Eltek

Fire & Safety

Installation Guide

ANX 95

Fire Detection & Alarm System

Protecting People ~ Worldwide ~

Art. No.: 35 1201.033
Issue 2, February 2000

Eltek

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Please, contact our Main Office at following addresses:

Eltek Fire & Safety AS
P.O. Box 3514
N-3007 DRAMMEN
Norway

Phone: 47 32 24 48 00
Fax: 47 32 24 48 01
E-Mail (Product Dept.): product@eltek.no
E-Mail (all departments): fire.safety@eltek.no

Visit our Web site on Internet at
Home address: http://www.eltek.no
Technical Personnel Area: At the home page, click on the *TechZone* link

Art. No. 35 1201.033 Issue 2, February 2000

Published 2000-02-29

This document was produced using *MS Word 97*
mfm2000-02-29_1201033.doc_ T-B4

Contents

1. Summary - Installation Guide

These installation guide, together with the additional equipment documentation, give necessary information for performing installation, start-up and operation of an Eltek fireguard ANX 95 fire alarm system.

The installation guide is part of the ANX 95 fire alarm system manual. The manual has the following main sections: Installation and Operation Guides. The Technical Specification may be ordered from *Eltek Fire & Safety AS* .

It is assumed that the contractor has knowledge and experience concerning the installation of electrical plant or equivalent work. Details concerning cabling, mounting of wall sockets etc. for concealed plant is therefore not described in this document.

Installation drawings are generally the responsibility of the electro consultant or contractor and are therefore not covered by documentation delivered by Eltek.

In the introduction short descriptions given of what a fireguard ANX 95 system is, and generally how the system is built up. This is only meant as a service for the contractor so as to give a general overview of the plant which is being installed.

This manual is built up in chronological order so that which is described first shall be carried out first. All illustrations are placed together with the appropriate text.

General System Details

ANX 95 is equipped with 8 circuits. These circuits are programmed for different types of functions. Amongst others, the circuits can be programmed for detector loops (analogue, conventional), alarm circuits and/or voltage free control circuits. The type and number of functions can be changed. When this has been decided the result is a specific panel set-up.

Each panel set-up requires it's own software programming together with a configuration of circuits. This is done by means of jumpers/shunts located on the control/power card.

The location of the jumpers is noted on the terminal block drawing for the panel in question.

ANX 95 is supplied from *Eltek Fire & Safety AS* with a standard panel set-up and configuration shown on the following terminal block drawing.

If the panel set-up is to be configured in accordance with customer requirements then special software must be used. Please contact *Eltek Fire & Safety AS* service department for additional information.

