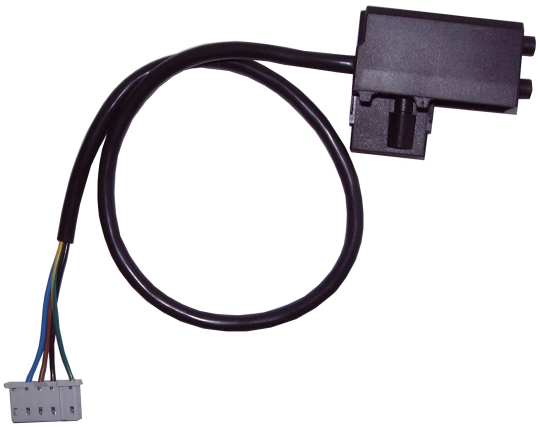
SIEMENS

7608



Electronic Ignition Equipment

TQG3…

The TQG3 consists of a cable for connection to the safety shutoff valves of the VGU gas valves and electronic ignition equipment for use on gas boilers with single- or double-pole ignition.

The TQG3 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 TQG3 electronic ignition equipment is of compact design and delivers high sparking power. It is designed specifically for use with the VGU 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 TQG3 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 ignition equipment generates high-voltage which, if improperly applied, can lead to insulation failure that can cause fire and damage to persons!

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

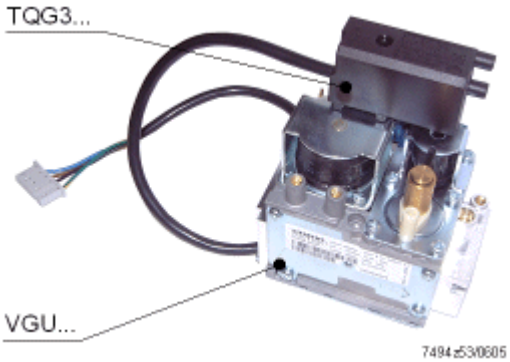
Planning notes

- Electric ignition sparks produce high-frequency energy which can adversely affect radio and television reception. The high-voltage cable connected to the ignition electrode acts as a transmit antenna. For this reason, the TQG3 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 or 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 TQG3 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 TQG3 is mounted. Parts carrying high-voltage should be protected against dirt and moisture to ensure sufficient sparking power. Insulate the ignition equipment 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)

Mounting position of the TQG3 on the VGU 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 TQG3 and other cables, and avoid loops and kinks.

Commissioning notes

- High-frequency equipment places special requirements on high-voltage ignition cables and electrodes. Always use high-voltage ignition cables and electrodes that are special suited for this type of ignition equipment
- 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 TQG3, 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 TQG3 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-Konformität (Eurasia conformity)

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

C US

Disposal notes

The TQG3 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 (ASN)	Connector	Operating voltage for the VGU gas fitting				
			Input TQG3	Output TQG3	Type of VGU gas fitting	Operating voltage for the ignition	Versions
BPZ:TQG32.A0109	**TQG32.A0109**	Stelvio or Stocko 4-pole and Faston	1 x AC	1 x AC	A, J	230 V AC	Two electrodes for the ignition spark (earth-free ignition or ignition to burner ground)
BPZ:TQG32.A0227	**TQG32.A0227**	Lumberg	1 x AC	1 x AC	A, J	230 V AC	
BPZ:TQG32.A4109	**TQG32.A4109**	Stelvio or Stocko 4-pole and Faston	2 x AC	2 x RAC	E	230 V AC	
BPZ:TQG33.A2109	**TQQ33.A2109**	Stelvio or Stocko 4-pole and Faston	1 x AC	1 x RAC	C	230 V AC	One electrode for the ignition spark and ionization

Ordering information

TQG3 electronic ignition equipment

- Without accessories
- Types according to ‘Type code’

Please specify the type reference when ordering.

Accessories

Seal

For mounting between the VGU gas fitting and the TQG3 to ensure IP44 protection.

By prior agreement only!

Fixing screw

For securing the mounting of the TQG3.

By prior agreement only!

