SIEMENS

7720



QRB4



QRB4x-xxxxA with flange and clamp



QRB4x-xxxxB with plug

Yellow flame detector QRB4...

Yellow flame detector for use with Siemens burner controls, for the supervision of oil flames in the visible light spectrum.
The QRB4 is used in connection with oil burner controls in intermittent operation.

QRB4 and this Data Sheet are intended for OEMs using the QRB4 in or on their products.

Use

The QRB4 flame detectors are designed for the supervision of yellow-burning oil flames in connection with burner controls type LME7 (on request), LME8 (on request), LMO, LMV2 and LMV3.
It is designed for frontal and lateral (90°) illumination.

The maximum spectral sensitivity of the QRB4 is about 540 nm, thus giving full consideration to the maximum level of visible light radiation of yellow-burning oil flames. Since the QRB4 also acquires certain parts of the radiation spectrum of other light sources (boiler room lighting, solar radiation, etc.), the standard regulations regarding safety in connection with extraneous light still apply.

Supplementary documentation

Product type	Type of documentation	Documentation number
LME7	Data sheet	N7105
	Basic documentation	P7105
LME8	Basic documentation	P7109
LMO	Data sheet	N7130
LMV27.100	Data sheet	N7541
LMV26.300A2	Data sheet	N7547
LMV37.4	Data sheet	N7546
LMV36.300A2	Data sheet	N7547
LMV36.520A1	Data sheet	N7544

Warning notes



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

It is not permitted to open, interfere with or modify the flame detector, or to replace the connecting cable.

- All activities (mounting, installation, service work, etc.) must be performed by qualified staff
- Before carrying out any wiring changes in the connection area, isolate the plant from power supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If this is not observed, there is a risk of electric shock
- Take suitable measures to provide protection against accidental contact at the electrical connections. If this is not observed, there will be a risk of electric shock
- Each time work has been carried out (mounting, installation, service work, etc.), check to ensure that wiring is in an orderly state and make the safety checks as described in *Commissioning notes*. If not observed, the safety functions are no longer ensured and there will be a risk of electric shock
- Fall, shock or damage to the housing can adversely affect the safety functions. Such detectors must not be put into operation even if they do not exhibit any damage. If not observed, the safety functions are no longer ensured and there will be a risk of electric shock

Mounting notes

Ensure that the relevant national safety regulations are complied with.

Installation notes

- Always run the detector cable separate from other cables, especially from the high-voltage ignition cable, while observing the greatest possible distance

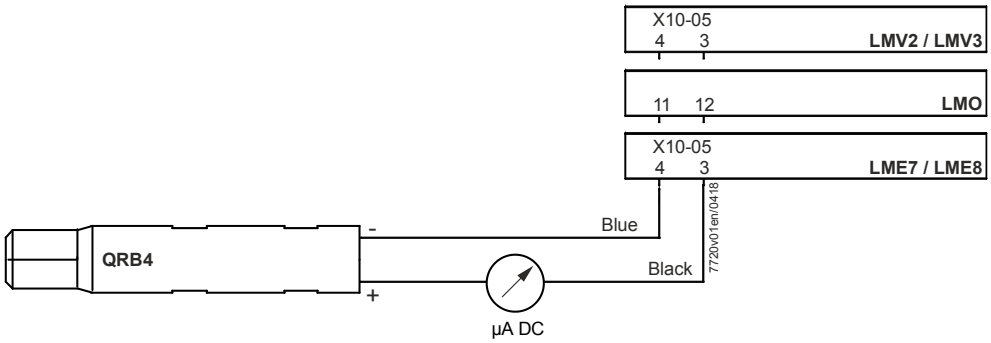
It is important to achieve practically disturbance- and loss-free signal transmission:

- Never run the detector cable together with other cables
  – Line capacitance reduces the magnitude of the flame signal
  – Use a separate cable
- Observe the permissible detector cable lengths; refer to *Technical data*

Commissioning notes

- The intensity of the radiation of light on site is checked by measuring the detector current
- For information about the measuring circuit and the minimum detector current values required, refer to the Data Sheet of the relevant type of burner control

Measuring circuit for detector current measurement



Standards and certificates

Note!
Only in connection with burner control.

