Output TQG4	Type Gas fitting VGUxxS	Operating voltage for ignition	
BPZ:TQG42.A0209	**TQG42.A0209**	Lumberg	1 x AC	1 x AC	A, J	230 V AC	Two electrodes for ignition spark (earth-free ignition or ignition to burner ground)
BPZ:TQG42.A0409	**TQG42.A0409**	Stelvio or Stocko 5-pole and Faston	1 x AC	1 x AC	A, J	230 V AC	
BPZ:TQG42.A0480	**TQG42.A0480**	Stelvio or Stocko 5-pole and Faston	1 x AC	1 x AC	A, J	230 V AC	
BPZ:TQG42.A0527	**TQG42.A0527**	Lumberg PCB direct connector	1 x AC	1 x AC	A, J	230 V AC	
BPZ:TQG42.C1209	**TQG42.C1209**	Lumberg	1 x RAC (or DC)	1 x RAC (or DC)	C, H	24 V DC	
BPZ:TQG42.C1224	**TQG42.C1224**	Lumberg			C, H	24 V DC	
BPZ:TQG42.C1234	**TQG42.C1234**	Lumberg			C, H	24 V DC	
BPZ:TQG43.A2109	**TQG43.A2109**	Stelvio or Stocko 4-pole and Faston	1 x AC	1 x AC	C	230 V AC	One electrode for ignition spark and ionization
BPZ:TQG43.A2184	**TQG43.A2184**	Stelvio or Stocko 4-pole and Faston	1 x AC	1 x AC	C	230 V AC	
BPZ:TQG43.D2109	**TQG43.D2109**	Stelvio or Stocko 4-pole and Faston	1 x AC	1 x AC	C	120 V AC / 60 Hz	

Ordering

Electronic ignition equipment TQG4

- Without accessories
- Type references according to «Type code»

When ordering, please give the type reference.

Accessories

Seal
For mounting between the VGUxxS gas fitting and the TQG4 to ensure IP44 protection.
Only on requirement!

Fixing screw
For securing the montage of TQG4.
Only on requirement!

Technical data

General unit data

Supply voltage	DC 24 V -15 % / +10 %	120 V AC -15%/+10%	220…240 V AC -15%/+10%
Nominal value, primary side			
Mains frequency	---	50…60 Hz ±5%	50...60 Hz ±5%
Current consumption (part of ignition)	Max. 150 mA	Max. 25 mA	Max. 15 mA
Power consumption (part of ignition)	Max. 1,5 W	Max. 1.5 VA	Max. 1,5 VA
Valve current	Max. 1,5 A	Max. 0.2 A	Max. 200 mA
Primary connection	Double pole Stelvio, Stocko Lumberg		
Safety class	Suitable for use into systems of safety class I		
Nominal value, secondary side			
Type of ignition	Permanent spark ignition to DIN EN 60335-2-102		
Ignition voltage	≥23 kV at 3 pF/100 MΩ ≥20 kV at 20 pF/100 MΩ		
Ignition frequency	10 Hz +50 % / -30 % at DC 24 V	10 Hz ±30% At 120 V AC	10 Hz ±30% At 230 V AC/50 Hz
Spark energy (measured at 2 kΩ)	Min. 4 mJ		
High-voltage connection	Tab 2.8 x 0.8		
Spark gap (reference)	1 x max. 6 mm		
Ignition spots	1 (2)		
Suppression / immunity			
Network disturbances	Must be substantiated in connection with the target application		
Immunity	To DIN EN 60335-2-102		
Radio interference suppression	Filter integrated, protection in the real application of the customer required		
Others			
Degree of protection	• IP40 • IP44 (with connector plugged in and with the required seal)		
Earthing	With a 6.3 × 0.8 mm earthing plug or by earthing the VGUxxS gas fitting		
Weight	125 g (typically)		
Compound	PU		
Housing material	PA 6 with 30 % fiber glass		
Ignition cable - Length - Cross-sectional area - Isolation	 Max. 1 m Min. 0.3 mm² Min. 30 kV, pulse load		
Product life	2 electrode operation, 1 electrode not earthed: 2 Mio. cycles (3 s on / off)		
Electrical safety	DIN EN 60335-2-102	DIN EN 60335-2-102, DIN EN 60730-2-5	
Safety mains separation (does not apply to single electrode igniter, refer to «Warning notes»)	---	Double or reinforced isolation between mains input and ignition output	
Starting current	100 %		