Technical data

General unit data

Supply voltage	24 V DC -15%/+10%	230 V AC -15%/+10%	120 V AC -15%/+10%
Nominal value, primary side			
Mains frequency	---	50...60 Hz ±5%	60 Hz ±5%
Switch-on current consumption (part of ignition)	Max. 150 mA	Max. 15 mA	Max. 25 mA
Power consumption (part of ignition)	Max. 1.5 VA	Max. 1.5 VA	Max. 1.5 VA
Current of valve	Max. 1.5 A	Max. 200 mA	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 24 V	10 Hz ±30% at AC 230 V/50 Hz	10 Hz ±30% at AC 120 V/60 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	to DIN EN 61000-3-2/DIN EN 61000-3-3/DIN EN 55014-1		
Immunity	To DIN EN 50165 severity level 3		
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 earthing plug 6.3 × 0.8 mm or by earthing the VGU 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 61558-2-3, DIN EN 60730-2-5		
Safety mains separation (does not apply to single electrode igniter, see *Warning notes*)	---	Double or reinforced isolation between mains input and ignition output	
On time	100%		

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!

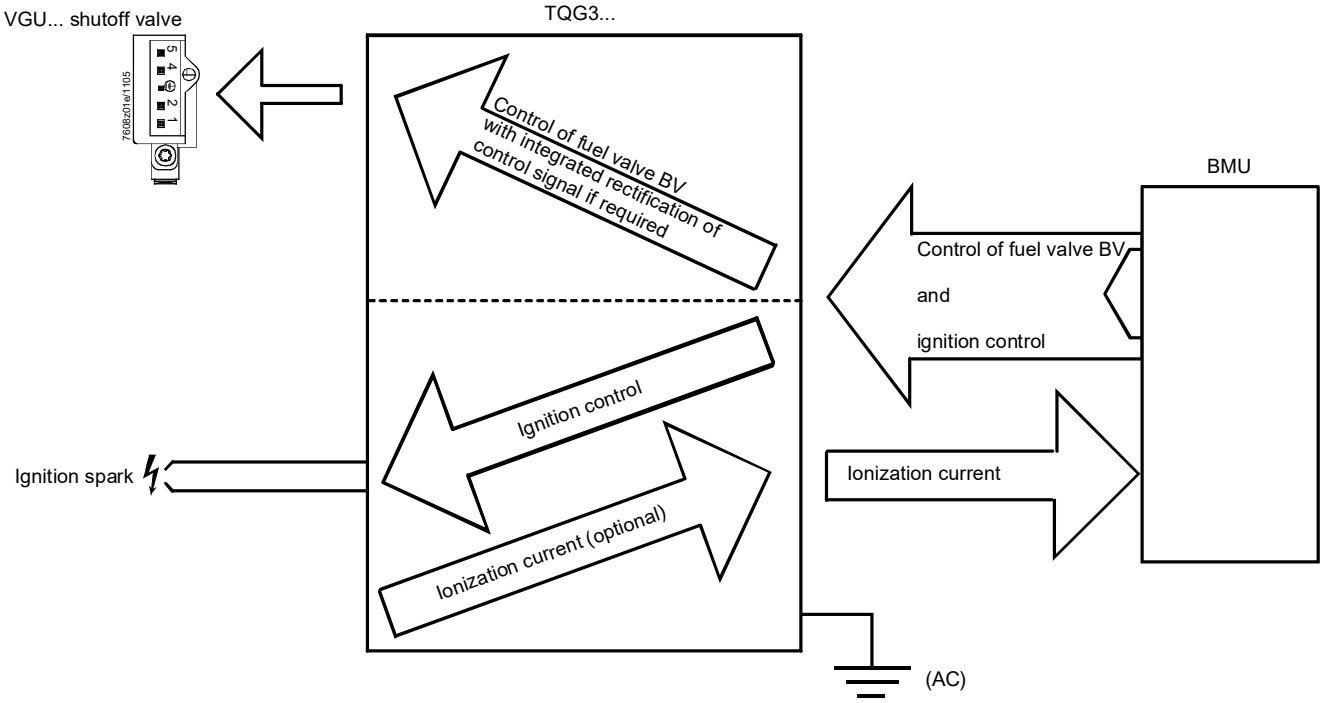
Functional description

The TQG3 provides 2 functions

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

The TQG3 is suited for different applications

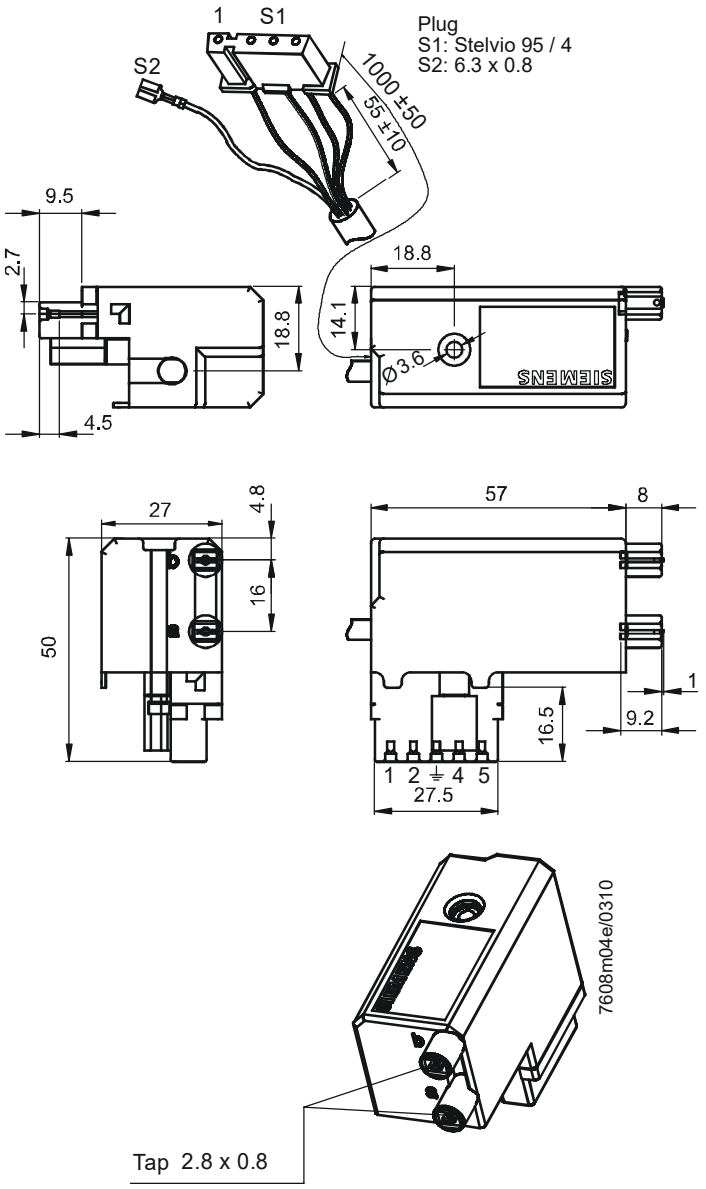
- Shutoff valve of the VGU gas fitting
  - 24 V, 120 V or 230 V
  - Control signal of the burner control (AC, RAC or DC)
  - **I**gnition **P**ilot or **D**irect **B**urner **I**gnition
    (shutoff valve of the VGU gas fitting connected in series or controlled separately)
- Ignition transformer
  - 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

