

//ANGEL React

Shirt System

Gets help when you can't.



[Product information](#)

Ha, ha, ha, stayin
alive, stayin alive

We use technology and our experience to improve the world of workplace safety. People are our focus.

Ah, ha, ha, ha,
stayin alive

ANGEL React Shirt System

- Do you want to be able to quickly and reliably get help for your team in an emergency?
- Do you worry about the dangers of lone working and want to make working alone safer?
- Do you want a trustworthy system that captures incident details and forms the basis for appropriate safety training measures?

Gets help when

Your assistant in an emergency: The ANGEL React Shirt System detects electrical accidents, falls from a height, and motionlessness and automatically summons assistance, making it a trusty companion throughout the working day.

An unbeatable trio that brings many benefits

The three components that make up the ANGEL React Shirt System are an intelligent Shirt Genius **1**, a smart T-shirt **2** with electrodes for measuring current, and a smartphone app **3** – quick to install, easy to use, and dependable in emergencies.

Rapid response in the event of an accident when working alone

Even when lone working is permitted, having a backup is still a good idea. The ANGEL React Shirt System identifies an emergency and automatically summons assistance. The Shirt Genius uses optical and acoustic signals to communicate with the environment to quickly flag an emergency situation.

Make every work situation safer

The Task Timer can be programmed in advance to the estimated required duration for high-risk work. The timer stores the last-known GPS position. Before the time set on the timer has elapsed, a pre-alarm sounds. If you do not acknowledge this alarm within a specified period, an emergency call will automatically be made, and the rescue chain will be put into effect.

Learning from emergencies

Every electrical accident, fall from a height, and period of motionlessness are documented. As a team manager, you receive regular statistical analyses and anonymized data from your team, enabling you to analyze and rectify the causes of minor accidents in order to avoid more serious ones. This helps your team become more aware of their own safety in their everyday working environment. You also learn what is normal in your industry and what is not, allowing you to learn from others and others to learn from you.



you can't.

ANGEL React helps you in critical work situations and can save lives. However, ANGEL React is not personal safety equipment as defined in Regulation (EU) 2016/425. To ensure the highest levels of workplace safety, always observe the national safety standards and safety regulations. We cannot guarantee that the product will detect every emergency situation. You must not, under any circumstances, expose yourself to a higher level of risk by relying on the ANGEL React Shirt System. ANGEL React is not designed or intended for the diagnosis, prevention, monitoring, or treatment of diseases, injuries, or for other medical purposes. ANGEL React is not a medical device as defined in the Regulation (EU) 2017/745 of 05/25/2017.

Intelligence through

Digitization has brought the fields of electronics and textiles together. The ANGEL React Shirt System's smart textiles record information through sensors. The Shirt Genius is the central part of the system and will put the emergency chain into effect in moments.



Central control unit: the Shirt Genius
The Shirt Genius is the brains of the system. It clicks into the cradle and communicates with the user using optical and acoustic signals. The Shirt Genius records the voltage drop in the body, detects falls and motionlessness, and calls the emergency contacts via the connected smartphone app in the event of an emergency.

- Powerful processor for detecting emergencies
- Acoustic and optical signals
- Battery life of one day
- Light and compact
- Blends in perfectly with the shirt
- Powerful magnets provide a secure grip on the upper arm

Fitted holder – the cradle
The cradle holds the Shirt Genius and is made from a flexible material. Its flexible shape allows it to fit around the upper arm.

Conductive materials and electrodes
Electrodes in the ANGEL React Shirt System cuffs measure the voltage drop between the upper arms, allowing any current flow to be detected. Elastane in the cuffs provides close skin contact with the sensors, which are connected to the Shirt Genius by a textile cable. The ANGEL React T-Shirt comes in various cuff widths, so the sensors always sit tightly against the upper arm.