Technical data (cont´d)

Environmental conditions	**Storage**	EN 60721-3-1:1997
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Transport	EN 60721-3-2: 1997
	Climatic conditions	Class 2K3
	Mechanical conditions	Class 2M2
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Operation	EN 60721-3-3:1995 + A2:1997
	Climatic conditions	Class 3K3
	Mechanical conditions	Class 3M3
	Temperature range	-20...+60 °C
	Humidity	<85 % r.h.
	Mounting altitude	Max. 2,000 m above sea level



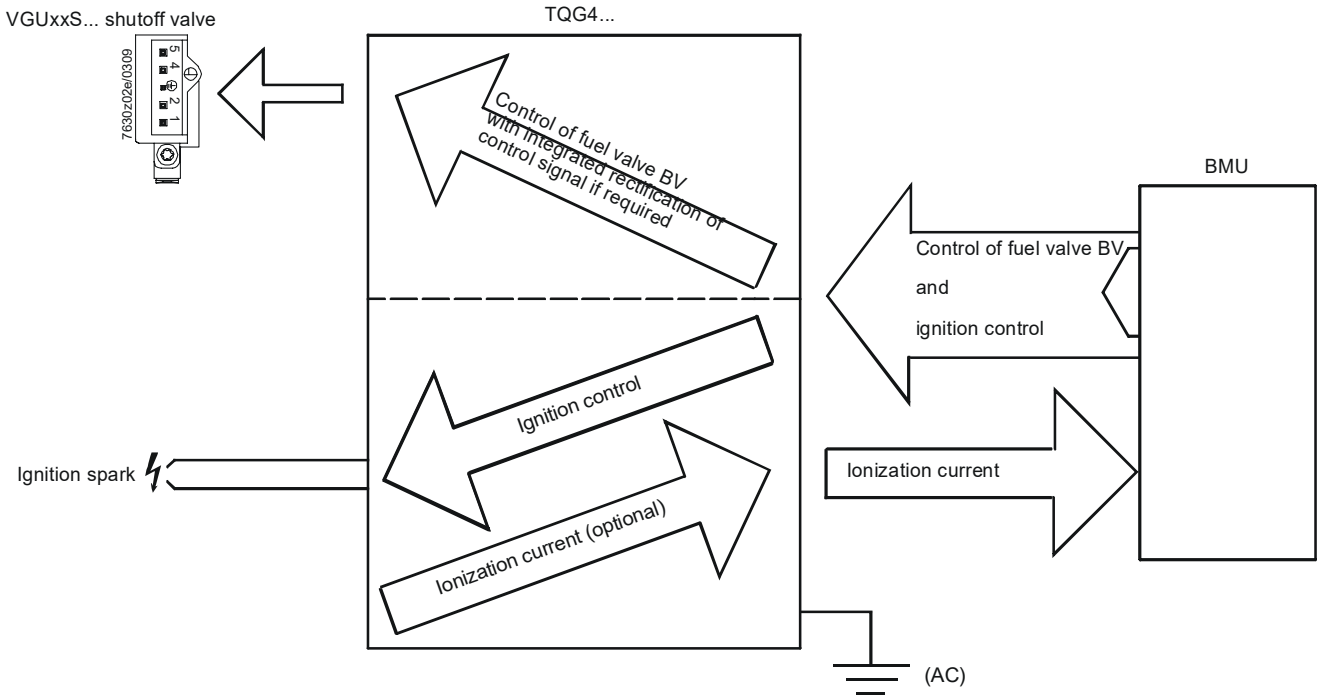
Caution!
Condensation, formation of ice and ingress of water are not permitted!