TQG32.A0109



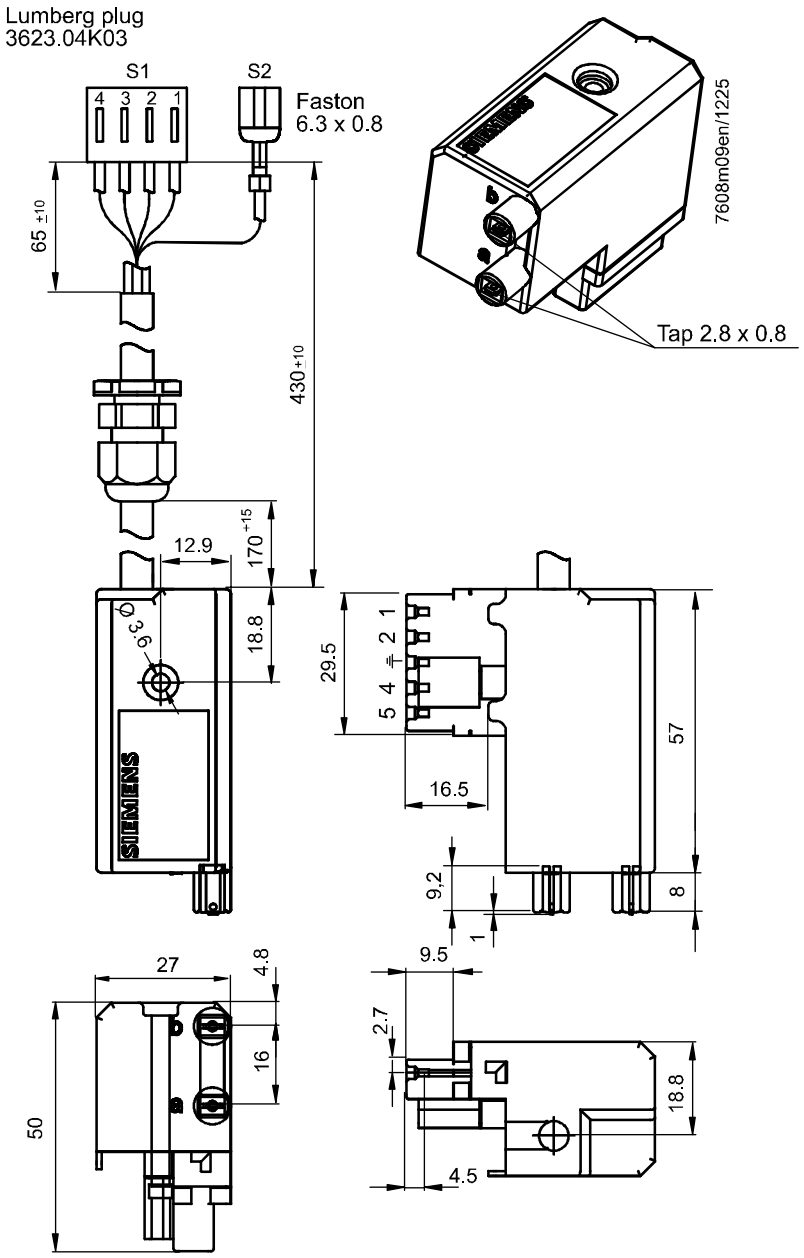
Connection plug arrangement

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

- Input for the shutoff valves of the VGU gas fitting: 230 V AC
  Output for the shutoff valves of the VGU 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

