

BlazeCut Automatic Fire Suppression System

Component Manual

Specification, Installation and Operation

Alarm Panel **AAP400**



TABLE OF CONTENTS

1	INTRODUCTION.....	3
2	BASIC INFORMATION ABOUT THE DEVICE.....	4
2.1	EXPLANATION OF MODEL NAME CAPTION	4
2.2	DESCRIPTION OF THE COMPONENT.....	4
3	INSTALLATION.....	5
3.2	CASE OF THE ALARM PANEL	6
3.3	CONNECTION FOR C SERIES SYSTEMS	7
3.4	CONNECTION FOR T SERIES SYSTEMS	9
3.5	WIRING	11
3.6	CONNECTORS.....	11
3.7	POWER SUPPLY	13
3.8	PRESSURE SWITCH APS001-XX.....	13
3.9	PRESSURE SWITCH APS003-XX.....	14
3.10	POWER DRAW.....	14
4	ALARM EVENTS	15
4.1	LABELS.....	16
5	LIST OF ANNEXES.....	16
	ANNEX 1: ALARM PANEL ACCESORIES	17
A1.1.	ALARM PANEL ACCESORIES.....	17
	ANNEX 2: ELECTRICAL COMPONENTS	17
A2.1.	ELECTRICAL CABLES, CONDUITS AND CONNECTORS.....	17
	ADDITIONAL NOTES.....	19

1 INTRODUCTION

1.1.1 MANUFACTURER INFORMATION

BlazeCut s.r.o., Triblavinská 3191, 90025 Chorvátsky Grob, Slovakia

www.blazecut.com; customerservice@blazecut.com

1.1.2 INSTRUCTIONS FOR USE OF THE MANUAL

This manual is intended to supply technical information for trained and authorized personnel by BlazeCut. Any personnel performing installation, inspection, maintenance or replacement of components with the BlazeCut system shall have this manual available and proceed solely in accordance with it. Failure to follow the instructions in this manual and any other BlazeCut manuals may result in loss of warranty, a system malfunction, causing damage to the protected equipment and may present serious danger to the life and health of others.

1.1.3 SAFETY FIRST

Please read this manual in its entirety. Operation and installation instructions need to be fully understood before this BlazeCut product is installed. Failure to do so may void warranty. Your local governing regulations for safety and compliance must be followed.

1.1.4 WARNINGS AND CAUTIONS



This symbol within the manual represents warning of specific risks, dangers, or warning of described procedures. Failure to follow the instructions in the text marked with this symbol may result in loss of warranty, damage to property, threat to safety or life of persons performing the operation on the system or persons in the vicinity. Do not proceed without following the instructions marked with such symbols.

1.1.5 FURTHER INFORMATION

BlazeCut® is a registered trademark of BlazeCut and is recorded in the Register of Community Trade Marks.

If any of the instructions in this manual are unclear or in case of further questions, contact the BlazeCut Team.

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WARNING

Please ensure that the safety instructions are fully understood before the equipment is put into service.

Do not modify any part of the BlazeCut components as this may cause serious injury or a failure of the system.

Always wear the appropriate protective equipment and clothing whilst installing or servicing.

2 BASIC INFORMATION ABOUT THE DEVICE

2.1 EXPLANATION OF MODEL NAME CAPTION

Product line

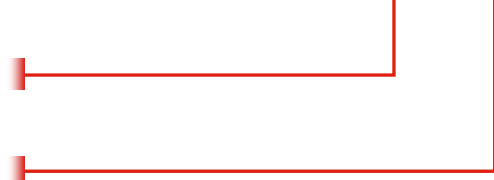
AAP – accessory alarm panel

Panel series

400 – preconfigured, with a reset button

Example: AAP400 – alarm panel (AAP) simple (400)

AAP 400



2.2 DESCRIPTION OF THE COMPONENT

The BlazeCut Alarm Panel AAP400 is a simple and effective optional device for monitoring system status and component functionality. It can be used with the full range of BlazeCut fire suppression systems, where only automatic system activation is required.

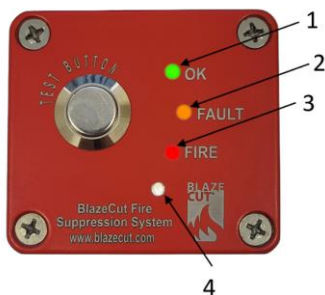
Table 1: Technical parameters

Parameter	Description
Material of body	Powder coated aluminium
Dimensions (LxWxH)	64x58x30 mm (excluding cable gland)
Operation temperature	from -30 °C to +70 °C
Ingress Protection	IP65 rated (with the included case)
Operation voltage	from 10 V DC to 30 V DC
External Cable	0.5 m cable, core 6x Ø 0.50 mm
Sound power	85 dB @ 10 cm distance
External fuse	200 mA
Maximum current draw	140 mA (at 12 V DC), 70 mA (at 24 V DC)
Luminous intensity of LED lights	300 mcd
Monitoring frequency	10 Hz

2.2.1 OTHER FEATURES

- durable powder coated aluminium body suited for harsh environments
- fault and disconnection identification
- compatible with C Series and T Series
- can be used as an independent fire warning device (not requiring extinguishing system)
- small footprint design measuring 64x58 mm (excluding cable gland) and a depth of 30 mm
- design allows for optional mounting; flush mounted in a dash or box mounted
- test/reset button.