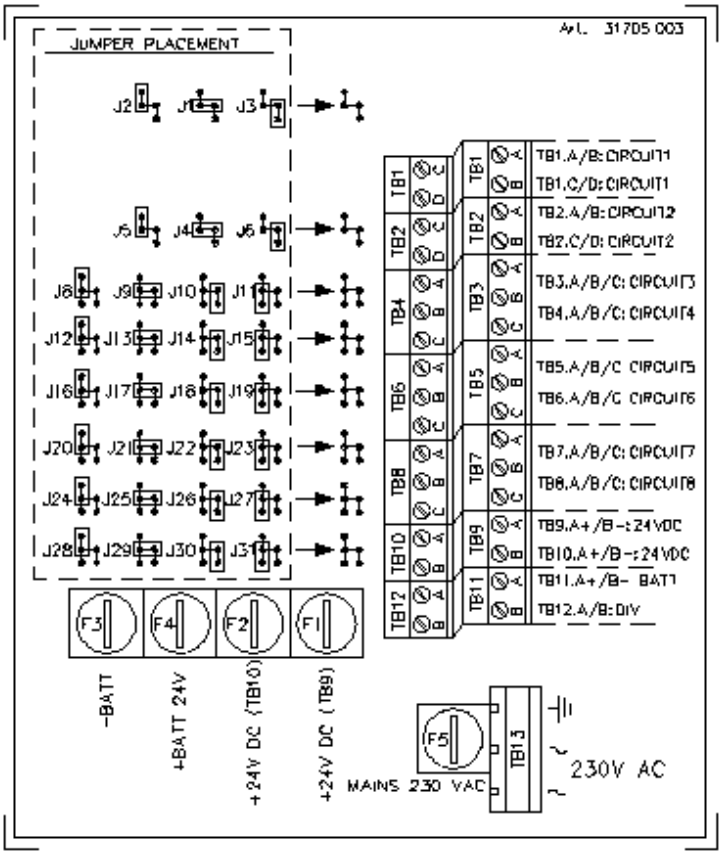

Figure 1 Jumper / Shunt Configuration 29641g4.gif

2. Functions / Equipment

Analogue detector loop with return, for circuit 01-02

Check panel type and appropriate terminal block drawing if analogue detector loops are programmed for the panel. The ANX 95 can be equipped with up to 2 analogue detector loops in the panel set-up. These can be programmed for circuits 01-02.

The location on the terminal block (TB01-TB02) will be automatically selected when the appropriate circuit is defined. The loop consists of 4 electrical leads. 2 leads for the outgoing voltage (+/-), and 2 leads return voltage (+/-).

Should a break occur in the loop the return voltage will be activated and the detectors will thus be fed from both sides. This means that no detectors will loose their voltage due to a break in the detector loop. The loop is continually monitored for faults.

Detectors

In each loop up to 99 detectors/manual call point unit can be hooked-up and each of these will be designated it's own special address (1-99) in the loop. Each individual address is monitored for faults / pre-alarm / fire alarm.

Refer to appendix A in these guidelines in connection with programming of addresses. The addresses for the various detectors/manual call point units are given in the plant documentation.

NB: Remember to divide up the loop so that no more than 32 addresses can be lost during short-circuiting.

Up to 3 isolation bridges can be connected to each loop. (These shall not be addressed). The detectors can be heat sensitive, smoke sensitive or other types of detectors suitable for the fire panel.

Each detector can be connected in parallel to remote led or buzzers that give visual/acoustic signals concerning the detector that is in the alarm mode. This can be necessary when detectors are concealed, e.g. above ceilings.

Detector sockets

Each detector socket shall be identified with a detector address. Labels for this purpose will be delivered with the plant. The contractor must make sure that identification is carried out. The labels must be located so that they are visible after the installation is complete.

NB: Check against the panel set-up and appropriate terminal block drawing concerning the equipping of the panel.

Analogue detector loop without return, for circuit 01-02

Check the type of panel and appropriate terminal block drawing to establish if analogue detector loops without return have been defined for the panel. The ANX can be equipped with up to 2 analogue detector loops without return in the panel set-up. These can only be defined for circuits 01-02.

NB: For circuits 01-02, a sectionable alarm output (unloaded) will automatically be available in addition to this detector loop.

The position on the terminal block (TB01-TB02) will be automatically selected when the appropriate circuit is defined.

NB: Note that the detector loop with return is the same as the detector loop without return, but with the exclusion of the return loop.

The same conditions noted in the former item apply also for this type of detector loop. The only difference is that the return loop is not used. In the event of a break in the loop only the detectors that are located between the panel and the break will remain operative.

NB: Isolation unit cannot be used since the loop has no return feed.

The number of detectors per loop is limited to 32.

NB: Check against the panel set-up and appropriate terminal block drawing concerning the equipping of the panel.

Conventional detector loop, for circuits 01-08

Check the type of panel and appropriate terminal block drawing to establish if conventional detector loops have been defined for the panel. The ANX 95 can be equipped with up to 8 conventional loops in the panel set-up. These can only be defined for circuits 01-08.

NB: For circuits 01-02, a sectionable control circuit (unloaded) will automatically be available in addition to this detector loop.

The position on the terminal block (TB01-TB08) will be automatically selected when the appropriate circuit is defined. The loop consists of 2 leads (+/-) and is continually monitored for faults by means of a terminal resistance. The terminal resistance is mounted on the last detector/socket in the loop.

NB: For circuits 01-02 the ZLX loop must be supplied with 24 VDC (auxiliary power), ref. terminal block drawing.