The TQG4 provides 2 functions

- Connection cable between the burner control and shutoff valve of the VGUxxS gas fitting
- Ignition equipment and connecting cable to the burner control

The TQG4 is suited for different applications

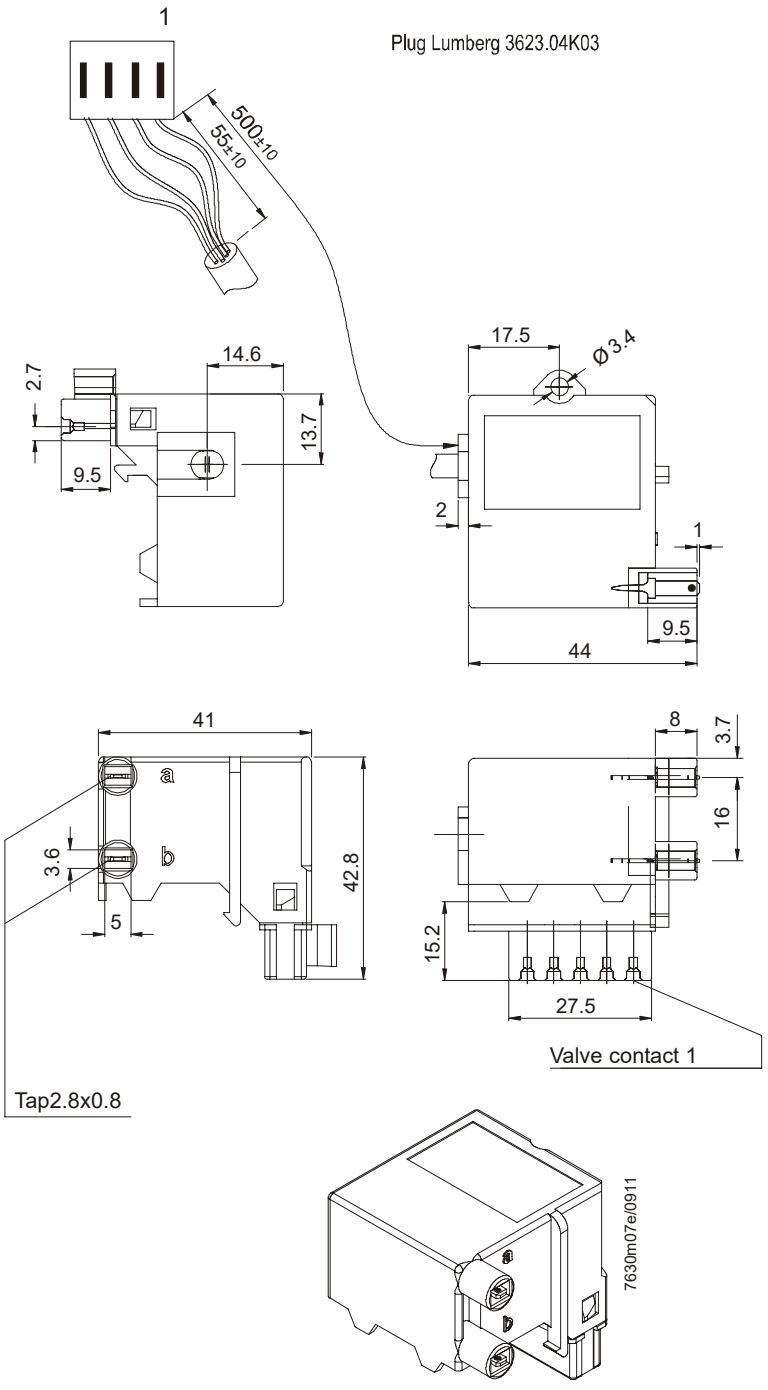
- Shutoff valve of the VGUxxS gas fitting
  - 24 V, 120 V or 230 V
  - Control signal of the burner control (AC, RAC or DC)
  - **I**gnition **P**ilot or **D**irect **B**urner **I**gnition
    (shutoff valve of the VGUxxS gas fitting connected in series or controlled separately)
- Ignition transformer
  - 24 V, 120 V or 230 V
  - Control signal of the burner control (AC, RAC or DC)
  - Single- or double-electrode operation
    (unearthed ignition or ignition against burner ground)
  - Ignition and ionization current supervision on the same electrode
  - Interference suppression integrated