2.2.2 FRONT PANEL DESCRIPTION



- 1. **OK green LED** – constant green light indicates normal operation of the panel.
- 2. **FAULT orange LED** – intermittent or constant orange light indicates different faults of the system.
- 3. **FIRE red LED** – constant red light indicates fire alarm.
- 4. Buzzer – beeping signals various states of the alarm panel;

For detailed description of the individual indicated events, see Chapter 5.

Table 2: Alarm panel

Part №	Content
AAP400	Alarm panel with a test button for T and C Series, preconfigured from factory, OK, Fault and Fire LED indication, 10 - 30 V DC, 85 dB buzzer, IP65, -30°C to 70°C, CE, EMC tested, flush or external mounting, powder coated aluminium body, 64x58x30 mm, 0.5 m cable. Includes 2x End-of-line Resistor AER106. Can be used for: T Series with a pressure switch, C Series with one or two pressure switches and as a separate fire warning system. Note: Non-programmable

Table 3: Alarm panel kits

Part №	Content
KAAP400	Alarm Panel AAP400 kit with a test button for T and C Series, 6-pin Deutsch Connector ADC006, Sealing Plugs ADP001, External Fuse AEF200, Fuse Case ACF002, End-of-line Resistors AER106, labels ALA004 ALA005



AAP400



KAAP400

3 INSTALLATION

3.1.1 WARNINGS



Before carrying out any installation or replacement of the tamper seal, ensure the power supply to the alarm panel is disconnected, to avoid accidental actuation. Incorrect handling of the alarm panel can lead to activation of the system.



Do not replace anything relating to the panel that is not directly compatible, only use original components and spare parts. The use of components not approved by the manufacturer will void warranty, may cause malfunction of the system and may threaten the safety and health of people.



The BlazeCut alarm panel is not compatible with other fire suppression systems, do not try to connect the panel to any other equipment.



The system may be installed, maintained and repaired only by persons trained or authorized by the manufacturer and should have relevant professional qualifications depending on the procedure. Interfering with the system may cause malfunction of the system and may threaten the safety and health of people.

3.2 CASE OF THE ALARM PANEL

The BlazeCut AAP400 has both, a flush dash mount option and an external installation option using the case of the panel.

3.2.1 FLUSH MOUNTING

For dash-in installation, it is necessary to prepare a square mounting hole 45x45 mm. Once the alarm panel's cable is inserted in the mounting hole, use 4 appropriate screws to fix the panel to a flat surface.



Flush mounting

3.2.2 CASE MOUNTING

For external installation use the included alarm panel case. The panel's case has 2 holes for screws (see the picture), so it can be fixed to any flat surface. For mounting the case to a flat surface use appropriate screws (**not included**) size M4 with max head diameter of 8 mm. To fix the alarm panel to the case, use the four enclosed screws.



Case holes for mounting

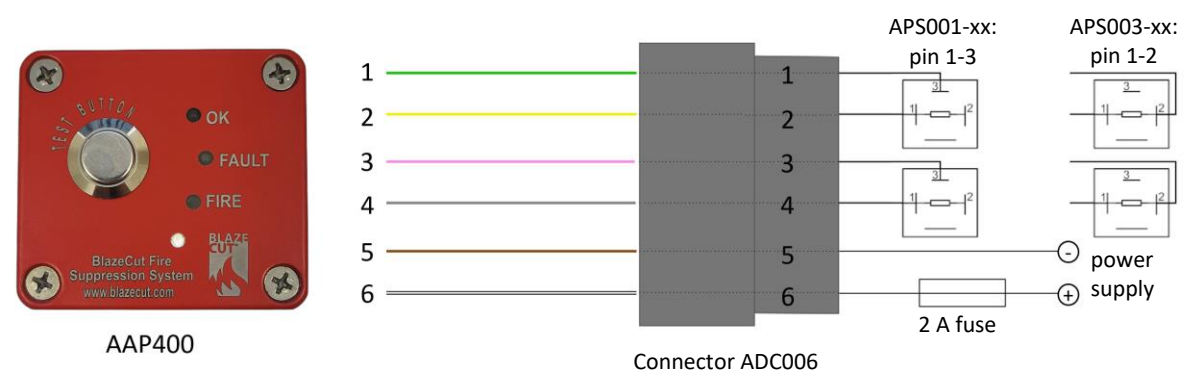


AAP400 front panel attached to the case



Mount the alarm panel in a highly visible location for the operator of the equipment. Do not cover or lean on the alarm panel.

3.3 CONNECTION FOR C SERIES SYSTEMS



Wiring diagram of the Alarm Panel AAP400 and individual components of C Series

Isolate the unused wires with a heat shrink or electrical tape. You can connect the 6 wires from the alarm panel to the optional Connector ADC006. To preserve connectors ingress protection level, populate all the pins or use ADP001 sealing plugs (see Chapter [A2.1](#)).

Table 4: Connection of Alarm Panel AAP400 to other components

Wire №	Connector pin	Wire from alarm panel	Wire from the component	Component
1	1	green	pin 3 (APS001) pin 2 (APS003)	Pressure Switch APS001-xx or APS003-xx LP* ¹
2	2	yellow	pin 1	
3	3	pink	pin 3 (APS001) pin 2 (APS003)	Pressure Switch APS001-xx or APS003-xx FI* ² or fire detection
4	4	grey	pin 1	
5	5	brown	negative pole	power supply* ³
6	6	white	positive pole	

*¹ Pressure Switch APS001-xx (pin 1 and 3) or APS003-xx (pin 1 and 2) for low pressure monitoring with connected resistor AER106 (pin 1 and 2) for fault monitoring. Can also be used for connection of fire detection components e.g., BlazeWire, detectors with relay output, heat probe etc.