Detectors

Each loop can have up to 32 detectors /manual call point unit connected in accordance with FG regulations. The detectors can be heat sensitive, smoke sensitive or other types of detectors suitable for the fire panel. Each detector can be connected in parallel to remote led or buzzers that give visual/acoustic signals concerning the detector that is in the alarm mode. This can be necessary when detectors are concealed, e.g. above ceilings.

NB: Check against the panel set-up and appropriate terminal block drawing concerning the equipping of the panel.

Sounder circuits, for circuits 03-08

Check the type of panel and appropriate terminal block drawing to establish if sounder circuits have been defined for the panel. The ANX can be equipped with up to 6 sounder circuits. These can only be defined for circuits 03-08. The position on the terminal block (TB03-TB08) will be automatically selected when the appropriate circuit is defined.

The circuits consist of 2 live leads. In addition the circuits can be sectioned and continually monitored for faults by means of a terminal resistance.

NB: The sounder courses must be supplied with 24VDC (auxiliary power), ref. terminal block drawing.

Note that all sounder circuits must be terminated with a resistance after the last sounder. If 1 or more of the circuits are not employed then the terminal resistance must be connected to the terminal block.

NB: Check against the panel set-up and appropriate terminal block drawing concerning the equipping of the panel.

Alarm outputs for circuits 01-08

Check the type of panel and appropriate terminal block drawing to establish if alarm output circuits have been defined for the panel. The ANX can be equipped with up to 8 alarm outputs in the panel set-up. 6 control circuits (nc,c,no) can be defined for circuits 03-08, while 2 off control circuits (no) will automatically be defined when ANX loop without return or ZLX loop is selected for circuit 01-02. The circuits can be selectively sectioned.

The position on the terminal block (TB01-TB08) will be automatically selected when the appropriate circuit is defined.

NB: Check against the panel set-up and appropriate terminal block drawing concerning the equipping of the panel.

Additional functions

In addition, the ANX 95 has inputs on the terminal block (TB12) for activation of the following functions:

- Extinguisher activated
- Fan installation activated
- Other types of installation activated
- External alarm
- Evacuation

The functions that are desired can be selected by means of an operation menu.

Communication

The ANX 95 can communicate with other external units e.g.:

- Other panels or operation panels
- Printer/PC
- Bleepers

The serial gates COM1 and COM2 can be used for communication with other units. The gates can be defined by means of the set-up menu.

3. Delivery and Responsibility

Scope of Delivery and Identification

A fireguard ANX 95 fire alarm panel is identified with 3 nameplates containing the following information:

- Type of panel
- Serial number

The nameplates are located on the inside of the panel door.

Storage and Unpacking

Eltek pack all equipment so as to withstand the normal strains of transport and storage. As shown on the adjacent drawings the equipment is divided into 4 packages so that both transport and unpacking on site can be carried out as necessary.

The equipment must be handled as sensitive electronic equipment. This means that it must not be exposed to shock, extreme humidity or excess temperature changes.

Upon delivery all the equipment must be checked against the advice note and be inspected for any transport damage. Non-conformance/damage shall be immediately communicated to Eltek.

During the installation work it is important that the equipment is taken from the storage place as it is needed, and that it is kept in the original packaging as long as possible.

Electrical leads and installation materials are not included.

Normally the equipment is individually packed and collected in large cartons.

If equipment is to be returned it shall be packed in it's original packaging and be marked with the contract number, name of the site, contact person and the reason for it being returned.

Return of equipment shall have been agreed with Eltek's contact person.

Before Commencing Installation

Before installation is commenced the person managing/performing the work shall review the equipment documentation and check that all the necessary information is present. Any unclear points shall be checked out with the customer before the work commences.

Important!
Check that the person/authority who shall carry out the final inspection of the plant is identified in the documentation. If this is not the case, this must be cleared up with the customer before work is commenced.

The inspection authority is usually represented by:

- The owner of the building
- NBF
- Insurance company
- Fire authorities

Division of responsibility - contractor/supplier

These guidelines, together with additional equipment documentation, provide necessary information for carrying out installation, start-up and operation of the plant. So that installation can be carried out satisfactorily, it is of the utmost importance that the contractor makes him self fully aquatinted with the contents of these guidelines and additional equipment documentation. Any problems must be taken up with the producer/supplier as and when these occur.

