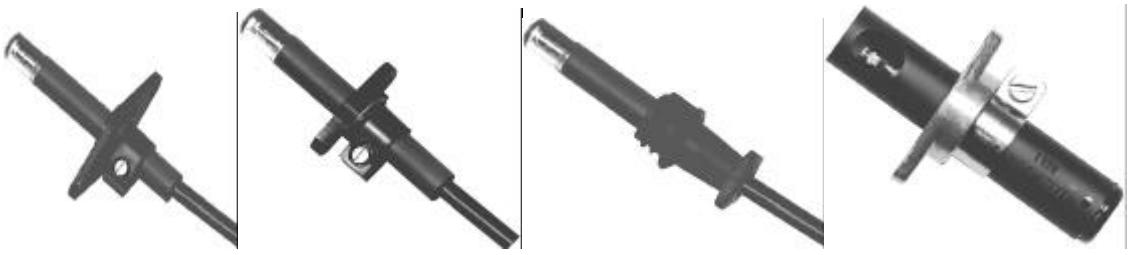
ISO 9001

Photoresistive Detectors QRB...



QRB1...A with large flange and clamp

QRB1...A with small flange and clamp

QRB1...B with plug

QRB3... with flange and clamp

Photoresistive flame detectors for use with Landis & Staefa burner controls, for the supervision of oil flames in the visible light spectrum.
The flame detectors are used primarily in connection with burner controls for small burners.

The QRB... and this data sheet are intended for use by OEMs which integrate the flame detectors in their products.

Use

The QRB... are designed for the supervision of yellow-burning oil flames.

Photoresistive detector	For use with burner controls type
QRB...	LAL..., LOA...

For QRC... blue-flame detectors, refer to data sheet 7716.

Mechanical design

Compact photoresistive detector with infused two-wire thermoplastic cable.
The flame detector is available with normal or high sensitivity and with or without flange / clamp or soft plastic plug (refer to «Type summary»).

QRB1...A

Flame detector without soft plastic plug.
This type of detector is fitted with the help of a securing flange.
A guide groove in the securing flange and a cam on the detector clamp ensure vibration-free mounting and make certain that the detector is always correctly sited towards the flame.

Accessories

- Securing flange with 22 mm spacing for use with **QRB1...1** the
- Securing flange with 36 mm spacing for use with **QRB1...2** the
- Clamp

QRB1...B

Flame detector with soft plastic plug.
For mounting this type of detector on the burner, all that is required is a hole with a lateral groove (refer to «Dimensions»).
The sealing and securing ribs of the soft plastic plug hold the detector firmly in the hole.
The guide guarantees correct alignment of the photoresistive element with the flame.

QRB3...

The detector is supplied with a protective tube of 17 mm diameter.
This type of detector is always secured with a flange and a clamp (refer to «Accessories»).

Warning notes

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

It is not permitted to open, interfere with or modify the flame detector!

- Before performing any wiring changes in the connection area of the QRB..., the burner control must be completely isolated from the mains supply!
- Ensure protection against electric shock hazard on the detector itself and on all electrical connections through appropriate mounting!
- Check the wiring and all safety functions!

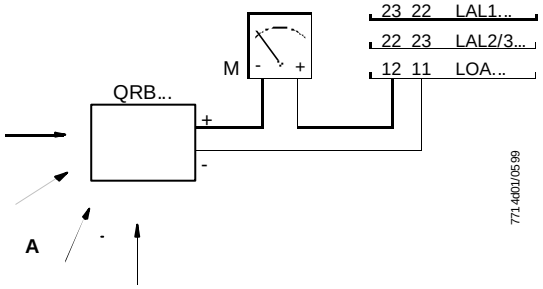
Installation notes

- Installation and commissioning work may only be carried out by qualified staff!
- Observe the permissible length of the detector cable!
  → Refer to «Technical data»
- Always run the detector cable separate from other cables, especially from the ignition cable, while observing the greatest possible distances!
- The relevant national safety regulations must be complied with!
- The detector should not be subjected to mechanical shocks!

Commissioning notes

The intensity of the radiation of light on site is checked by measuring the detector current.

