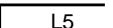

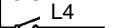
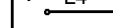
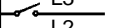
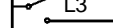
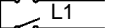


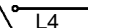
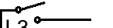
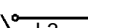
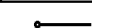

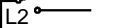
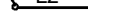
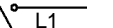
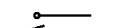










### 3. Contact Wiring and Colour Code

Group 1 SPST	Terminal	Parallel Switching	Group 2 SPDT	Terminal
 L5	white 1		 L4	white 1
 L4	pink 6		 L3	black 9
 L3	grey 5		 L2	red 8
 L2	yellow 4		 L1	blue 7
 L1	green 3		pink 6	
	brown 2		grey 5	
			yellow 4	
			green 3	
			brown 2	
			weiss 1	
Group 3 SPST	Terminal	Single Switching	Group 4 SPDT	Terminal
 L4	red 8		 L3	black 9
 L3	blue 7		 L2	red 8
 L2	pink 6		 L1	blue 7
 L1	grey 5			pink 6
	yellow 4		grey 5	
	green 3		yellow 4	
	brown 2		green 3	
	white 1		brown 2	
			weiss 1	
SPST	Terminal		SPDT	Terminal
 L1	brown 2		 L1	green 3
	white 1			brown 2
				white 1

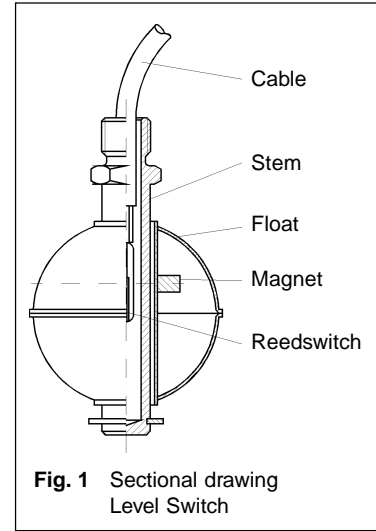
#### Special Connection UTS 2000

	red	Terminal	8
	blue		7
	pink		6
	grey		5
	yellow		4
	green		3
	brown		2
	white		1

#### Single Switching

**Attention:**  
Electrical connection for  
thermo switch 12 V DC or  
24 V DC, 3,0 A

## Operating Instructions for Level Switches



**Fig. 1** Sectional drawing  
Level Switch

### Safety information

Before using the Barksdale Level Switch, carefully read the operating instructions, in particular the safety information. If you fail to comply with them, damage to health or property can occur. Barksdale GmbH shall assume no liability for improper use.

Barksdale Level Switches have been exclusively admitted for industrial applications and may not be used in situations in which human life depends on the proper function of the device.

The relevant provisions of the country of use in question for the use and the installation of the devices are to be complied with.

The following information must also be obeyed at all costs:

- The admissible data must be complied with.
- In disposal and maintenance, the statutory regulations are to be obeyed.
- When working on the electrical parts switch them free of voltage beforehand.
- When working on the float switch, make the plant free of pressure beforehand and empty properly if need be.

### 2. Function Description

All Barksdale level switches work according to the principle shown on picture 1. A float equipped with magnets moves variably with the changing liquid level. The magnetic field actuates a reed switch which is positioned inside the sliding tube at a predestinated place and with this closes respectively interrupts the current circuit.

With several level switching points different alarm functions can be released. When suitable relays are interposed, the signals can be utilized in control systems respectively the pump controls can be executed automatically.

The advantages of these switching units are that they are separated from the medium and are not subject to mechanical wear and tear.

### 3. Installation

Attention: The electrical connection may only be done by trained and qualified personnel!

The Barksdale Level Switches are supplied completely installed and inserted by the tank top side resp. the tank soil. To the tank wall and to installations sufficient distance is to be kept. It is to be noted with the fact that the float can move freely. The Barksdale Level Switches are to be installed after possibility perpendicularly. With up to 30° inclination is however the perfect function ensured.