TQG32.A0227



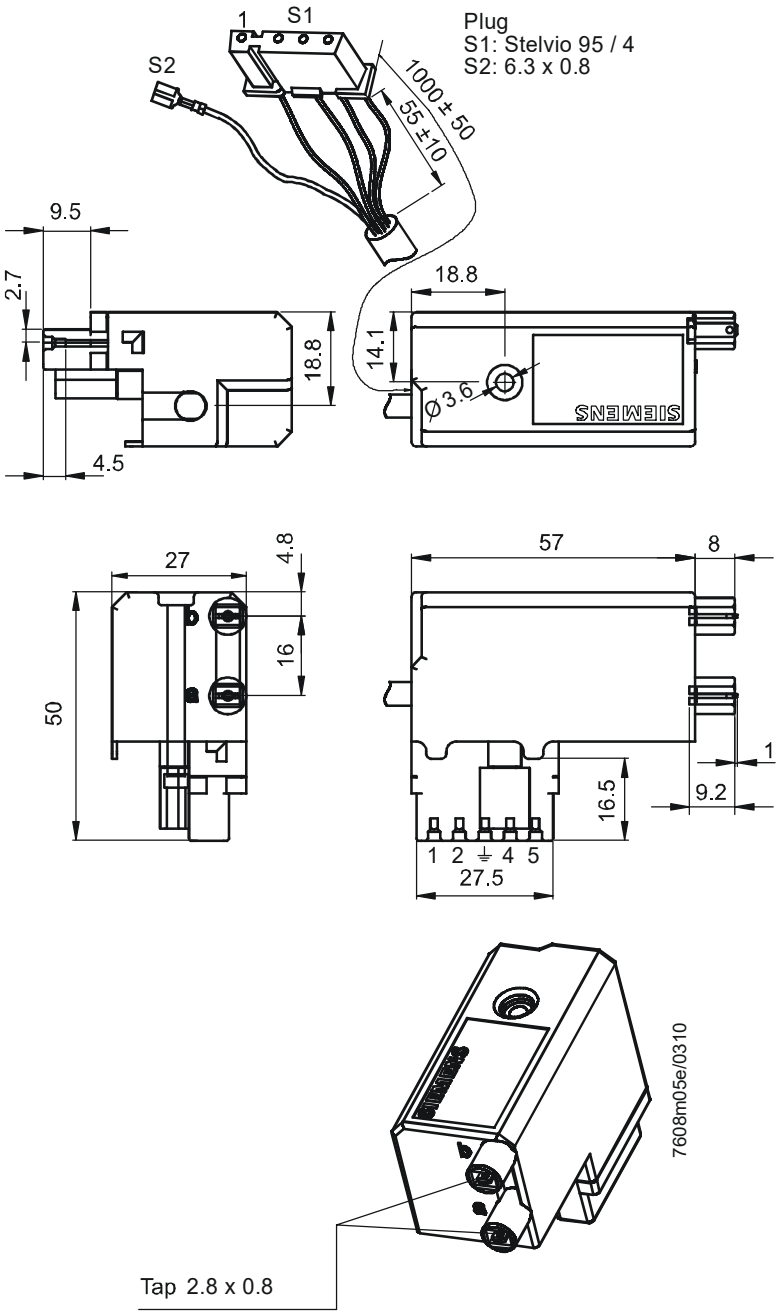
Connecting plug arrangement

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

- Input for the shutoff valves of the VGU gas fitting: 230 V AC
  Output for the shutoff valves of the VGU 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

TQG32.A4109



Connection plug arrangement

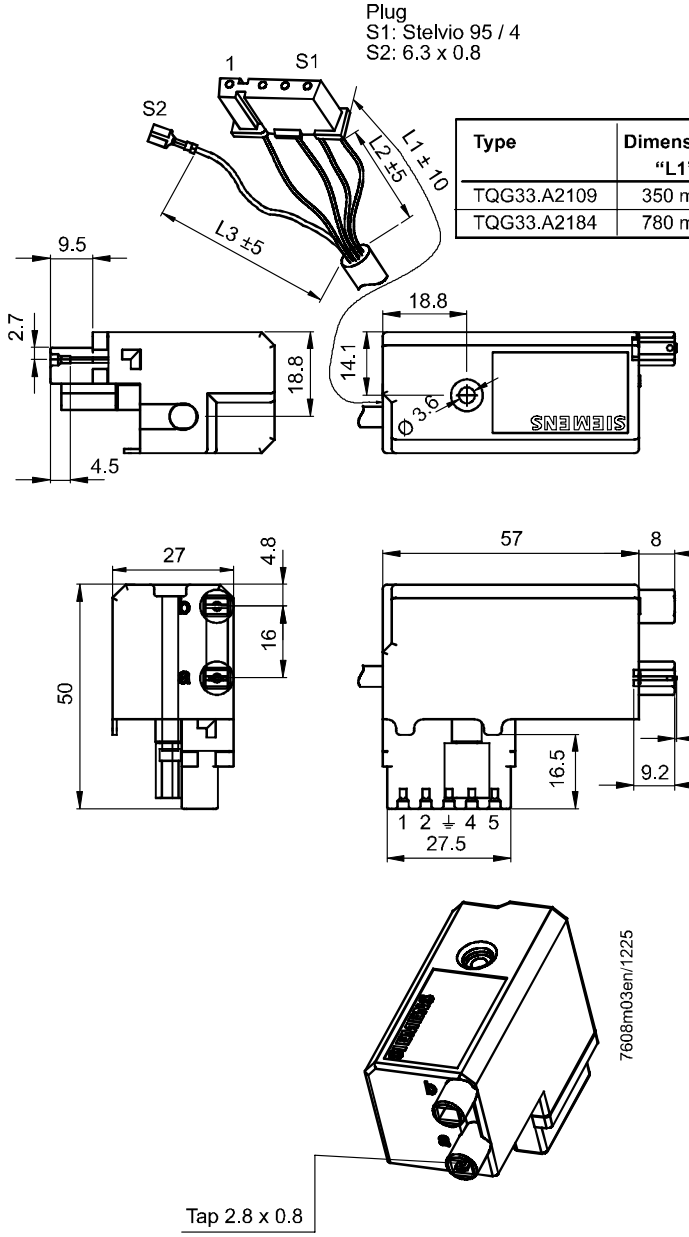
S1	1	Black	Shutoff valve 1 (L) of the VGU gas fitting
S1	2	Red	Shutoff valve 2 (L) of the VGU gas fitting
S1	3	Blue	Neutral (N)
S1	4	Brown	Ignition (L)
S2	---	Yellow-green	Protective earth (PE)

The rectifier and varistor for supplying the VGU gas fitting are integrated in the ignition module.

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

Dimensions in mm

TQG33.A21xx



Type	Dimension "L1"	Dimension "L2"	Dimension "L3"
TQG33.A2109	350 mm	170 mm	140 mm
TQG33.A2184	780 mm	120 mm	90 mm

Connection plug arrangement

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

The rectifier and varistor for supplying the VGU gas fitting are integrated in the ignition module.

- Input for the shutoff valves of the VGU gas fitting: 230 V AC
  Output for the shutoff valves of the VGU gas fitting: 230 V RAC

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