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

Service notes

When cleaning the detector, never use burner cleansing spray. Always use a clean and dry cloth to clean the QRB4.

Disposal notes

The QRB4 contains electrical and electronic components and must not be disposed of together with domestic waste.
Local and currently valid legislation must be complied with.

Design

General	Compact QRB4 with infused 2-wire thermoplastic cable. The detector is available with normal or high sensitivity and with or without flange / clamp or soft plastic plug (refer to *Type summary*).
QRB4x-xxxx	Yellow flame detector without accessories.
QRB4x-xxxxA	• Secured with a flange • A guide groove in the securing flange and a cam on the detector clamp ensure vibration-free mounting and make certain that the QRB4 is always correctly sited towards the flame • Flange with 36 mm spacing, plastic version → Included in scope of delivery • Clamp, plastic version → Included in scope of delivery
QRB4x-xxxxB	• With soft plastic plug • For mounting on the burner. All this requires is a hole with a lateral groove; refer to *Dimensions* • The sealing and securing ribs of the soft plastic plug hold the QRB4 firmly in the hole • A guide spring guarantees correct alignment of the QRB4 with the flame
Accessories QRB4	• Flange, 36 mm spacing, plastic version • Clamp, plastic version

Type summary

QRB4

Article no	Type	Sensitivity / casing color		Casing length (g) (mm)	Visible cable length (L) (cm)	Stripped length (M) (mm)	Cable end		Accessories	
		Normal / black	High / red				Ferrule	Stripped	Included: Flange and clamp	Mounted: Plug
S55723-S201-A100	QRB4A-B036A25	●	---	68	36	25	---	---	---	---
S55723-S210-A100	QRB4A-B036B40B	●	---	68	36	40	●	●	---	●
S55723-S202-A100	QRB4A-B050B70	●	---	68	50	70	●	●	---	---
S55723-S209-A100	QRB4A-B050B70A	●	---	68	50	70	●	●	●	---
S55723-S211-A100	QRB4A-B050B70B	●	---	68	50	70	●	●	---	●
S55723-S203-A100	QRB4A-B070B70	●	---	68	70	70	●	●	---	---
S55723-S208-A100	QRB4A-B070B70A	●	---	68	70	70	●	●	●	---
S55723-S212-A100	QRB4A-B070B70B	●	---	68	70	70	●	●	---	●
S55723-S219-A100	QRB4A-B110B70	●	---	68	110	70	●	●	---	---
S55723-S204-A100	QRB4A-B150B70	●	---	68	150	70	●	●	---	---
S55723-S205-A100	QRB4B-B036A25	---	●	68	36	25	---	---	---	---
S55723-S213-A100	QRB4B-B036B40B	---	●	68	36	40	●	●	---	●
S55723-S206-A100	QRB4B-B050B70	---	●	68	50	70	●	●	---	---
S55723-S207-A100	QRB4B-B050B70A	---	●	68	50	70	●	●	●	---
S55723-S214-A100	QRB4B-B050B70B	---	●	68	50	70	●	●	---	●
S55723-S215-A100	QRB4B-B070B70B	---	●	68	70	70	●	●	---	●
S55723-S216-A100	QRB4B-C036B40	---	●	108	36	40	●	●	---	---
S55723-S217-A100	QRB4B-C036B40B	---	●	108	36	40	●	●	---	●
S55723-S220-A100	QRB4B-D030A25	---	●	140	30	25	---	---	---	---
S55723-S218-A100	QRB4B-D050B40B	---	●	140	50	40	●	●	---	●

Type summary (continued)

Accessories QRB4 (version without plug)

	Item	Article no. [1])	Type
	Flange, 36 mm spacing	S55856-Z401-A100	AGK42
	Clamp	S55856-Z402-A100	AGK43

[1]) To be specified when ordering individual items

Ordering

➔ When ordering, please give type reference according to *Type summary*
➔ QRB4 with plug is always to be ordered without flange and clamp, and vice versa