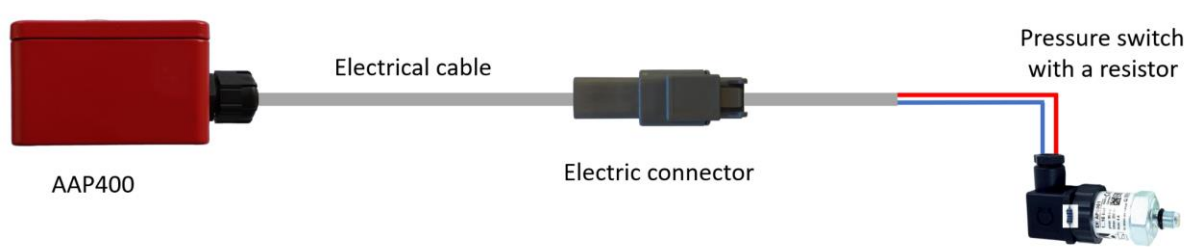
Resistor AER106 must be installed on the circuit even when no external component is connected.

*² Pressure Switch APS001-xx (pin 1 and 3) or APS003-xx (pin 1 and 2) for fire indication with connected resistor AER106 (pin 1 and 2) for fault monitoring.

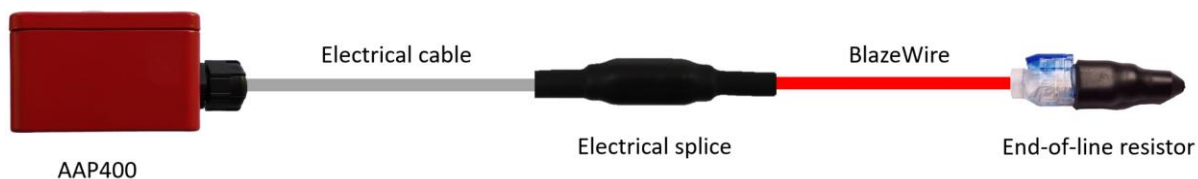
Resistor AER106 must be installed on the circuit even when no external component is connected.

*³ connect an External Fuse AEF200 to the positive wire

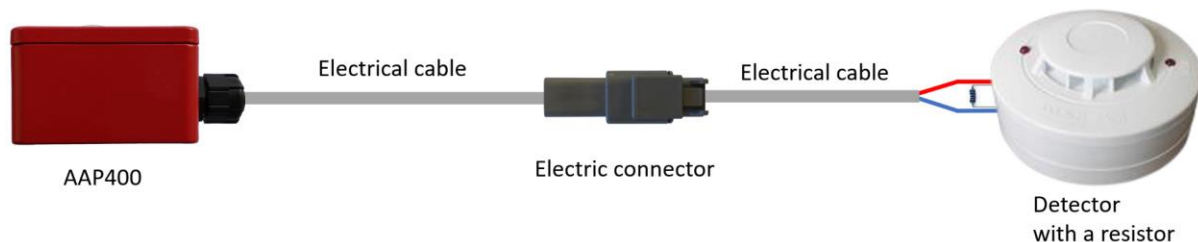
When installing two or more pressure switches, they have to be of the same type and set point. They have to be connected in parallel. The furthest one requires a resistor AER106 installed. If any of the pressure switches activates, the alarm panel will signal the corresponding event.



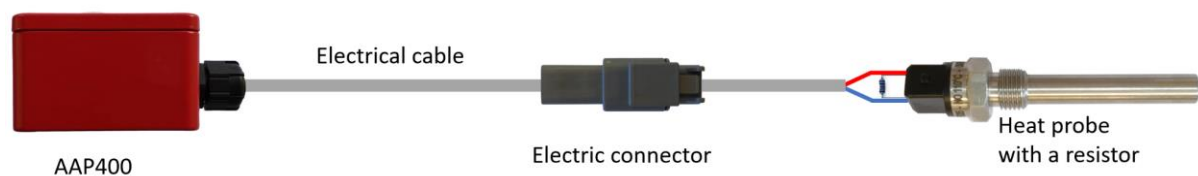
Connection of a pressure switch to the alarm panel