**Note:** The switches are to be protected against any magnetic fields.

# Barksdale

CONTROL PRODUCTS

#### Barksdale GmbH

Dorn-Assenheimer Strasse 27  
D-61203 Reichelsheim / Germany

Tel.: +49 - 60 35 - 9 49-0  
Fax: +49 - 60 35 - 9 49-111 and 9 49-113  
e-mail: info@barksdale.de  
www.barksdale.de

Art.-Nr.: 923-1214

Index C, 03. 02. 2004  
Due to technical changes

## 5. Contact Protection

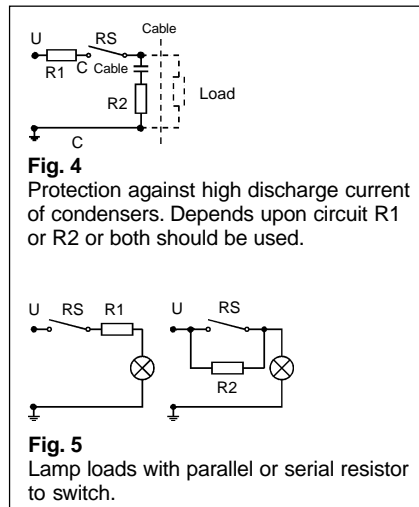
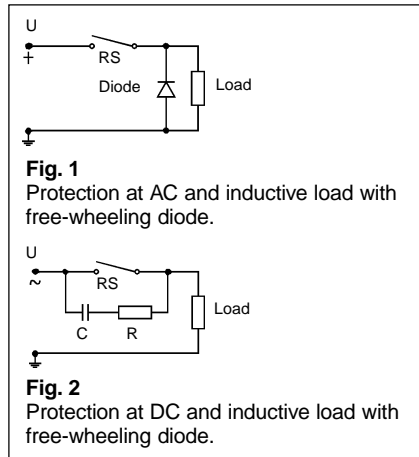
The indicated values for power, voltage and capacity are valid for purely resistive loads. Quite frequently though, the loads are covered with inductive and capacitive components. Very often lamps loads must be switched. In this case protection of the reed switch against voltage and power peaks must be considered.

Of course, each case must be investigated separately. But we like to give some guide lines concerning the wiring of reeds for different loads to avoid premature failure.

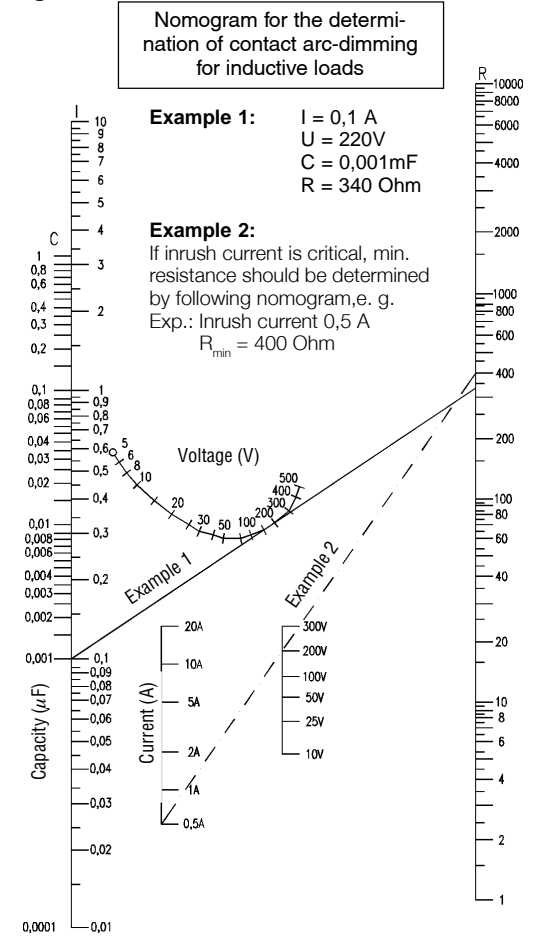
### 5.1 Inductive loads

Contact protection is relatively simple for direct current (DC). A diode is wired parallel to the load. Polarity must be effected in such a way that the diode will inhibit at normal operational voltage (current) and short-circuit the power peaks appearing opposite when opening the switch (see pict. 1).