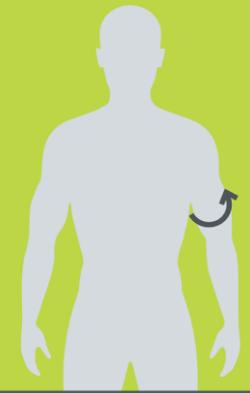
Individual branding
The ANGEL React T-Shirt is available in your corporate colors and can be printed to your specifications with a company logo and marketing slogan.

Comfortable against the skin
The smart textile T-shirt is made of organic cotton, kind to the skin, durable, easy to wash, and comfortable to wear thanks to its loose-fitting cut. The T-shirt is certified according to OEKO-TEX® STANDARD 100, bluesign®, and PIMA®.

Watchdog connection option
See section „Switches off the electric circuit“.

Help Coordination Portal
If you have an accident, your emergency contacts will receive a text message, and optionally an e-mail, containing a link to the Help Coordination Portal. Here they will see:

- What happened?
- Where it happened (including a link to Google Navigation)?
- How they can help?



Getting the size right. How to find the right size for you.

It is essential to take accurate measurements to ensure the items fit correctly. The upper arm in particular must be measured accurately to enable reliable detection.

Step 1
Cut the measuring tape out of this brochure. Let your less dominant arm hang down by your side. Relax your upper arm and measure its circumference at its widest point (the biceps). Read the value on the lower scale of the measuring tape, e.g., 27–34 cm.

Step 2
Measure your chest circumference and consult the table below to find the right shirt size. For in-between sizes, we recommend the smaller size.

Size	Chest measurement	Size
XS	84–90 cm	165–170 cm
S	90–96 cm	170–175 cm
M	96–102 cm	175–180 cm
L	102–108 cm	180–185 cm
XL	108–114 cm	185–188 cm
XXL	114–120 cm	188–191 cm
3XL	120–126 cm	191–194 cm
4XL	126–132 cm	194–197 cm
5XL	132–138 cm	197–200 cm
6XL	138–144 cm	200–203 cm

Schritt 3
When ordering, combine your clothing size with the bicep circumference, e.g., L 27–34.