Example

QRB4A-B050B70
S55723-S202-A100

- Sensitivity: Normal
- Casing length: 68 mm
- Visible cable length: 50 cm
- Stripped length: 70 mm
- End of cable: With ferrule
- Without plug
- Accessories: Without flange and clamp

QRB4A-B050B70A
S55723-S209-A100

As above, but with:
- Accessories: Flange and clamp included

QRB4A-B050B70B
S55723-S211-A100

As above, but with:
- Fitted plug

Technical data

General unit data	Rated voltage	Max. 10 V
	Safety class	II
	Degree of protection	IP54 (For housing only; not for connections)
	Mounting position	Optional
	Detector cable	Cable included in scope of delivery Stranded copper wire 2 x 0.75 mm² Jacket ∅ 5.1 mm, PVC Cable length according to *Type summary*
	Weight (depending on type and accessories)	Approx. 80 g
	Permissible cable lengths	Max. 3 m
Environmental conditions	**Storage**	DIN EN 60721-3-1
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-20 to +60°C
	Humidity	<95% r.h.
	Transport	DIN EN 60721-3-2
	Climatic conditions	Class 2K2
	Mechanical conditions	Class 2M2
	Temperature range	-20 to +60°C
	Humidity	<95% r.h.
	Operation	DIN EN 60721-3-3
	Climatic conditions	Class 3K5
	Mechanical conditions	Class 3M2
	Temperature range	-20 to +60°C
	Humidity	<95% r.h.
	Installation altitude	Max. 2,000 m above sea level



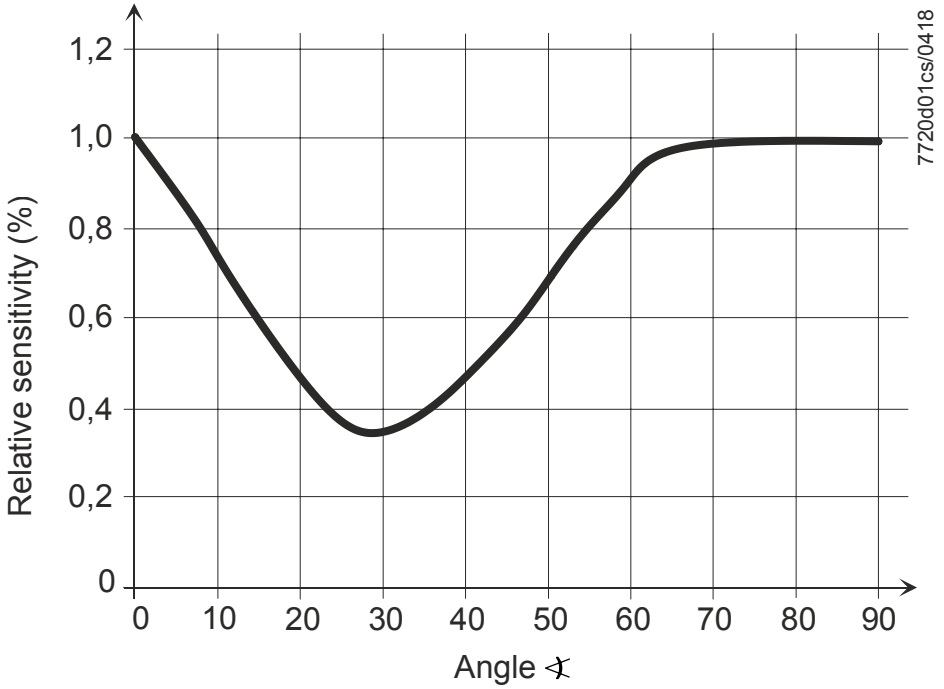
Warning!
Condensation, formation of ice, and ingress of water are not permitted. Failure to observe this poses a risk of damaging the safety functions and the risk of electric shock.

Function

Supervision of light radiation of oil flames in the visible range of the light spectrum. The light-sensitive element of the QRB4 is a photo diode. The output current of the QRB4 increases as the intensity of light increases. The output current is evaluated by the burner control to generate the flame signal.