It is not possible to use a diode for AC. For AC-applications a RC unit has to be used to protect the reed contacts. The units is a RC-unit should be wired parallel to the switch and therefore continuously with the load. Dimensioning of such an RC-unit can be executed according to the nomogram shown on pictures 2 and 3.



**Fig. 3**



### 5.2 Capacitive loads and lamp loads

Contrary to the inductive loads, there are increased starting currents for capacitive loads and lamp loads which can lead to disturbances - even to fusing of contacts. During wiring of loaded condensators (e.g. cable capacities) a sudden discharges will occur, with an intensity depending on capacity an length of supply cable (to be regarded as series resistor) to the switch.

The discharge peak of current is largely reduced by a series resistor to the condensator. It's size is determined by the possibilities of the respective power circuit. It should be as high possible in order to limit the discharge current to a permitted value. These criteria are valid analog for the charging of condensators (see picture 4).

Finally we want to give some details about the wiring of lamp loads. Cold glow-lampfilaments (not switched on) have got a ten times smaller resistance than switched on filaments. That means during-on-action- even for a short period of time, static condition of the lamp. This tenfold starting current rush can be reduced to an allowable quantity by a continuously wired current limit resistance. Another possibility is the parallel wiring of a resistance to the switch which will permanently heat up the switched off lamp filament only so much as to just prevent it from glowing. Both protective modes result in the loss of capacity.


### 5.3 Use in hazardous locations

EExi- approved float switches are designed for intrinsically safe circuits if interconnected with a certified, intrinsically safe electric unit. The peak values are indicated on the type plate.

## 6. Mounting

- The sliding tube of the level switch may not be bent or exposed to hard impacts, as otherwise the protective gas contacts (reed contacts) will be damaged.
- Existing adjusting rings, gripping rings or clamping brackets may not be removed, as otherwise the switching function opener, closer or changer no longer is guaranteed.
- The maximum switching capacity as per leaflet for float switches with a 12 resp. 13 mm sliding tube, for one closer resp. opener is 100 VA for a switch-over contact 60 VA and for a float switch a sliding tube of 8 mm thickness, for the closer resp. opener 40 VA and for the switch-over contact 3 VA. These switching capacities may not be exceeded, as otherwise this would cause welding of the contact points. With short circuit the switching contact is immediate destroyed.
- Long cables take a high capacitive loading current during switching on. This loading current can be built-in into the connecting housing approx. 20 to 30 Ohm (1 W).
- Metal filament lamps take 3 to 4 times of the current during switching on. Level switches with e.g. 100 VA switching capacity therefore can switch filament lamps of 25 W only. Pay special attention if you use filament lamps for continuity checks.
- When switching direct voltages as spark killer a diode in locking direction + against + is to be parallelly switched to inductive consumers like relays, magnetic valves etc.
- Cable screwing of level switches should be examined regarding to firmness at the connecting housing as well as at the float switch, so that no spray water can penetrate. Possibly seal be means of filler.

### Approval Data EXI-Level switches:

Approval :  II GD EEx ia II C T6 - EEx ia II B T6 Electrical Data:  $U_i = 28 \text{ V}$   
 $i_i = 50 \text{ mA}$   
Certificate-No. : ISSeP03ATEX119X  $C_i = 40 \text{ pF}$   
Max. Ambient Temp. :  $-40 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$   $L_i = 4 \text{ }^\mu\text{H}$

## 7. Maintenance

Maintenance works are not necessary except of possible cleaning of the guide tube from medium residues.

**Attention:** The maximum operating pressure depends on the mounting element and the float.