Connection of the BlazeWire to the alarm panel

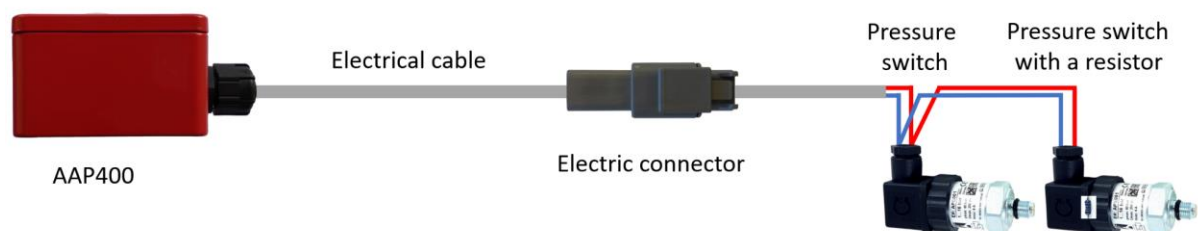


Connection of a detector to the alarm panel

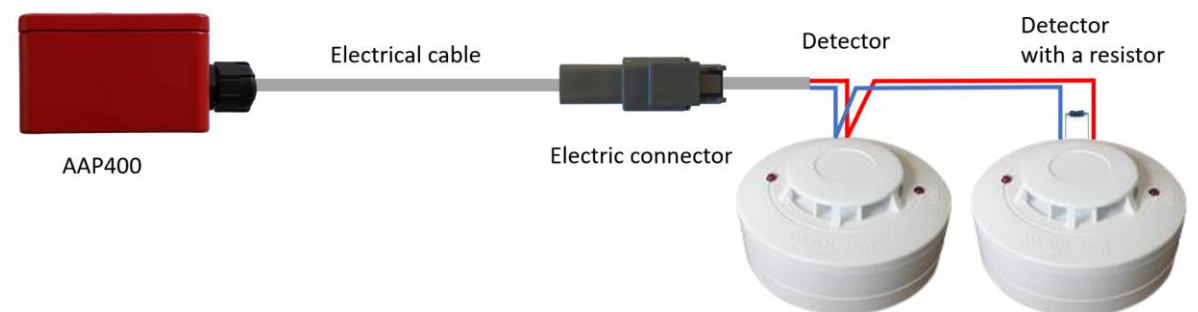


Connection of a heat probe to the alarm panel

When installing two or more components, they have to be connected in parallel. The furthest one requires a resistor AER106 installed.

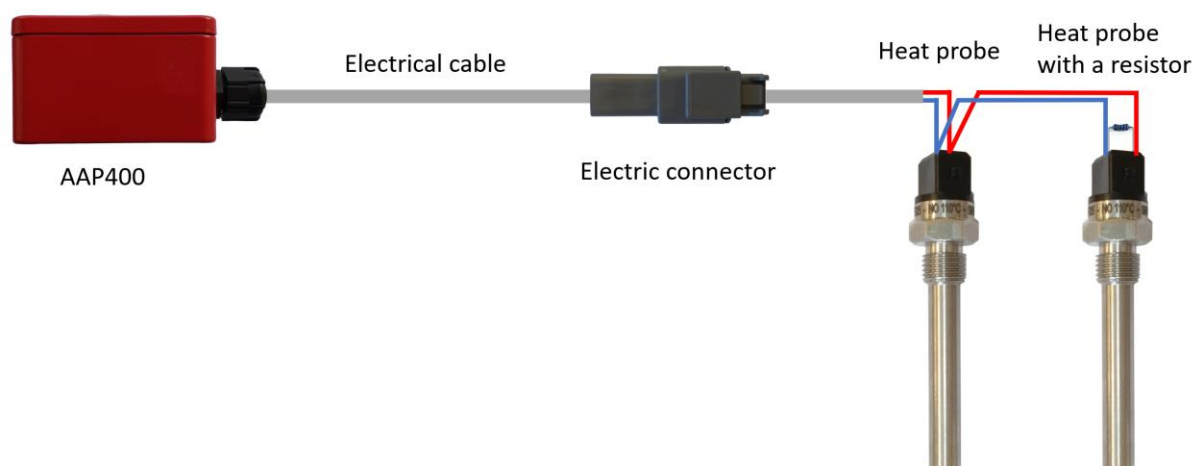


Parallel connection of two identical pressure switches to the alarm panel



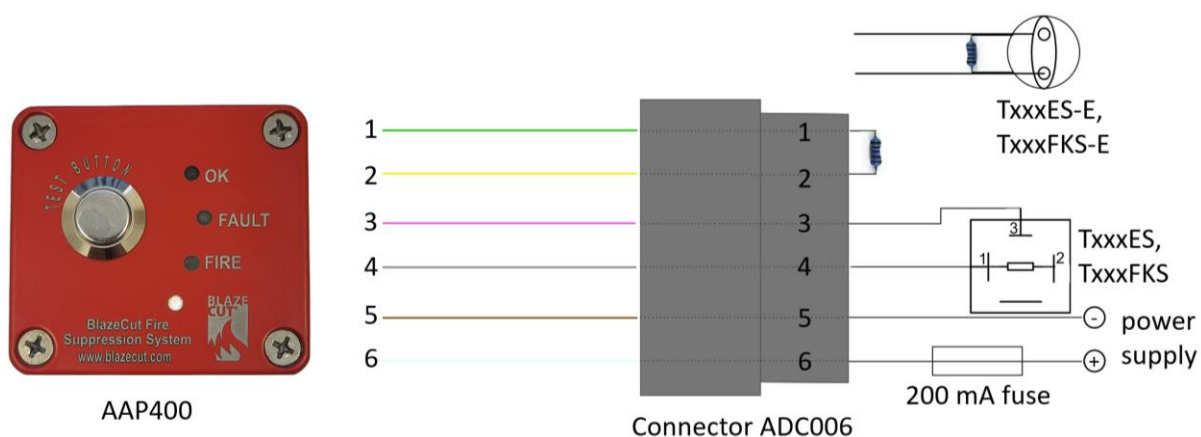
Parallel connection of two detectors to the alarm panel

When installing two or more heat probes, they have to be connected in parallel. The furthest one requires a resistor AER106 installed. For specifications and connection details see component manual *CM-HPD Heat Probe Detector AHP110*.



