

# TDR Time Delay Remote Unit with Electrical Isolation



The TDR time delay remote unit is a heavy duty trapped key interlock switch controlled by a fail-safe timer and solenoid. The unit is designed to control access to hazardous machines with run down times and can be used in high risk applications. The unit incorporates a dual channel fail-safe timer, heavy duty continuously rated solenoid, solenoid position monitoring, 20A electrical switch, front panel lamp indication of solenoid position and timer failure with up to four lock centers for multiple access applications.

## OPERATION

The Castell TDR time delay remote unit with electrical isolation is typically used for machine isolation in applications in order to protect the hazardous area from access while power is on.

### TDR electronic time delay remote unit with electrical isolation

**1** All keys are trapped. No signal to the TDR unit.



The keys are trapped in the TDR. Switch contacts arrangement: 3 normally open and 3 normally closed.

**2** Continuous voltage signal initiates timer. After time delay, release the keys by pushing the green button.



When the machine stop sequence is initiated, a signal from the machine control circuits starts the timer in the TDR unit. Once completed, the timer energizes the solenoid illuminating the green LED. By pushing the green button the keys can be released. These keys are taken by the operator to the machine area.

**3** All keys are free.



The machine cannot be restarted until all keys are replaced and trapped in the TDR time delay remote unit.

The TDR is available with different solenoid voltages as 24 VDC and 240 VAC, 110 VAC (see order information on page 7 for more details).

The TDR comes with 6 contacts as standard with contacts arrangements as 3NO/3NC, but auxiliary set of contacts are available on request.

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## USAGE

The TDR time delay remote unit with electrical isolation is designed to be part of a safety system and is used to switch off the power. The TDR waits for a signal from the machine which starts the time delay countdown, before releasing a key, which is then used to gain access to a hazardous area via an access interlock such as the AI, AIE.



The TDR time delay remote unit with electrical isolation is not designed for security purposes.

No hazardous substances were used in the manufacture of this product.

## INSTALLATION

The TDR time delay remote unit with electrical isolation should be mounted to a surface using suitable fasteners (please refer to drawing on page 4-5 for more details). The back of board mounted version should be sealed to the panel for ingress protection.

Cables should be connected to the switch in accordance with the applicable wiring diagrams. Ensure that the unit is bonded for earth continuity (please refer to drawing on page 6 for more details).



**IMPORTANT:** The interlock should be mounted using anti-tamper fasteners to prevent unauthorised removal.



The TDR range of electronic timer with electrical isolations must be installed by a competent and qualified person who has read and understood these instructions. Please retain this document in your technical file.



The manufacturer should be consulted when use in a corrosive environment is planned.

## MAINTENANCE

Periodic visual checks should be carried out by the site manager / safety officer.

Do not lubricate lock barrel with oil or grease, use CK dry powder graphite if necessary.



The interlock must be inspected every 6 months. Safety checks should include ensuring the keys can only be removed in the correct safety operating conditions (see page 1).



In case of defects being detected please contact your nearest Castell Support Department for further actions. Please see Contact section for contact details.