Incidence of illumination

The QRB4 is designed for frontal and lateral (90°) illumination.

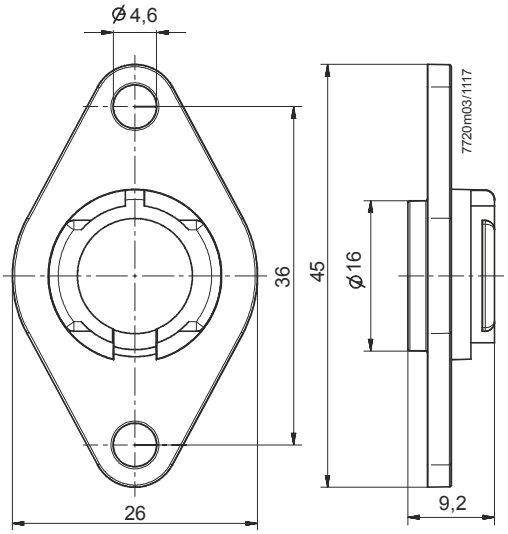


Dimensions

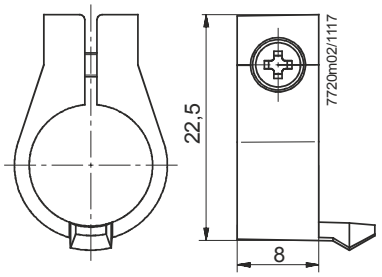
Dimensions in mm

QRB4

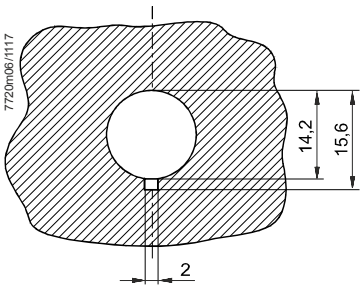
Flange
AGK42



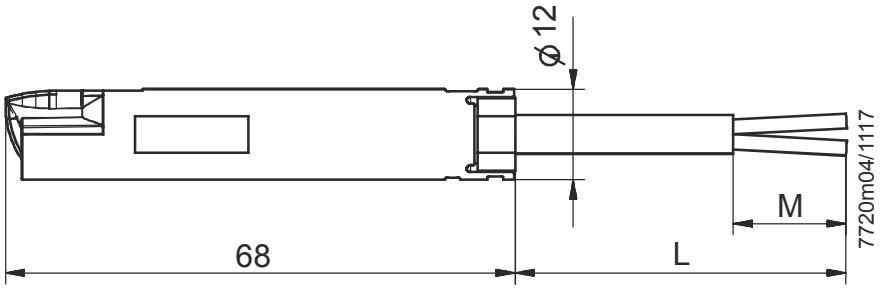
Clamp
AGK43



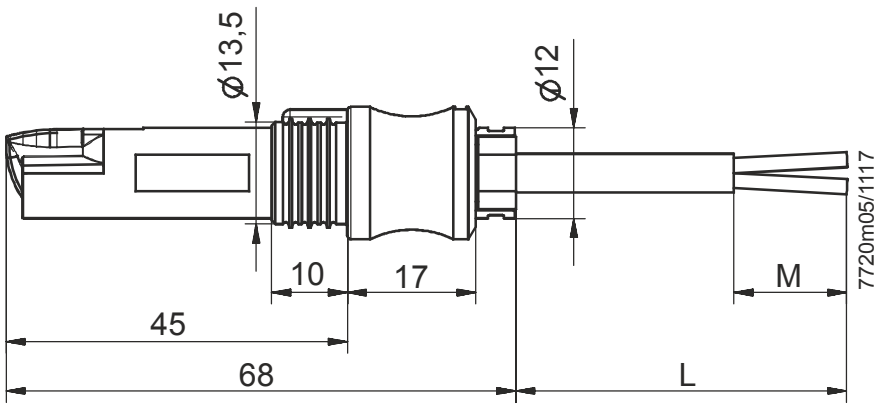
Fixing hole on the burner chassis



QRB4x-xxxx without plug



QRB4x-xxxxB with plug



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Subject to change!