Parallel connection of two heat probes to the alarm panel

3.4 CONNECTION FOR T SERIES SYSTEMS



Wiring diagram of the Alarm Panel AAP400 and individual components of T Series

Isolate the unused wires with a heat shrink or electrical tape. You can connect the 6 wires from the alarm panel to the optional Connector ADC006. To preserve connectors ingress protection level, populate all the pins or use ADP001 sealing plugs (see Chapter [A2.1](#)).

Table 5: Connection of Alarm Panel AAP400 to T Series with pressure switch

Wire №	Connector pin	Wire from alarm panel	Wire from the component	Component
1	1	green	-	Resistor AER106 * ¹
2	2	yellow	-	
3	3	pink	pin 3 (TxxxXS) wire (TxxxXS-E)	pressure switch on TxxxES or TxxxES-E * ²
4	4	grey	pin 1 (TxxxXS) wire (TxxxXS-E)	
5	5	brown	negative pole	power supply* ³
6	6	white	positive pole	

*¹ Resistor AER106 must be installed on the circuit at all times.

*² T Series with a pressure switch TxxxES (pin 1 and 3) or TxxxES-E (wires) for fire indication with connected resistor AER106 (pin 1 and 2 or wires) for fault monitoring.

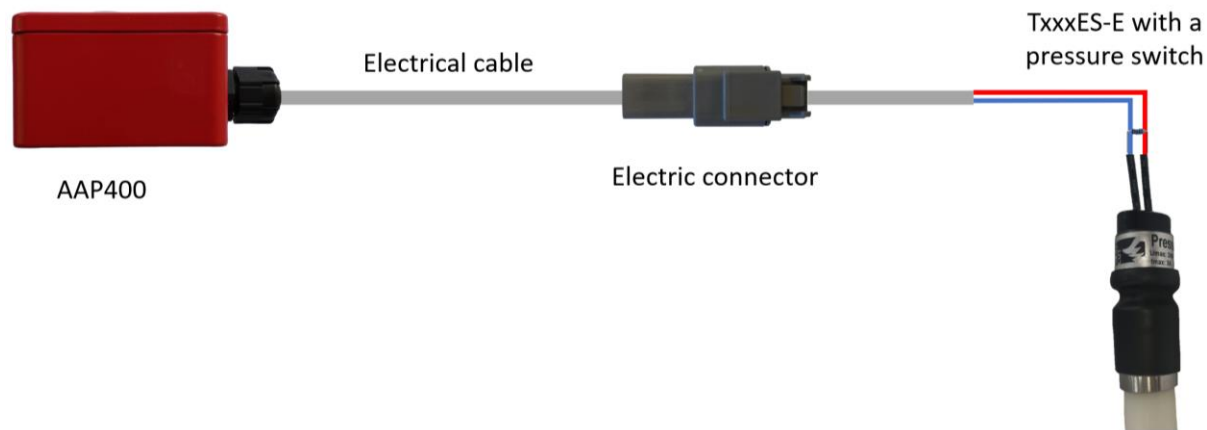
Resistor AER106 must be installed on the circuit even when no external component is connected.

*³ connect an External Fuse AEF200 to the positive wire

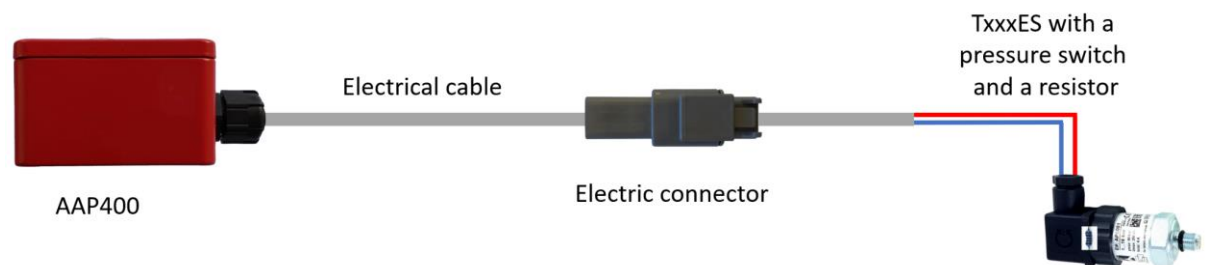
AUTOMATIC FIRE SUPPRESSION SYSTEMS



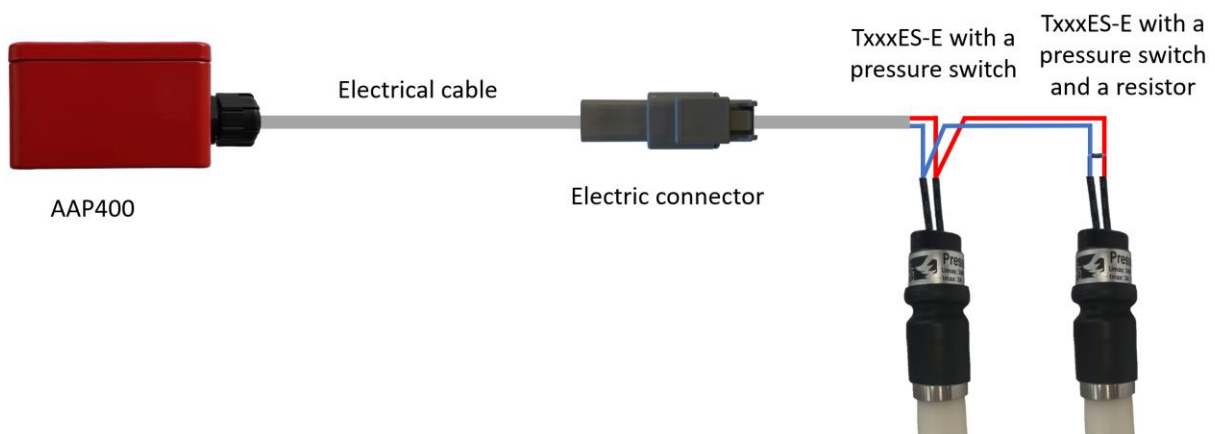
When installing two or more pressure switches, they have to be connected in parallel. The furthest one requires a resistor AER106 installed. If any of the pressure switches activates, the alarm panel will signal a fire event.