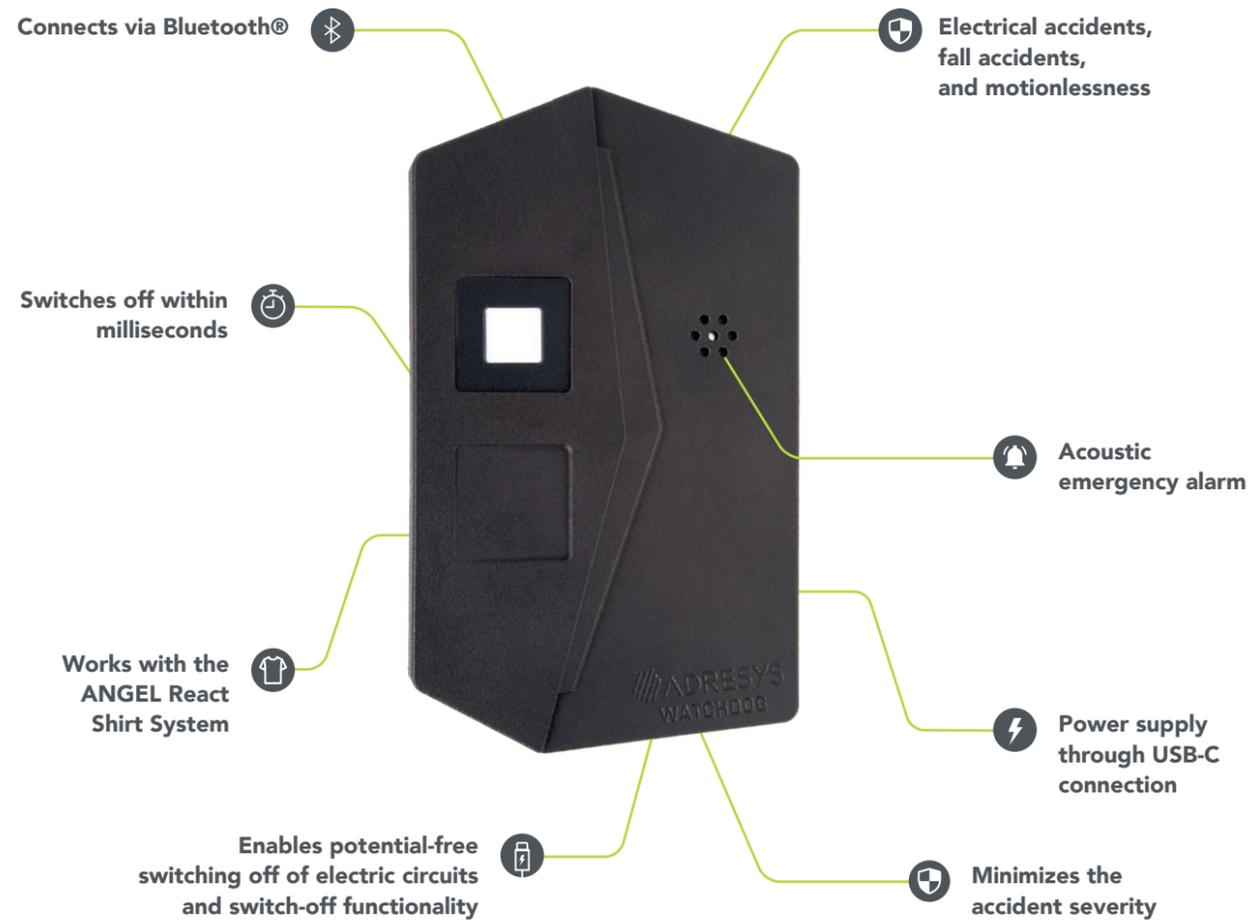
Cobalt Blue		Forest Green	
Yellow		Black	
Navy Blue		Fiery Red	



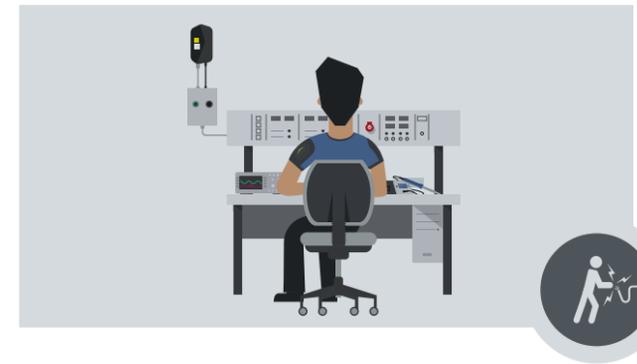
19–22 cm 22–27 cm 27–34 cm 34–48 cm

Switches off the electric circuit

The Watchdog is an add-on for the ANGEL React Shirt System that responds to workplace accidents immediately. It increases workplace safety in stationary and non-stationary operations when working in the low and high-voltage range.

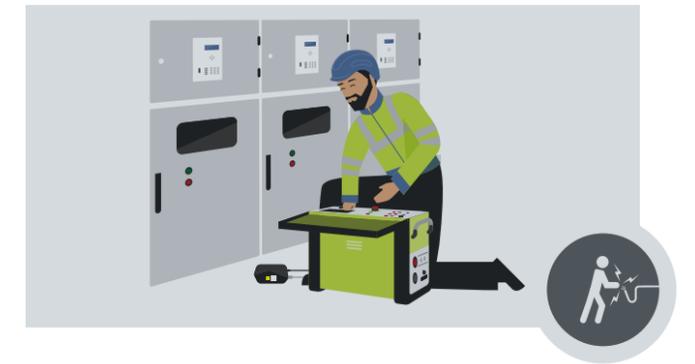


You can find more information on the Watchdog here.