Users of the equipment can receive training by means of the following documents:

- Operation guidelines
- Technical specifications

If not otherwise agreed between the contractor and the supplier, the following division of work for the installation is applicable:

Responsibility

Responsibility of Contractor

1. Mounting of cabinet
2. Cable work and connection of all components
3. Assembly and connection of panel
4. Identification of detectors and other equipment
5. Visual inspection
6. Insulation and resistance measurement

NB: MEGGER VOLTMETER MUST NOT BE USED.

Responsibility of Supplier

1. System inspection.
2. Loop and detector inspection.
3. Inspection of sounder circuits and alarm outputs.
4. Plant information.
5. Delivery and approval of plant.
6. Test period agreement.
7. Service agreement.

Duties

The Contractor Shall

1. Provide the name of the owner of the building, address, and telephone number. In addition, the contact person/person responsible and the owner's insurance company
2. Provide drawings of the site, sections and detail drawings or descriptions of the rooms for engineering and drawing up of location plans and siting
3. Establish and inform if the plant is to be connected to the fire station.
4. Expedite the approval of location plans/site drawings
5. Despatch written completion report following final inspection
6. Agree time for start-up
7. Assist start-up

The Supplier Shall

Draw up and apply for:

1. * NBF for project approval
2. * Telecommunication authority concerning installation of 8-pole Altel system
3. ** Local fire authority concerning connection of the plant
4. * Draw up the following project documentation:
   — System drawing
   — System manual
5. * Plan and carry out:
   — Start-up
   — Commissioning

The commissioning of the plant shall normally not be carried out by the contractor unless he is specially authorised by A/S Eltek for this work.

*These items only apply if the plant is to be approved by NBF.

**These items only apply if the plant is to be connected to the local fire authorities.

Mounting of Cabinet

Cabinets for wall and rack mounting are delivered complete with electronics, whereas cabinets to be built into walls are delivered without contents. The upper mounting holes in the cabinet are formed as key holes so that the mounting screws for wall mounting can be screwed into place before the cabinet is positioned.

Necessary outlets for cables to / from the cabinet must be made and nipples fitted before the cabinet is mounted.