# TDR Time Delay Remote Unit with Electrical Isolation

## TECHNICAL DATA

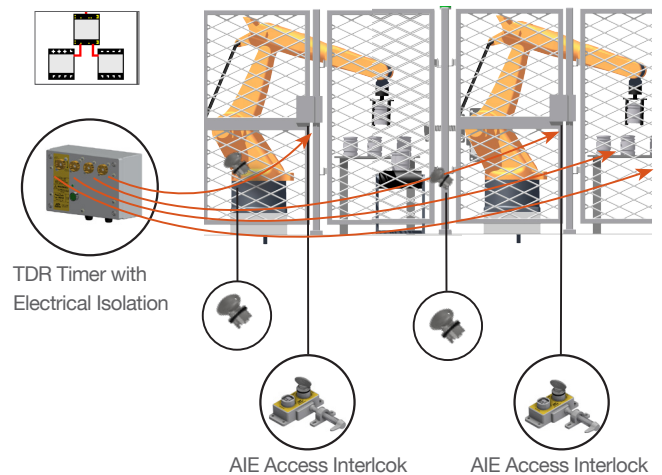
<b>Temperature rating</b>	Minimum: -5°C [23°F]
	Maximum: 55°C [131°F]
<b>Type of mounting</b>	Surface mount using suitable fasteners (please refer to drawing on page 4-5 for more details)
<b>Weight</b>	5 kg
<b>Material</b>	Brass or Stainless steel lock portions, powder coated mild steel enclosure
<b>Cable size</b>	M20 Gland x 2
<b>Voltage</b>	24 VDC and 240 VAC, 110 VAC
<b>Motor ratings</b>	400 MA t0 20 AMP at nominal 690 V 3x380-440 V AC 23A 7.5 KW or AC3 5.5 KW
<b>B10d</b>	2,000,000
<b>PL rating</b>	PLe

## APPLICATION

The TDR safety component is designed to operate as part of an integrated safety system, controlling access to hazardous areas to motor driven, high risk applications where a certain time rundown is required before access is granted.

While machine is running, the keys are trapped in the TDR interlock, preventing access to the machine area. To gain access to the area, the electrical supply must be switched off via the machine control panel. When the machine stop sequence is initiated, a signal from the machine control circuits starts the internal timer. After a pre-set time (which must exceed the machine run down time), the timer energizes the solenoid illuminating the green LED. By pushing the green button the keys can be released. These keys are taken by the personnel to the AIE access interlocks on the doors.

The machine cannot be restarted until all doors are locked closed and all keys returned to the TDR electronic timer.



## EC-DECLARATION

We, the manufacturers, declare that the components detailed herein and placed on the market comply with all the essential health and safety requirements applying to them.

ISO 13849-1:2015 Safety of Machinery

2006/42/EC Machinery Directive

Empowered signatory:

Kirstie Van Oerle  
Business Unit Director 

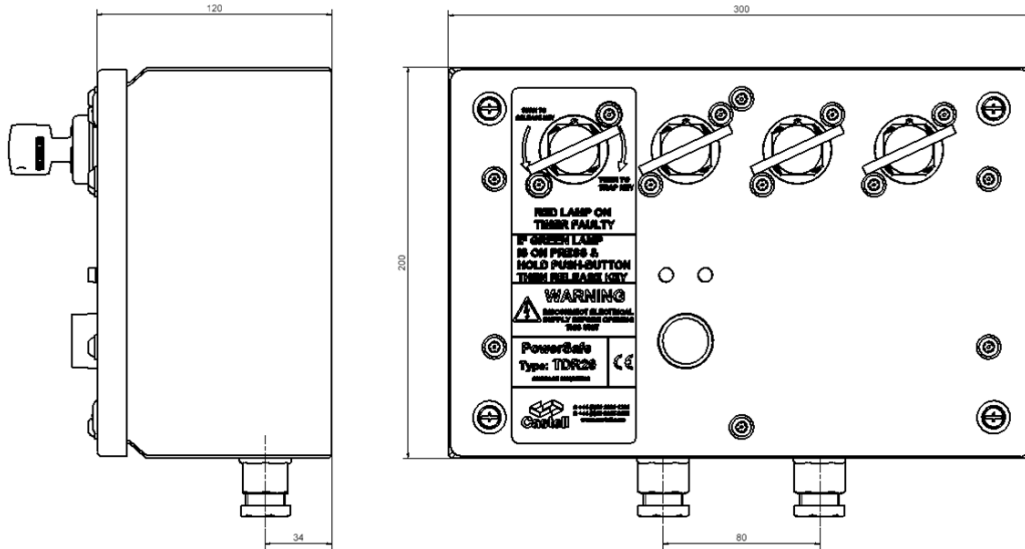
# TDR Time Delay Remote Unit with Electrical Isolation