Measurement circuit



Legend

A Incidence of light
M DC microammeter (internal resistance max. 5000 Ω)

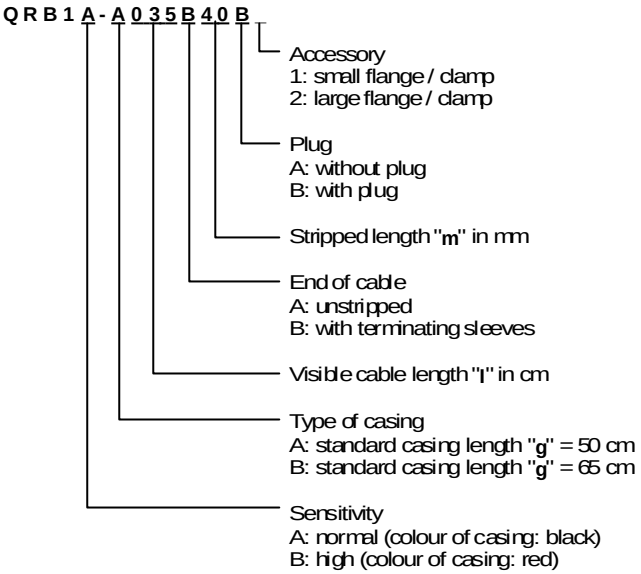
For the minimum detector current values required, refer to the data sheet of the respective burner control.

Service notes

Do not use any burner cleansing sprays.
When cleaning the photoresistive detector, always use a clean cloth.

Type summary

QRB1...



Available dimensions

l* (cm)	18 / 20	28 / 30	28 / 30	33 / 35	48 / 50	48 / 50	58 / 60	68 / 70	78 / 80	148 / 150
m (mm)	40	25	40	40	40	70	25	70	70	70

*** With plug / without plug**

QRB3...

Type reference	**Flange**	**Clamp**	**Feature**	**Sensitivity**
QRB3	Without	Without	Protection pocket	Normal
QRB3(1)	With	With	Protection pocket	Normal
QRB3S	Without	Without	Protection pocket	High
QRB3S(1)	With	With	Protection pocket	High

Accessories

Item	**For use with**	**Part number [1])**
Flange with 21 mm spacing	QRB1...	**4 241 1462 0**
Flange with 36 mm spacing	QRB1...	**4 241 1600 0**
Clamp	QRB1...	**4 186 1096 0**
Flange	QRB3...	**4 286 1490 0**
Clamp	QRB3...	**4 186 8806 0**

[1]) When ordering individual items:
Items are supplied together with the flame detector, depending on the type of detector (refer to «Type summary»).

Ordering

When ordering, please give type reference according to «Type summary».
The QRB1... with plug is always supplied without flange / clamp, and vice versa.

Example

QRB1...: normal sensitivity
standard casing length 50 mm
visible cable length 200 mm
stripped length 40 mm
with terminating sleeves
without plug
without flange / clamp

QRB1A-A020B40A

QRB1...: as above
but **with** a small flange / clamp

QRB1A-A020B40A1

Technical data

Environmental conditions		Degree of protection	IP 40
Transport	IEC 721-3-2	Mounting orientation	optional
Climatic conditions	class 2K2		
Temperature range	-20...+60 °C	Cable length for detectors used	
Humidity	< 95 % r.h.	in connection with LOA... / LAL...	max. 1.5 m
Mechanical conditions	class 2M2		
Operation	IEC 721-3-3	Detector cable	2 x 0.75 mm²; 5.1 mm dia.
Climatic conditions	class 3K5		
Temperature range	-20...+60 °C	Weight	
Humidity	< 95 % r.h.	- QRB1... (depending on type)	20...35 g
Condensation, formation of ice and ingress of water are not permitted!		- QRB3... (without cable)	approx. 35 g

Function

With this type of flame supervision, the radiation of oil flames in the visible light spectrum is used for generating the flame signal.
The light-sensitive element is a photoresistor.
When there is no light, the detector's resistance is in the MΩ range.
Its resistance drops as the intensity of illumination increases (kΩ range).
In contrast to the selenium photocell of the RAR... detectors, glowing firebrick in the combustion chamber can be detected.

Dimensions

Dimensions in mm