Dimensions

Dimensions in mm

TQG42.A02xx



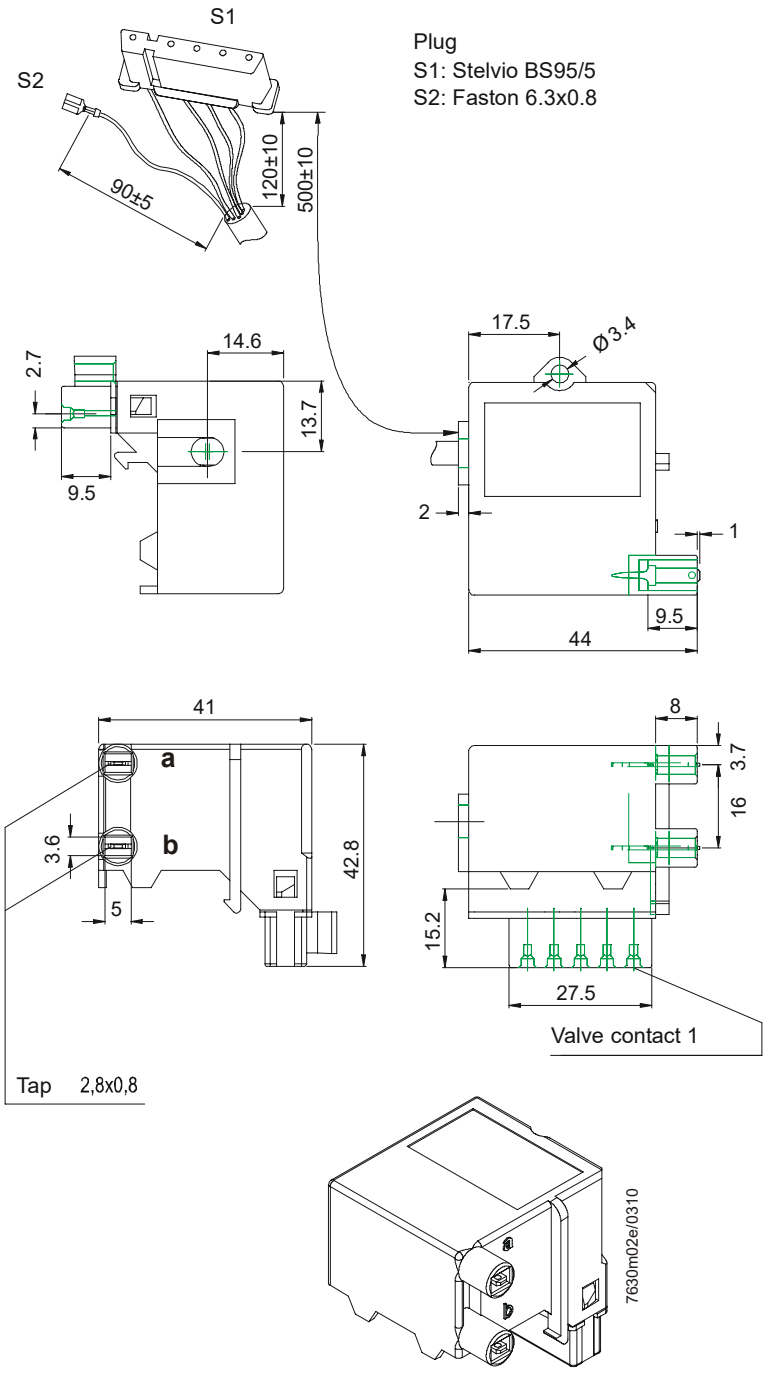
Connection plug arrangement

S1	1	Brown	Ignition (L)
S1	2	Blue	Neutral (N)
S1	3	Black	Shutoff valve of the VGUxxS gas fitting
S1	4	Red	Shutoff valve of the VGUxxS gas fitting

- Input for shutoff valve of the VGUxxS gas fitting: 230 V AC
  Output for shutoff valve of the VGUxxS gas fitting: 230 V AC
- Able for 1 and 2 electrode operation (ignition earthed and ungrounded)
- With ignition against burner ground, connect «b» to burner ground
- The VGUxxS gas fitting must be earthed