## DRAWING

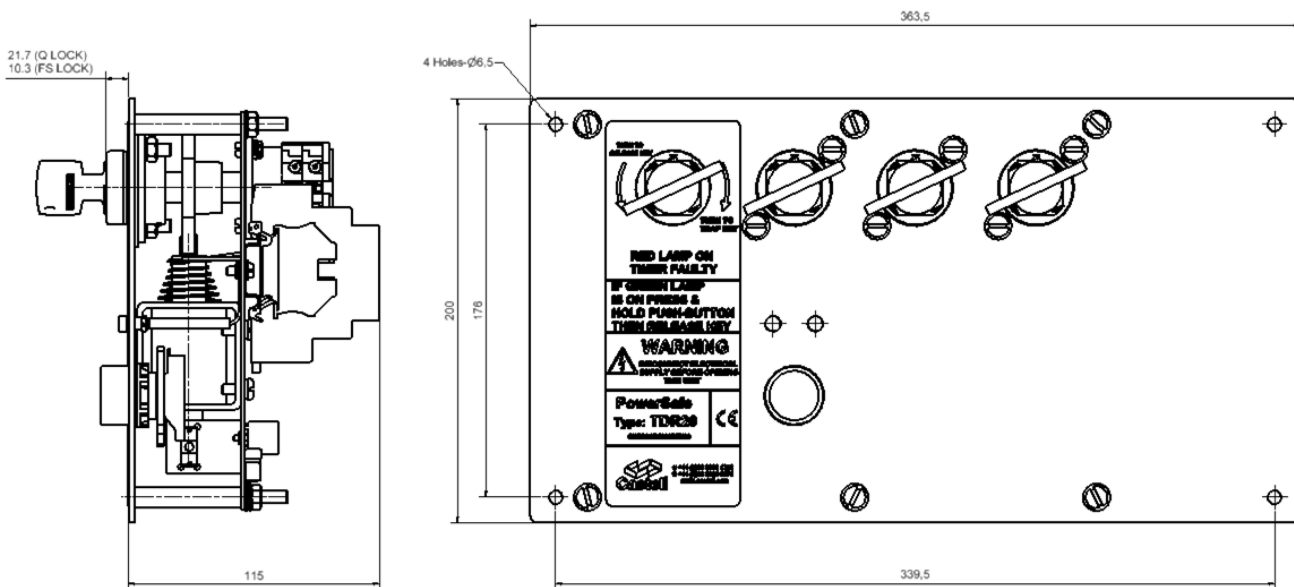
Dimensions: in mm

**Note:** For safe mounting, use security screws

### TDR, surface mount/enclosure version (FOB = front of board)



### TDR, panel mount (BOB = back of board)



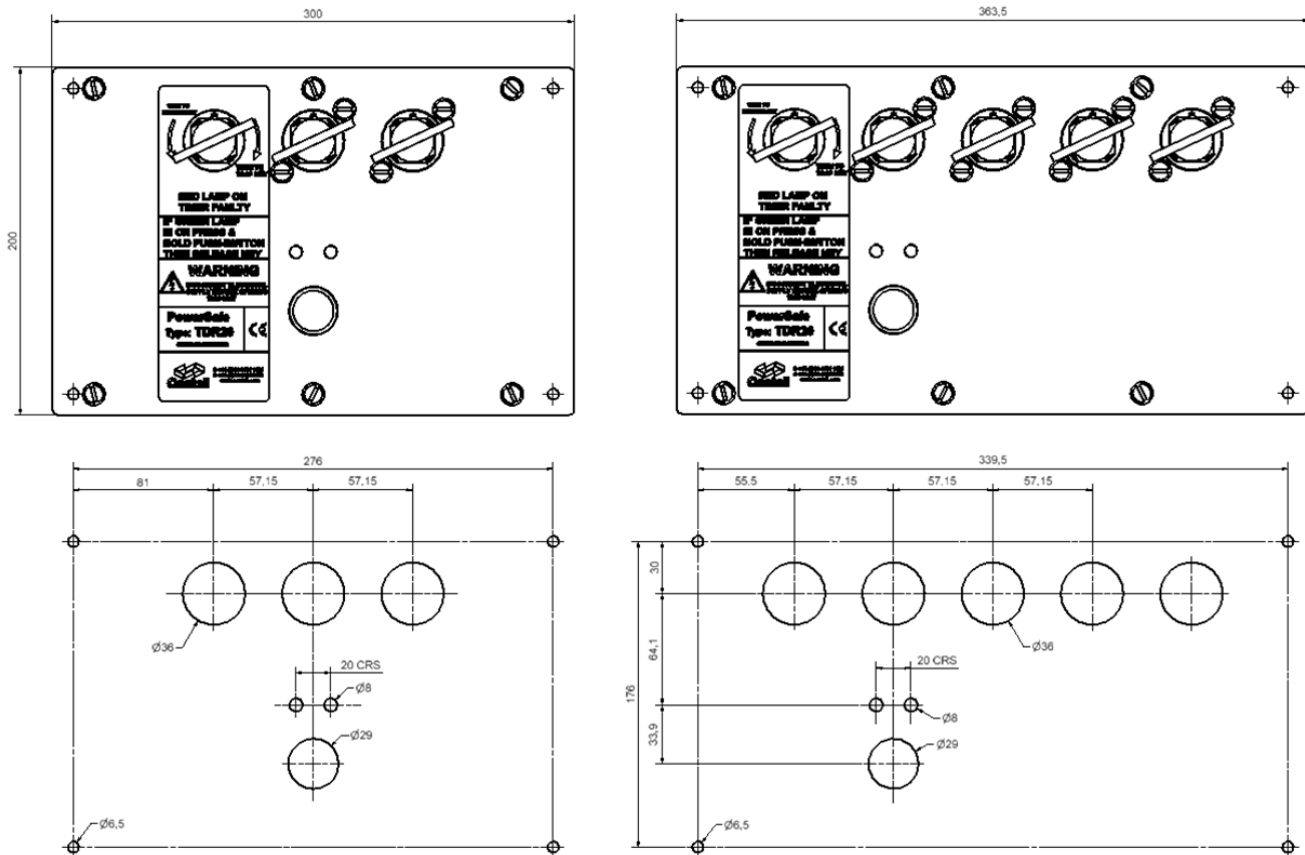
# TDR Time Delay Remote Unit with Electrical Isolation