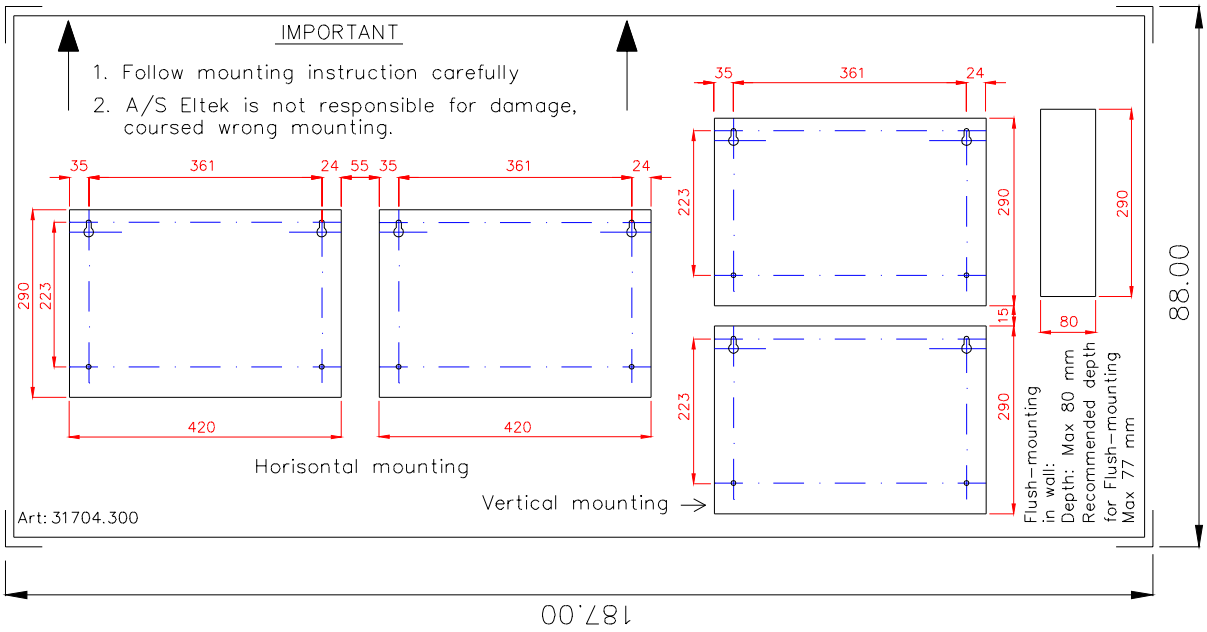

Figure 2 Mounting information for cabinet

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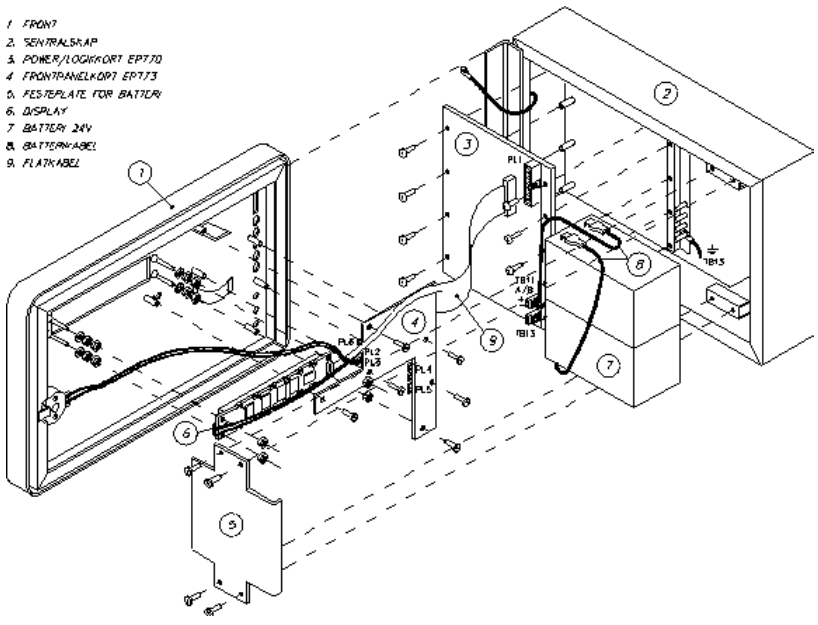
Panel Assembly

Figure 3 Assembly details

27978e3.gif



4. Electrical Installation - General

After the main cabinet and any additional cabinets are mounted, the rest of the electrical installation shall be carried out in accordance with the plant documentation in the same way as standard house installations. If the system is to be concealed then standard 16 mm flexible conduits and wall mountings shall be used for detectors, manual alarms and other loops components.

Use PG-nipples or equivalent when connecting cabinets and open systems. The type of cable to be used is specified in the table on the next page.

NB! Remember to identify all circuits correctly when threading and laying cables.

Main Power Supply

As shown in the equipment documentation the panel is to have it's own mains power supply with separate fusers that are to be painted blue. This circuit is to be identified in the fuse cabinet as "FIRE ALARM".

Earthing

Earthing of the panel is to be carried out in accordance with the regulations for electrical installations.

Installation Cables

Cable Type For Open Installations	
220VAC	PR 2x1,5mm^2
Earth	PN 6mm^2
Detector Loop	PVxP(BPR) 2x1mm^2
Sounder Circuits	PR 2x1mm^2
Cable Riser	PTS 0,6mm / PFSP 1,5mm^2
Battery	PN 2x4mm^2 (external battery)
Communication Cable	YFSK 4-pair 0,5mm^2 screened

Cable Type For Concealed Installations	
220VAC	PR 2x1,5mm2/ PN 2x1,5mm2
Earth	PN 6mm2
Detector Loop	PN 2x0,75mm2
Sounder Circuits	PR 2x1,5mm2
Cable Riser	PTS 0,6mm / PFSP 1,5mm2
Battery	PN 2x4mm2 (external battery)
Communication Cable	YFSK 4- pair 0,5mm^2 screened

Cable Type For Ships Installation	
220VAC	RCOP 2x1,5mm^2
Earth	PN 6mm^2
Detector Loop	RCOP 2x1mm^2
Sounder Circuits	RCOP 2x1,5mm^2
Cable Riser	
Battery	
Communication Cable	

Cable Type For Channel	
220VAC	PR 2x1,5mm^2
Earth	PN 6mm^2
Detector Loop	PFSP 2x1,5mm^2
Sounder Circuits	PFSP 2x1,5mm^2
Cable Riser	PFSP 1,5mm^2
Battery	
Communication Cable	YFSK 4-pair 0,5mm^2 in conduit or MXLE 5-pair 0,5mm^2

Important!