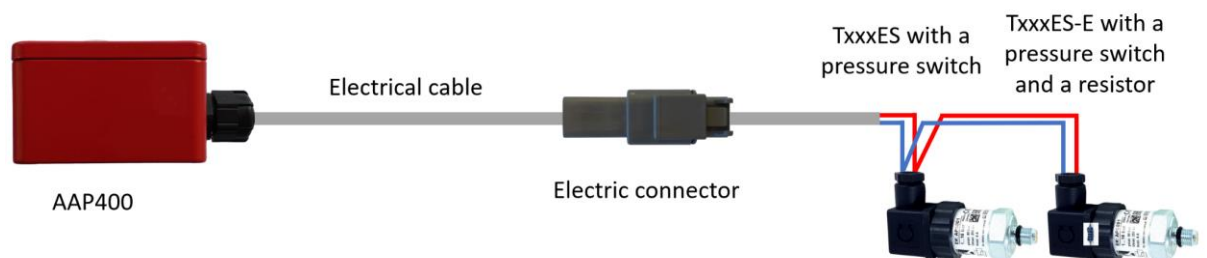
Connection of TxxxES-E to the alarm panel



Connection of TxxxES to the alarm panel



Parallel connection of two TxxxES-S to the alarm panel



Parallel connection of two TxxxES to the alarm panel

3.5 WIRING

- Alarm Panel AAP400 includes a 0.5 m output cable with 6 wires.

Ends of the wires are coated with tin for permanent connection or the cable can be shortened to a desired length and connecting them to an optional 6-pin connector. Use the provided unshrunk heat-shrink tubing. It contains a layer of adhesive on the inside to help provide a good seal and better adhesion.



Heat-shrink tubing as supplied

When using the optional 6-pin connector, slid down the unshrunk heat-shrink tubing to cover the end of the cable jacket and about 2 cm of the wires. Heat up the heat-shrink with a hot air gun to wrap tightly around.

Maximum bending radius for the 6-wire cable is 56 mm for non-fixed and 34 mm for fixed cable (e.g., with APC008).

3.5.1 WARNINGS



The cable is permanently attached to the alarm panel's body and cannot be removed or rotated. Unscrewing of the cable gland or any excessive movement with the cable near the cable gland will lead to loss of the IP integrity.



Be aware of the danger posed by the device. When working in the vicinity of electrical equipment observe corresponding safety rules and instructions. Work on electrical installations may be performed only by qualified persons.

3.6 CONNECTORS

Alarm Panel Kits KAAP400 include high quality Deutsch connectors to be used in harsh environment applications where reliable signal circuits are critical to operating performance. Connectors are high temperature rated for use in engine compartments or other high temperature applications and IP67 rated without need to apply heat shrink.

Table 6: Connector parameters

Parameter	Value
Operating temperature	-55 °C to +125 °C
Current rating	7.5 A @ 125 °C
Wire core acceptance	0.34 mm ² - 1.5 mm ²
Ingress Protection	IP67

For spare connectors see [Table 13](#).

3.6.1 CONNECTING A RESISTOR TO AN UNUSED INPUT

When no external component is connected (e.g. APS001-xx), install Resistor AER106 directly into the connector. Otherwise follow instructions to a corresponding component in chapters 3.x below.

Step 1:

Crimp a Resistor AER106 for AAP400 to the supplied pins. If possible, for the best connection, tin the contacts with a soldering iron.



Step 2:

Carefully remove the silicone seal from the housing of the connector and insert the pins with the crimped resistor until you feel a click.



3.6.2 CONTACT ASSEMBLY

Assembly of a receptacle is shown in the procedure below. Use the same procedure also for a plug.

Step 1:

Grasp crimped contact approximately 25 mm behind the contact barrel.



Step 2:

Hold the connector with the rear grommet facing you.



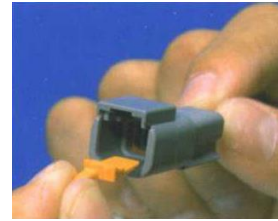
Step 3:

Push the contact straight into the connector grommet until a click is felt. A slight tug will confirm it is properly locked in place.



Step 4:

Once all contacts are in place, insert the orange wedge: receptacles – with half holes aligning with contacts. Plugs – with contacts aligning behind full holes. The orange wedge will snap into place.



Step 5:

Any open cavity must be sealed to prevent contaminants to enter the connector. To maintain seal integrity, insert a sealing plug ADP001 all the way in to the seal's cavity.