Dimensions in mm

TQG42.A04xx



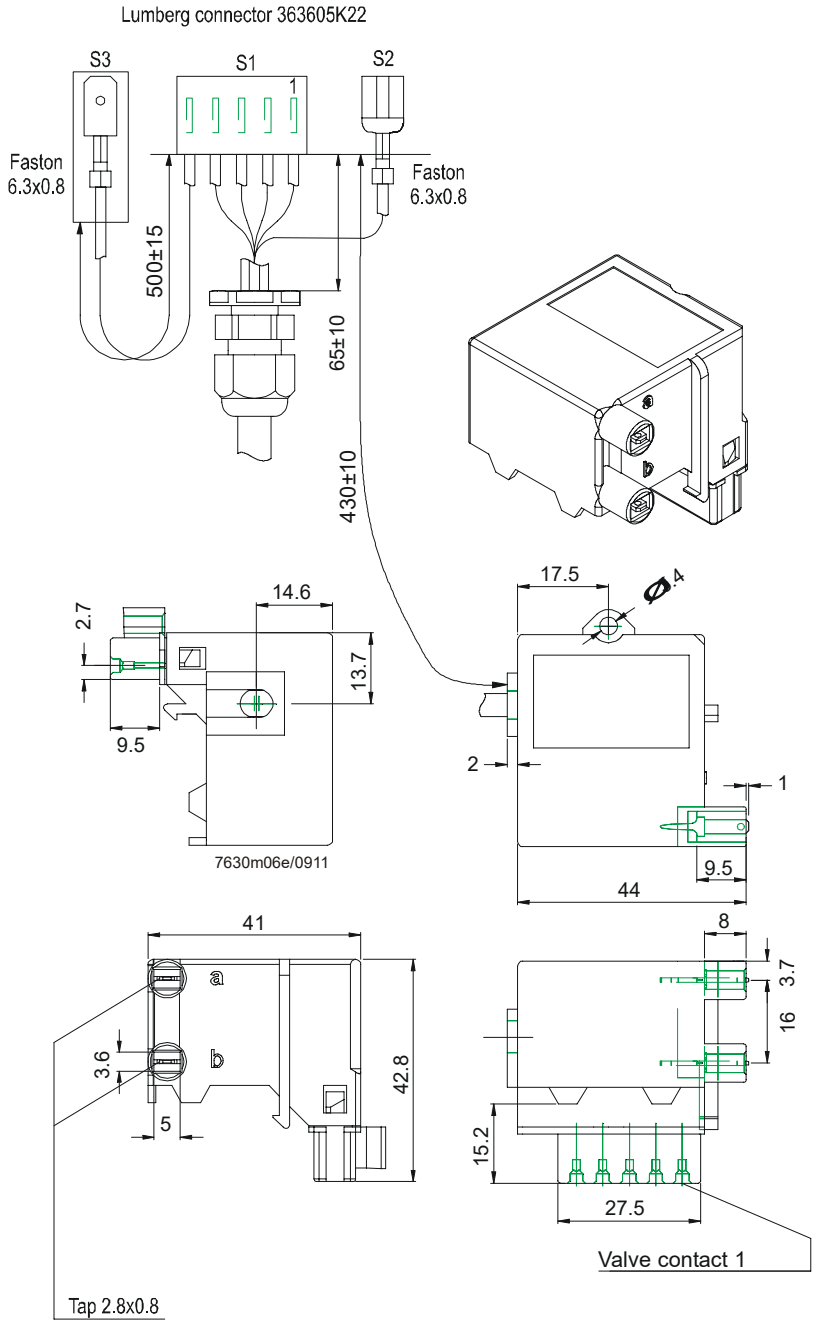
Connection plug arrangement

S1	1	Red	Shutoff valve of the VGUxxS gas fitting
S1	2	Black	Shutoff valve of the VGUxxS gas fitting
S1	3	Brown	Ignition (L)
S1	4	Blue	Neutral (N)
S1	5	---	Not used
S2	---	Yellow-green	Protective earth (PE)

- Input for shutoff valve of the VGUxxS gas fitting: 230 V AC
  Output for shutoff valve of the VGUxxS gas fitting: 230 V AC
- Able for 1 and 2 electrode operation (ignition earthed and ungrounded)
- With ignition against burner ground, connect «b» to burner ground