In addition to the cable table the cable network is to satisfy the following requirements:

	Resistance, Ohm	Capacitance
Detector Loop	max 50 ohm	max 150 nF
Sounder Circuits	max 5 ohm	

Regarding function, operation and maintenance it is not recommended that the sounders be connected in star-formation, because it will not be possible to monitor them.

External batteries - cable dimensions

- 4 mm^2 Up to 10 m distance
- 6 mm^2 Up to 20 m distance
- 10 mm^2 Up to 40 m distance

Earth:
The 6 mm requirement for the earth applies for separate earthing.

5. Connection of Main Cabinet

Before the ANX 95 is connected, check which panel type is defined in the set-up. When the type of selected panel has been established, check the equipment by means of the appropriate terminal block drawing. The terminal block can then be connected up in accordance with the appropriate drawing.

Be aware that the terminal block drawing can be specific for the plant and such drawings will therefore be sent as customer documentation. Make sure that the screws in the terminal blocks are sufficiently tightened, but:

NB! Do not use excess force because the terminal can be damaged!

Analogue Detector loop with return, for circuits 01-02

NB: Check the type of panel and associated terminal block drawing before the detector loops are connected. Connection of ANX detector loop is to be carried out in accordance with the terminal block drawing. Each loop occupies 4 positions on the terminal block.

Analogue Detector loop without return, for circuits 01-02

NB: Check the type of panel and associated terminal block drawing before the detector loops are connected. Connection of ANX detector loop is to be carried out in accordance with the terminal block drawing. Each loop occupies 2 positions on the terminal block.

Conventional detector loop, for circuits 01-08

NB: Check the type of panel and associated terminal block drawing before the detector loops are connected. Connection of the ZLX detector loop to be carried out in accordance with the terminal block drawing.

NB: For circuits 03-08 the ZLX loop must be provided with 24 VDC. In contrast this shall not be done for circuits 01-02.

Each loop occupies 2 positions on the terminal block, plus 1 position for the provision of 24 VDC (auxiliary voltage). Note that all ZLX loops must be terminated with a terminal resistance in the final detector.

If one or several of the loops are not used, then the terminal resistance must be connected on the terminal block.

Sounder circuits, for circuits 03-08

NB: Check the type of panel and associated terminal block drawing before the sounder circuits are connected. Connection of sounder circuits is to be carried out in accordance with the terminal block drawing.

NB: Sounder circuits must be provided with 24 VDC (auxiliary voltage).

Each sounder circuit occupies 2 positions on the terminal block, plus 1 position for the provision of 24 VDC (auxiliary voltage). Note that all sounder circuits must be terminated with a terminal resistance in the final sounder.

If one or several of the circuits are not used, then the terminal resistance must be connected on the terminal block.

Alarm Outputs, for circuits 01-08

NB: Check the type of panel and associated terminal block drawing before control outputs are connected. Connection of the control circuits is to be carried out in accordance with the terminal block drawing. Each control circuit occupies 2-3 positions on the terminal block.

LBA / Evacuation

ANX 95 has an access (TB12) to activate the following functions:

LBA /Evacuation: When this function is activated all the sounders will ring continually.

Fireman's access: On the front of the ANX 95 indicator diodes are located for warning of the following:

- extinguisher activated
- fan installation activated
- other types installation ("other")
- alarm sender activated

The LBA and evacuation inputs are activated by first selecting a function by means of the operating menu and then connecting resistance values to the terminal block TB12A/B. Each resistance value represents a separate function.

NB: Circuit 12 kan be monitored by means of a terminal resistance (option).