3.7 POWER SUPPLY

The power source can be in form of an external power supply or a battery with the corresponding voltage output (10 – 30 V DC). An External Fuse AEF200 rated at 200 mA must be installed between the panel wiring and the external power source to provide additional protection in case of overloading. Put the External Fuse AEF200 in the Fuse Case ACF002. Connect the fuse to the positive power wire near the external power source (see diagram *Connection between the alarm panel and individual components*) or in a place with low risk of water ingress.

Additional Connector ADC002 can be ordered for separate wiring of the power supply for easy disconnection.



External Fuse AEF200 in a Fuse Case ACF002 and wires

3.8 PRESSURE SWITCH APS001-XX

There are two separate wire circuits on the alarm panel for a Pressure Switch APS001-xx. One of the circuits is used for pressure switch for fire indication, the second one is for low pressure monitoring. The set point of the pressure switches depends on the operation pressure of the cylinder with extinguishing agent and is set up at the factory.

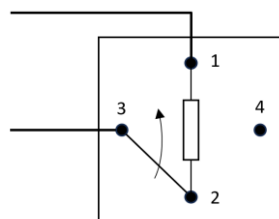
IMPORTANT

Normal state is at atmospheric pressure (e.g., unpressurised system or system after extinguishing).

Connect the two wires of the cable to connection 1 and 3.

1. Connector for N/C circuit – for sending signal to an alarm panel
2. Connector for N/O circuit – not used in this case
3. COM connector
4. ground connector – optional

For correct operation and fault monitoring of the pressure switch circuits, insert a resistor AER101 into connection point 1 and 2.



Resistor AER101 plugged in the pressure switch connection point 1 and 2

3.9 PRESSURE SWITCH APS003-XX

There are two separate wire circuits on the alarm panel for a Pressure Switch APS003-xx. One of the circuits is used for pressure switch for fire indication, the second one is for low pressure monitoring. The set point of the pressure switches depends on the operation pressure of the cylinder with extinguishing agent and is set up at the factory.

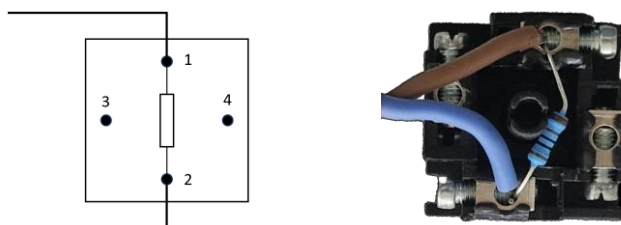
IMPORTANT

Normal state is at atmospheric pressure (e.g., unpressurised system, system after extinguishing).

Connect the two wires of the cable to connection 1 and 2.

1. Connector for N/C circuit – for sending signal to an alarm panel
2. COM connector
3. not used
4. ground connector – optional

For correct operation and fault monitoring of the pressure switch circuits, insert a resistor AER101 into connection point 1 and 2.



Resistor AER101 plugged in the pressure switch connection point 1 and 2

3.10 POWER DRAW

Table 7: Alarm panel power draw

Model	12 V DC (all components active, standby)	24 V DC (all components active, standby)
AAP400	26 mA	13 mA

4 TESTING OF VISUAL AND AUDIO FUNCTIONS

To test visual and audio functions of the Alarm Panels AAP400 follow steps below:

- 1) Hold the test button on the alarm panel for a couple of seconds
- 2) all three LEDs (red, orange, green) light up and the buzzer beeps.

5 ALARM EVENTS

FIRE ALARM	LOW PRESSURE
<p>Indications:</p> <div data-bbox="360 421 443 506"></div> <div data-bbox="549 421 632 506"></div> <ul style="list-style-type: none"> constantly lit RED FIRE light and constant beep <p>Reason:</p> <ul style="list-style-type: none"> pressure switch detected agent discharge 	<p>Indications:</p> <div data-bbox="959 421 1042 506"></div> <div data-bbox="1147 421 1230 506"></div> <ul style="list-style-type: none"> slow ORANGE FAULT flash 1x per 2 sec. and beep 1x per 2 sec. <p>Reason:</p> <ul style="list-style-type: none"> pressure switch detected low pressure in the system.
WORKING ORDER	COMPONENT FAULT
<p>Indications:</p> <div data-bbox="451 875 534 960"></div> <ul style="list-style-type: none"> constantly lit GREEN OK light <p>Reason:</p> <ul style="list-style-type: none"> all active components are working correctly and pressure in the system is optimal. 	<p>Indications:</p> <div data-bbox="959 875 1042 960"></div> <div data-bbox="1147 875 1230 960"></div> <ul style="list-style-type: none"> constantly lit ORANGE FAULT light and beep 1x per 2 sec. <p>Reasons:</p> <ul style="list-style-type: none"> component is disconnected; component is faulty.
OTHER STATES	TEST BUTTON
<p>Indications:</p> <div data-bbox="451 1330 534 1415"></div> <ul style="list-style-type: none"> no light indication and sound indication; <p>Reasons:</p> <ul style="list-style-type: none"> the alarm panel could be without power or with a malfunction; other unmentioned states. 	<p>Push:</p> <ul style="list-style-type: none"> test functionality of the LEDs and the buzzer <p>Hold for 5 seconds:</p> <ul style="list-style-type: none"> alarm panel reset



5.1 LABELS

Various high quality UV stabilized labels are supplied with the BlazeCut system to ensure that the operator or people that may come in contact with the system are informed about its presence and operation. All labels can be reordered separately when replacement is required due to damage.