Dimensions in mm

TQG42.A05xx



Connection plug arrangement

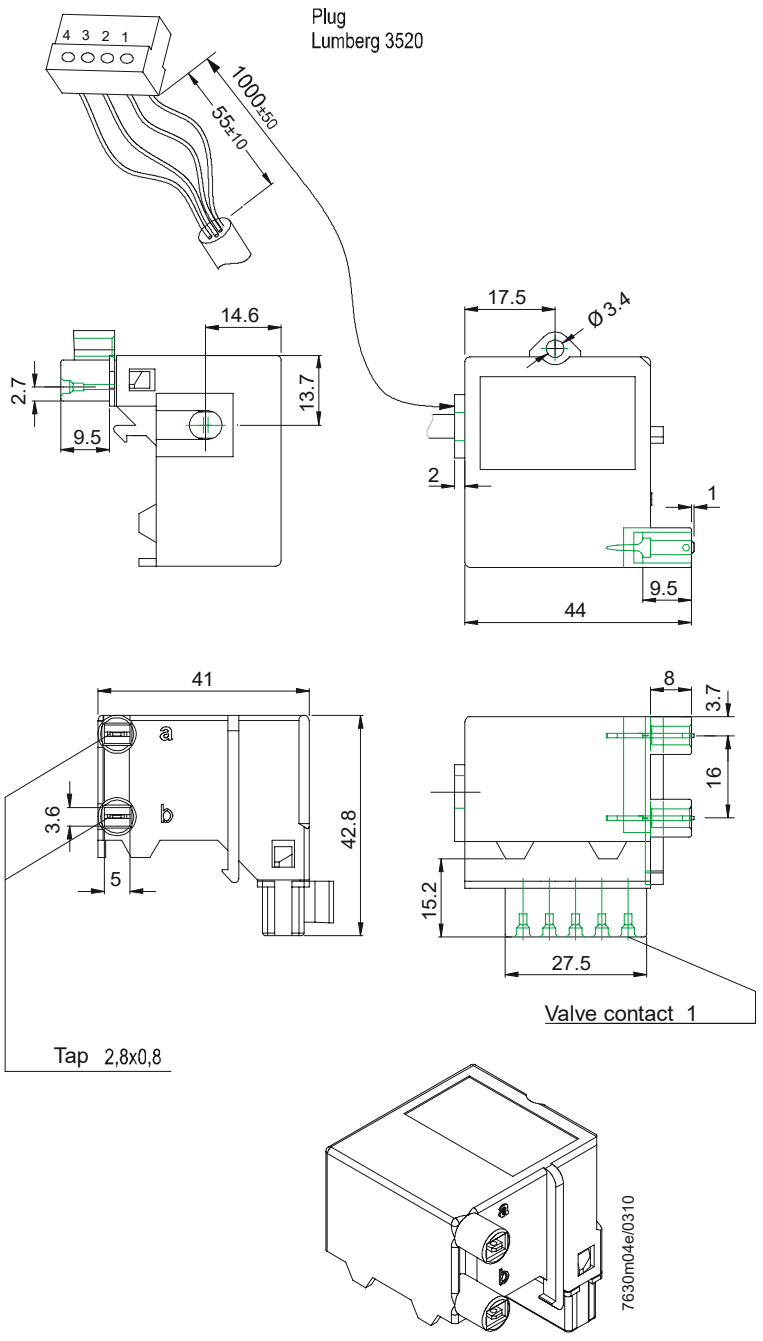
S1	1	Red	Shutoff valve of the VGUxxS gas fitting
S1	2	Black	Shutoff valve of the VGUxxS gas fitting
S1	3	Brown	Ignition (L)
S1	4	Blue	Neutral (N)
S1	5	Red	Ionization
S2	---	Yellow-Green	Protective earth (PE)
S3	---	Red	Ionization

- Input for shutoff valve of the VGUxxS gas fitting: 230 V AC
  Output for shutoff valve of the VGUxxS gas fitting: 230 V AC
- Able for 1 and 2 electrode operation (ignition earthed and ungrounded)
- With ignition against burner ground, connect «b» to burner ground

Dimensions (cont´d)