## DRAWING

Dimensions: in mm

**Note:** For safe mounting, use security screws

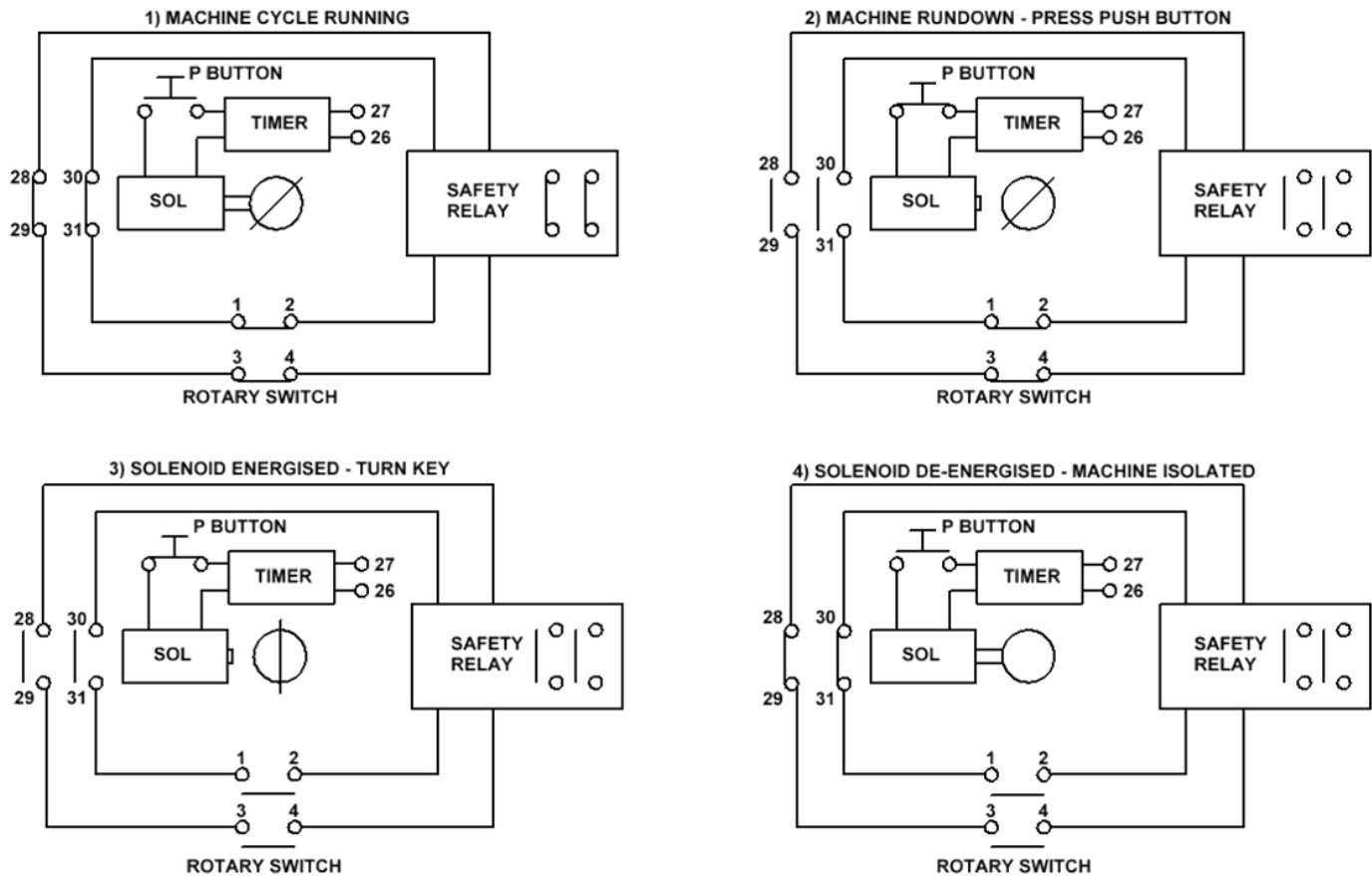
### TDR, panel mount/enclosure version (BOB = back of board)



# TDR Time Delay Remote Unit with Electrical Isolation

## WIRING DIAGRAM

### TDR



# TDR Time Delay Remote Unit with Electrical Isolation



## ORDER INFORMATION

	Component	1	2	3	4	5	6	7	8	9	10	11
Part	TDR											
Example	TDR	FS	B	F			N/O	6	110	A	30	TBA

1	Lock portion type	FS <sup>(1)</sup> / Q <sup>(1)</sup>
2	Material	B = Brass / S = Stainless steel
3	Mounting	F = Front of board mount with enclosure, standard
4	Optional: Secondary lock portion(s)	1S = 1 secondary key (2 locks) 2S = 2 secondary keys (3 locks) 3S = 3 secondary keys (4 locks)
5	Refers to item 4: Key condition	D = Double key version / Exchange key upon request
6	Contacts arrangement in normal position	N/O = NO/NC arrangement (contacts closed/open)
7	Number of contacts	6, standard
8	Control voltage	24 / 110 / 240, standard
9	Current	VAC (110, 240) / VDC (24)
10	Time delay	30 / 60 or 90 sec, standard or as required (max. 300 min)
11	Lock portion symbol: Please advise for each lock separately!	FS <sup>(1)</sup> up to 3 characters / Q <sup>(1)</sup> up to 6 characters

(1)	FS - Lock type	Q - Lock type
	Up to 3 characters	Up to 6 characters

Special construction available upon enquiry

## CONTACT INFORMATION

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