Table 8: Notification labels

Part №	Description	Comment
ALA004	"In the event of a fire" 100 x 70 mm	Vehicle system label placed in the cabin to notify the operator about procedure in the event of a fire.
ALA005	"In the event of a fire" 100 x 70 mm	Gas system label (fixed installation) placed in the protected area to notify the operator or personnel about procedure in the event of a fire.
ABS110	"BlazeCut" 110 x 68 mm	promotional sticker
ABS220	"BlazeCut" 220 x 135 mm	promotional sticker
ABS300	"BlazeCut" 300 x 110 mm	promotional sticker AFSS



ALA004



ALA005



ABS110 and ABS220



ABS300

6 LIST OF ANNEXES

[ANNEX 1: ALARM PANEL ACCESORIES](#)

[ANNEX 2: ELECTRICAL COMPONENTS](#)

ANNEX 1: ALARM PANEL ACCESORIES

A1.1. ALARM PANEL ACCESORIES

Table 9: Alarm panel accessories

Part №	Description
ACF001	Case for an external fuse, IP66, -20 up to 70 °C, max 10 A (for AEF001, AEF002, AEF100, AEF200)
ACF002	Case for an external fuse, IP50, max 6.3 A (for AEF001, AEF002, AEF100, AEF200)
AEF200	External fuse 200 mA for Alarm Panel AAP400
AER106	End-of-line resistor 6.2 kΩ for components connected to Alarm Panel AAP400. Compatible components: APS001, APS003, ASD001, AHD001, AHD002, ASD002-RB, AHD003-RB, AHP110, AHP240, ABW105, ABW185, ABW240



ACF001



ACF002



AEF200



AER106

ANNEX 2: ELECTRICAL COMPONENTS

A2.1. ELECTRICAL CABLES, CONDUITS AND CONNECTORS

For installation of electrical components use the appropriate electrical cables supplied as optional components:

- Pressure Switch APS001-xx or APS003-xx – two core electrical cable,

Table 10: Specifications of cables

Part №	Description	Comment	Length
ASC002	standard cable, 2x0.75 mm ² , -40°C up to 80 °C, UV stabilized	for standard installations	per metre
ASC004	standard cable 4x0.5 mm ² , -40°C up to 80 °C, UV stabilized	for standard installations	per metre
ASC008	standard cable 8x0.5 mm ² , -40°C up to 80 °C, UV stabilized	for standard installations	per metre
ASC010	standard cable 10x0.5 mm ² , -40°C up to 80 °C, UV stabilized	for standard installations	per metre
ASC102	silicone cable 2x0.75 mm ² , -60 °C up to 180 °C, UV stabilized, up to 500 V	for installations with high temperatures like in engine compartments	per metre
ASC103	silicone cable 3x0.50 mm ² , -60 °C up to 180 °C, UV stabilized, up to 500 V	for installations with high temperatures like in engine compartments	per metre
ASC104	silicone cable 4x0.50 mm ² , -60 °C up to 180 °C, UV stabilized, up to 500 V	for installations with high temperatures like in engine compartments	per metre



Standard cable



Silicone cable

Table 11: Silicone cable kits

Part №	Description
KASC102-005	2-core Silicone cable kit, 5 metres, 15 cable ties, -60 °C up to 180 °C
KASC102-010	2-core Silicone cable kit, 10 metres, 30 cable ties, -60 °C up to 180 °C
KASC102-015	2-core Silicone cable kit, 15 metres, 45 cable ties, -60 °C up to 180 °C
KASC102-020	2-core Silicone cable kit, 20 metres, 55 cable ties, -60 °C up to 180 °C
KASC103-005	3-core Silicone cable kit, 5 metres, 15 cable ties, -60 °C up to 180 °C
KASC103-010	3-core Silicone cable kit, 10 metres, 30 cable ties, -60 °C up to 180 °C
KASC103-015	3-core Silicone cable kit, 15 metres, 45 cable ties, -60 °C up to 180 °C
KASC103-020	3-core Silicone cable kit, 20 metres, 55 cable ties, -60 °C up to 180 °C
KASC104-005	4-core Silicone cable kit, 5 metres, 15 cable ties, -60 °C up to 180 °C
KASC104-010	4-core Silicone cable kit, 10 metres, 30 cable ties, -60 °C up to 180 °C
KASC104-015	4-core Silicone cable kit, 15 metres, 45 cable ties, -60 °C up to 180 °C
KASC104-020	4-core Silicone cable kit, 20 metres, 55 cable ties, -60 °C up to 180 °C

In case of installation in spaces with increased risk of damage due to mechanical interference use the cable conduit with conduit connector to protect the electrical cables.

Table 12: Specifications of conduits

Part №	Description	Length
ACC110	internal Ø 10 mm, -40 °C to 120 °C, UV stabilized	per metre



ACC110

Table 13: Specifications of electrical connectors

Part №	Description	Working temperature
ADP001	sealing plug for Deutsch connectors	-55 °C to +125 °C
ADC002	2-pin Deutsch connector	
ADC006	6-pin Deutsch connector	



ADP001



2-pin Deutsch connector



6-pin Deutsch connector

Please note any suggestions for BlazeCut to improve our manuals and email us at technical@blazecut.com

[illegible]