Dimensions in mm

TQG42.C12xx



Connection plug arrangement

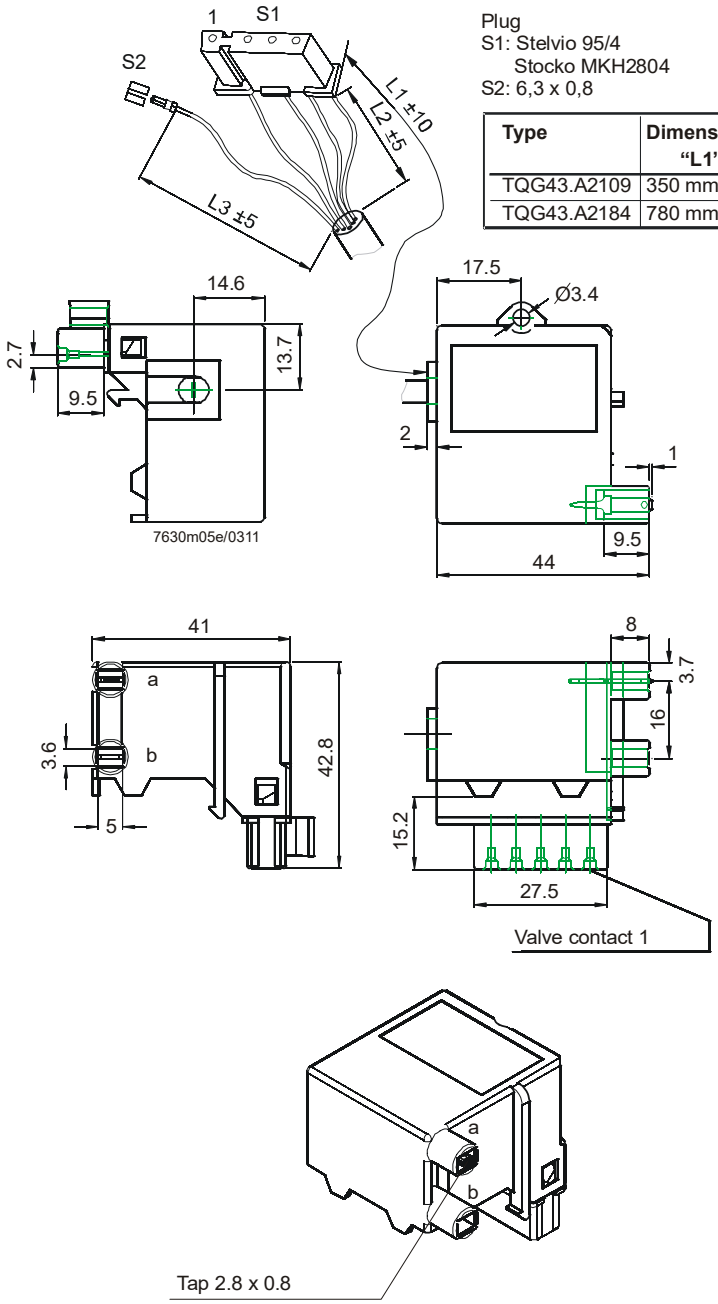
S1	1	Red	Shutoff valve (+) of the VGUxxS gas fitting
S1	2	Black	Shutoff valve (-) of the VGUxxS gas fitting
S1	3	Blue	Ignition (-)
S1	4	Brown	Ignition (+)

- Input for shutoff valve of the VGUxxS gas fitting: 24 V DC
  Output for shutoff valve of the VGUxxS gas fitting: 24 V DC
- Able for 1 and 2 electrode operation (ignition earthed and ungrounded)
- With ignition against burner ground, connect «b» to burner ground

Dimensions (cont'd)

Dimensions in mm

TQG43.A21xx



Plug
S1: Stelvio 95/4
Stocko MKH2804
S2: 6,3 x 0,8

Type	Dimension "L1"	Dimension "L2"	Dimension "L3"
TQG43.A2109	350 mm	170 mm	140 mm
TQG43.A2184	780 mm	120 mm	90 mm