Emergency stop circuit

When electrical accidents occur, 90% of them happen when working with low voltage. This person works in an electrical lab and is exposed to the risk of an electrical accident. The Watchdog is integrated into the emergency stop circuit. If an accident occurs, it switches off automatically after just a few milliseconds, thus preventing serious injury. The alarm notifies colleagues immediately, and the Restart Inhibit prevents accidental switch-on.



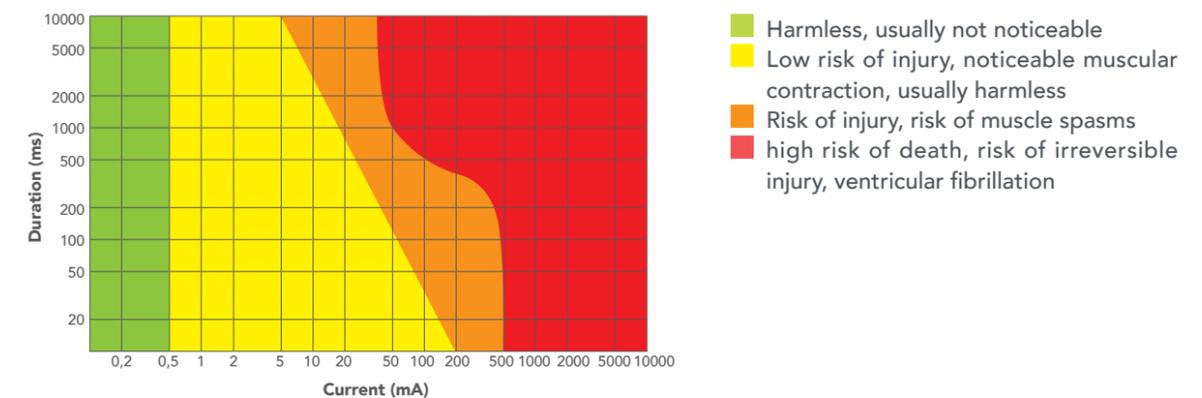
Energy source with switch-off functionality

Regular testing in the electrical power industry is vital to ensure a safe power supply. During measurement tests, hazardous voltages are emitted from test sets. This person is working alone daily in a high-risk environment. The Watchdog is connected to the safety interface of the testing device. If an accident occurs, the Watchdog reacts immediately and switches off the testing device. The emergency chain is triggered immediately.

Risks during electrical accidents

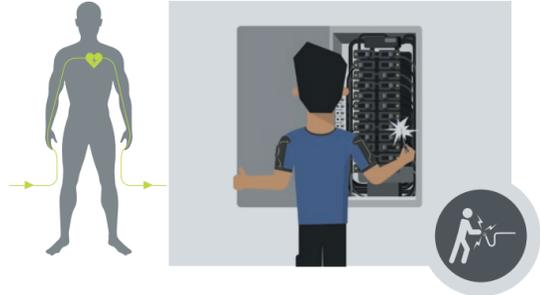
(as per Biegelmeier curve)

Injuries can be sustained in just a few milliseconds. The Watchdog reduces the duration of current flow during an electrical accident and minimizes the severity of the accident.



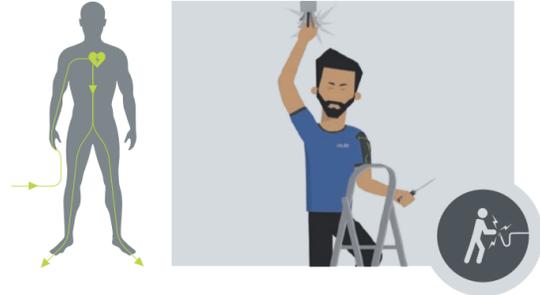
The smart assistant in all situations

ANGEL React springs into action when someone's life is at risk during their day-to-day work. Consider these four examples:



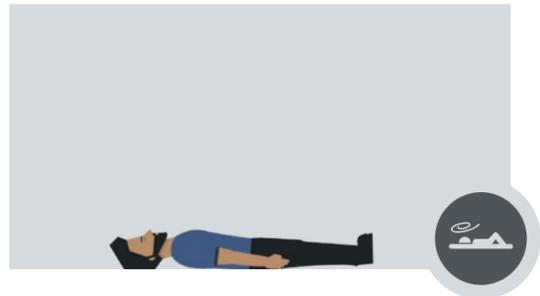
Case 1: Electrical accident hand-hand

A person is working on a fuse box with one hand. A mistake was made, and an electric circuit was not de-energized; the person inadvertently touched the fuse door with their other hand. As a result, the current flows from their fingers, their hand, their heart, and the door of the fuse box back via their other hand. The ANGEL React Shirt System detects an accident by measuring the voltage drop between the upper arms. It then initiates the emergency call chain.



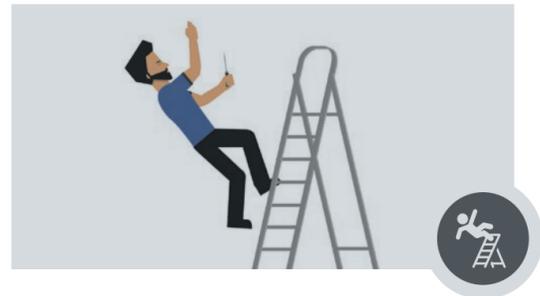
Case 2: Electrical accident hand-foot

A person is standing on a ladder and working on an open cable duct overhead. They touch a cable by mistake. The current now flows from their fingers, arm, heart, and entire body. The current flows away again through their feet and the ladder. The ANGEL React Shirt System detects the voltage drop between the person's upper arms and places an emergency call.



Case 3: No Motion

If a person is motionless while performing routine day-to-day work, this may indicate an emergency. That's why the ANGEL React Shirt System responds to motionlessness with a pre-alarm. If the person remains motionless, the system assumes an actual emergency and sets the emergency call chain in motion.



