



TYT-KAIRA (UWKS) Knife Switches Data Sheet



Introduction

The TYT-KAIRA is the trade name for our new range of 400-amp DC safety, monitoring, and isolation switches. These units are designed to be positioned between the power source and the diver/operator, providing a safe, efficient, and reliable method of isolating current and voltage while enabling real-time monitoring and control of welding and cutting operations.

Our TYT-KAIRA Knife Switches ensure enhanced safety and performance in demanding underwater and hazardous environment applications.

Available Models

We offer two distinct models to suit various operational needs:

1. TYT-KAIRA Knife Switch (Digital) – Recommended for Underwater Welding Operations
2. TYT-KAIRA Knife Switch (Mini) – Recommended for Underwater Cutting/Burning Operations

1. TYT-KAIRA Knife Switch (Digital) – Recommended for Underwater Welding Operations

The TYT-KAIRA Knife Switch (Digital) is equipped with advanced digital readouts for precise amp and volt measurements, allowing operators to monitor welding parameters accurately.

Key Features:

- Digital amp and volt meters for precise monitoring of welding parameters
- Open Circuit Voltage (**OCV**) monitoring – a critical safety feature
- Circuit efficiency analysis – helps detect potential resistance issues affecting performance
- Indicator lamp – signals when the circuit is live (Hot)
- Portable and rugged – housed in a robust plastic case for easy transport and durability.



2. TYT-KAIRA Knife Switch (Mini) – Recommended for Underwater Cutting/Burning Operations

The TYT-KAIRA Knife Switch (Mini) is a compact, simplified version of the digital model, offering the same high safety standards in a smaller, more streamlined form.

Key Features:

- Compact and lightweight – ideal for space-constrained environments
- Indicator lamp – signals when the circuit is live (Hot)
- Robust and reliable – designed specifically for cutting/burning operations
- No amp/volt meters – a streamlined solution for basic monitoring and isolation functions



EMERGENCY DISCONNECT - DOUBLE POLE



The Isolation switch is designed to quickly disconnect power supplies in the event of a serious electrical fault, making it ideal for welding and cutting applications. While it is mainly used in static power systems, the switch is capable of safely handling full-load currents in emergencies.

This Isolation switch is manually operated, featuring a spring mechanism that provides a quick, snap action when opening or closing. To activate the switch (“hot”), simply pull the knob. To deactivate it (“cold”), push the knob. Once pushed, the switch will automatically lock in the “cold” position and stay locked until manually pulled again to reactivate.

Precautions: The switch should only be used for disconnecting power during emergencies or as a no-load isolator, particularly in welding and cutting scenarios.

Application	Uninterrupted
Thermal Current Rating (I_{th})	400A
Intermittent Current Rating:	
30% Duty	730A
40% Duty	630A
50% Duty	565A
60% Duty	515A
70% Duty	480A
Overload Currents that can be Ruptured:	
ED402	1500A at 48V D.C.
Maximum Recommended Contact Voltages (U_e):	
ED402	96V D.C.
Typical Voltage Drop per pole across New Contacts at 400A	30mV
Mechanical Durability	>10 x 10 ³ Cycles
Operating Ambient Temperature	- 40°C to + 60°C
Guideline Contactor Weight:	
ED402	1000 gms
With Auxiliary	+ 20 gms
With Lock	+ 60 gms
Auxiliary Details	
Auxiliary Thermal Current Rating	15A
Auxiliary Contact Switching Capabilities (Resistive Load):	
	15A at 24V D.C.
	10A at 48V D.C.
	5A at 96V D.C.
Advised Connection Sizes for Maximum Continuous Current	
Cable to be rated suitable to Application	
Key: ▲ = Uninterrupted	
Note: Where applicable values shown are at 20°C	

Applications

While primarily designed for underwater welding and cutting, TYT-KAIRA Knife Switches are also suitable for thermal isolation applications in other hazardous environments.

Safety Compliance

For best safety practices, refer to **IMCA document D045 - Code of Practice for Safe Use of Electricity Underwater.**

Technical Specifications

General Features (All Models)

- 400-amp duty cycle push/pull switch (100% duty cycle)
- Certified according to European safety and compliance standards, including:
- CE Certification – in accordance with European safety directives The certificates will be sent separately upon request.
- Fitted with DINSE-style panel plugs and sockets (as standard)

Model-Specific Specifications

1. TYT-KAIRA Knife Switch (Digital)

- Enclosure: Portable, briefcase-style unit housed in a robust plastic case
- Recommended for: Underwater welding operations

Dimensions:

- Length: 540mm
- Width: 240mm
- Height: 420mm • Weight: 8.5kg

2. TYT-KAIRA Knife Switch (Mini)

- Design: Compact version of the digital switch, without amp/volt meters
- Recommended for: Underwater cutting/burning operations
- Indicator lamp: Displays circuit live (Hot) status
- Optimized for: Cutting and burning operations

Color option: Black Dimensions:

- Length: 420mm
- Width: 220mm
- Height: 350mm • Weight: 7.5kg

Why Choose TYT-KAIRA Knife Switches?

- ✓ Enhanced Safety: Ensures complete isolation of current and voltage to protect operators.
- ✓ Reliable Monitoring: Digital model provides real-time amp/volt readings and circuit diagnostics.
- ✓ Compact & Rugged: Designed for demanding underwater environments.
- ✓ Versatile Applications: Suitable for welding, cutting, and hazardous area operation

"The settings and tests are performed by TYT before shipment, and TYT will not accept responsibility in the event of tampering with these settings."