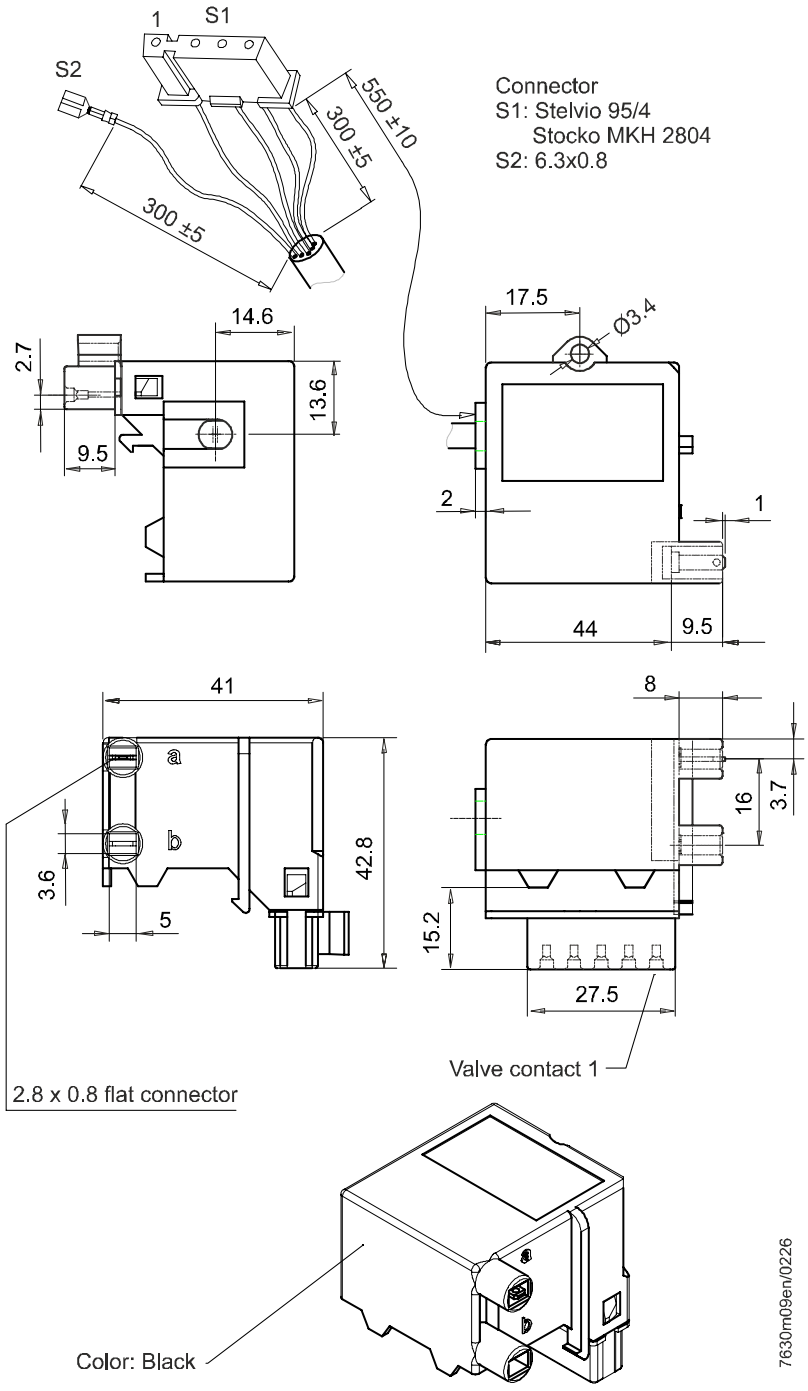
Connection plug arrangement

S1	1	Red	Ionization
S1	2	Black	Common line (L)
S1	3	Blue	Shutoff valve (N) of the VGUxxS gas fitting
S1	4	Brown	Ignition (N)
S2	---	Yellow-green	Protective earth (PE)

- Input for shutoff valve of the VGUxxS gas fitting: 230 V AC
  Output for shutoff valve of the VGUxxS gas fitting: 230 V AC
- Able for 1 and 2 electrode operation (ignition earthed and ungrounded)
- With ignition against burner ground, connect «b» to burner ground

Dimensions in mm

TQG43.D21xx



Connector assignment

S1	1	Red	Ionization
S1	2	Black	Common line (L)
S1	3	Blue	Shutoff valve (N) of the VGUxxS gas fitting
S1	4	Brown	Ignition (N)
S2	---	Yellow-green	Protective earth (PE)

- Input for shutoff valve of the VGUxxS gas fitting: 120 V AC
  Output for shutoff valve of the VGUxxS gas fitting: 120 V AC
- Able for 1 and 2 electrode operation (ignition earthed and ungrounded)
- With ignition against burner ground, connect «b» to burner ground

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Subject to change!