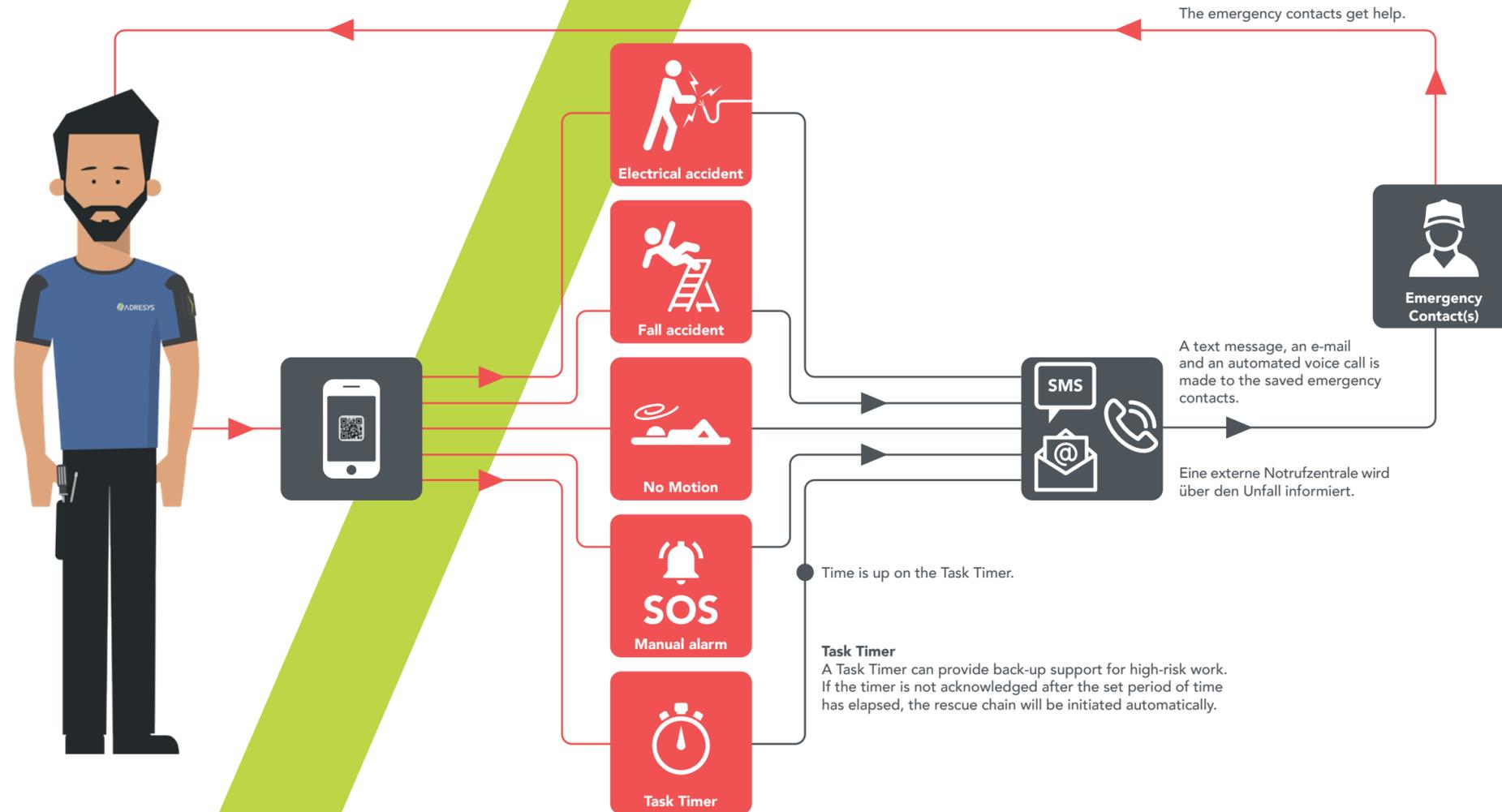
Case 4: Falls from a height

Falls also represent a common cause of accidents in day-to-day work. The ANGEL React Shirt System's fall detection comprises three parameters: free fall from approximately a height of 1m, impact on the floor/ground, and subsequent lack of movement. If the system detects these parameters, it raises the alarm and summons assistance.

Electrical hazards



Users are often unable to respond appropriately or unaided in an emergency. Thanks to the sophisticated, automated emergency chain, the ANGEL React Shirt System ensures that help is on hand quickly.



Help from your emergency contacts

Users enter the details of their emergency contacts in the ANGEL React Portal at the outset. In an emergency, the emergency contacts are notified by text message, automated voice call, and e-mail, and provide rapid assistance. The accompanying GPS data provides the location of the casualty.

See the explanatory video for more information



Questions & answers



If your question is not answered below, please get in touch.

How does the ANGEL React Shirt System change your day-to-day work?

You wear an ANGEL React Shirt System in the same way you would any other work shirt. The Shirt Genius on the upper arm is barely noticeable, if at all, during day-to-day work. However, in hazardous situations, the ANGEL React App on your smartphone summons assistance immediately and can save lives.

What is the voltage threshold from which the ANGEL React Shirt System responds?

The short answer is that there isn't one, and that's just as it should be. After all, it's not the voltage that's harmful but rather the current that flows through the body. The Shirt Genius measures the voltage drop between the upper arms, and this is an indicator of the current that flows through one or both arms. Whether the voltage is high or low is, therefore, irrelevant. The response threshold of the Shirt Genius is typically in the single-digit milliamperage range.

Is the ANGEL React suitable when working on live systems?

Working on live systems is subject to a special set of rules that may not be altered or reduced, even when using a Shirt System. You should always try to work in accordance with the five safety rules. The system is an additional safety measure for when work errors occur.

Does the ANGEL React Shirt System qualify as personal protective equipment in the sense of EU Regulation 2016/425?

No, the Shirt System provides additional, voluntary protection and is therefore not personal protective equipment in the sense of EU Regulation (EU) 2016/425 of 03/09/2016. Therefore, it does not replace any required protective clothing or personal safety equipment.

Can the ANGEL React Shirt System detect every type of electrical accident?

The Shirt System recognizes when current flows through the body, and there is a voltage drop between the upper arms. As the circumstances behind an electric incident are many and vary, we cannot guarantee that every single one will be detected.

Can emergencies still be detected without cell reception?

Smartphones use either the cellular network or a direct data connection such as Wi-Fi. If neither connection is available, the smartphone will prompt you to reestablish the connection. If there is no connection, you can also set a Task Timer – you can activate this timer before you carry out dangerous work or before you start work in a basement without reception, for example. The Task Timer runs autonomously on our server. If you do not stop the alarm when time is up on the timer, the rescue chain will be alerted automatically.

Will the Shirt System work in the event of an arcing fault?

The ANGEL React Shirt System does not respond to arcing faults. For this, flame-retardant outer clothing is required. As the ANGEL React Shirt System is made from cotton and cannot melt, it is ideal for wearing beneath flame-retardant protective clothing.

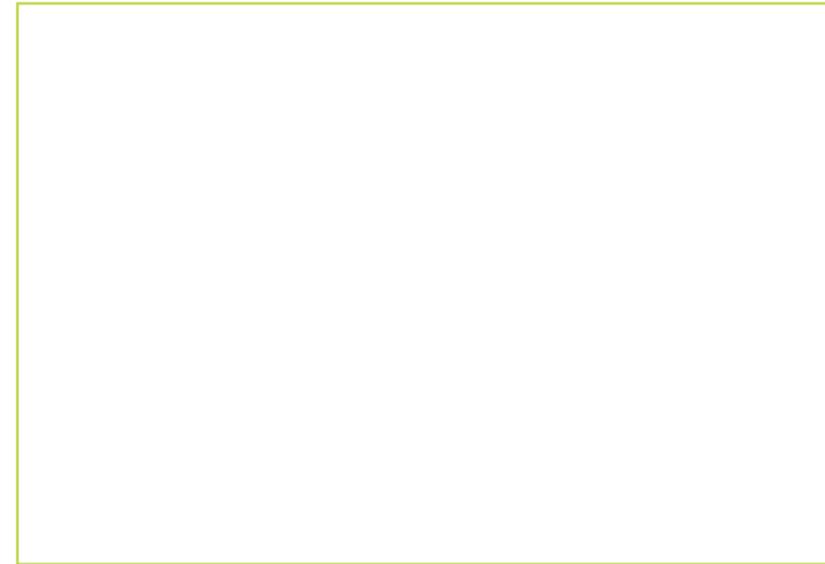
Will the alarm be set off if I jump down from a ladder?

Fall detection consists of a combination of several parameters: free fall, impact, and subsequent motionlessness. In the event of a significant shock, the fall sensor integrated into the Shirt Genius will start to record the fall. The alarm is triggered automatically only if you remain motionless after the fall because the Genius then presumes this to be a real emergency situation. So, jumping down from a ladder and then walking away will not be identified as an accident.

Will the ‚No Motion‘ alarm sound if I haven't moved for a while?

If you're carrying out a stationary task (office work, meeting, break, etc.), you might not move your upper arm for a period of time. In this case, the ‚No Motion‘ pre-alarm will sound. Move your arm slightly to stop the pre-alarm. You can also remove the Shirt Genius from the ANGEL React T-Shirt while you're doing stationary tasks.

Your local ANGEL React sales partner



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