Ref. to the figure below for connection of resistance values.

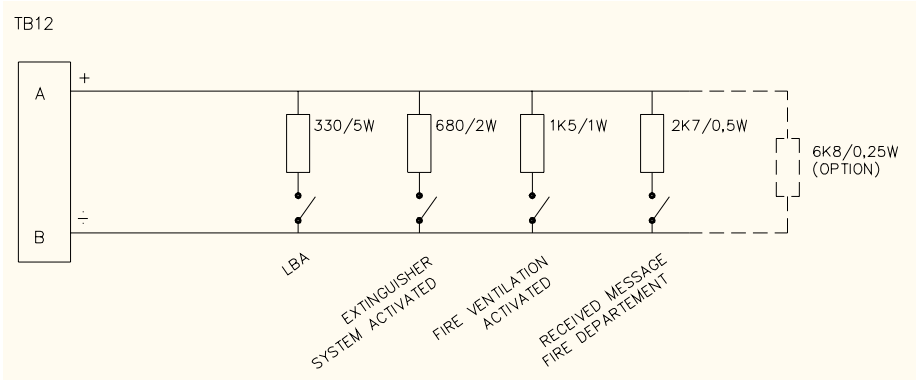


Figure 4 Connection of resistors on TB12 29629g42.wmf

Battery Connection

The battery (24 VDC) is connected to TB11,A (+) and TB11,B (-). Ref. terminal block drawing for connection.

24VDC Auxiliary Supply

Output 1 for 24 VDC auxiliary voltage: TB9,A (+) / TB9,B (-).

Output 2 for 24 VDC auxiliary voltage: TB10,A (+) / TB10,B (-).

Load: max. 1 A per circuit. Ref. terminal block drawing for connection.

Mains Power Connection

Mains (230 VAC) connected to: TB13, 230 VAC.

Ref. terminal block drawing for connection.

Connection of Communication / PC / Printer

COM1 and COM2 to be used for connection of:

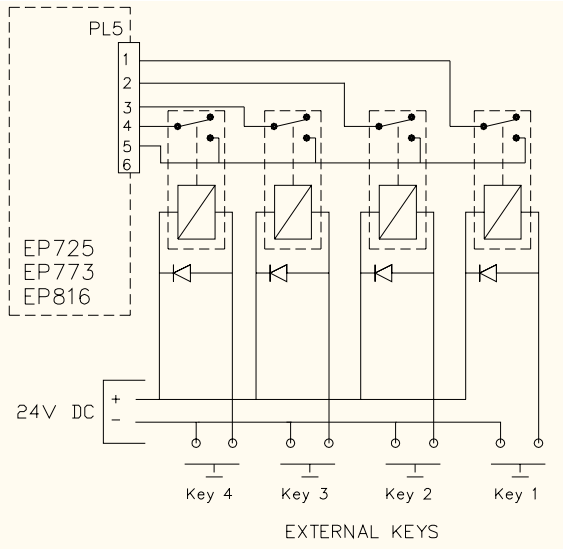
- Other panels and sub-panels
- Printer / PC
- Bleeper

NB: Check the set-up menu to ensure that the COM-gate (COM1/COM2) is defined in accordance with the equipment that is to be connected.

For connections refer to:

T28400-N4, page 1 — ANX95 Cables for COM1 and COM2
T28400-N4, page 2 — ANX95 Cables for COM1 and COM2
on page 36 and onwards.

Connection of External Keys



External keys (4 off) are to be connected to plug PL5 on the front board EP773.

Connection drawing:
Activation of keys 1-4 will cause the panel to carry out multifunction 1-4.

NB: The keys must not be permanently pressed, because the activation of the multifunction will block the operating panel in the instant the key is depressed.

Figure 5 Connection Drawing for external keys 29633N4.wmf

6. Loop Components Analogue (ANX) Loops

Detectors / Remote Led

The detectors are mounted in sockets and all connections must be made to the sockets.

Connection of analogue output:
The plus cable in the loop is to be connected to terminal L1 and the minus cable to terminal L2. Connection of the next detector will be taken out from the same terminals (parallel connection). Any remote led shall be connected to terminals R+ and R-.

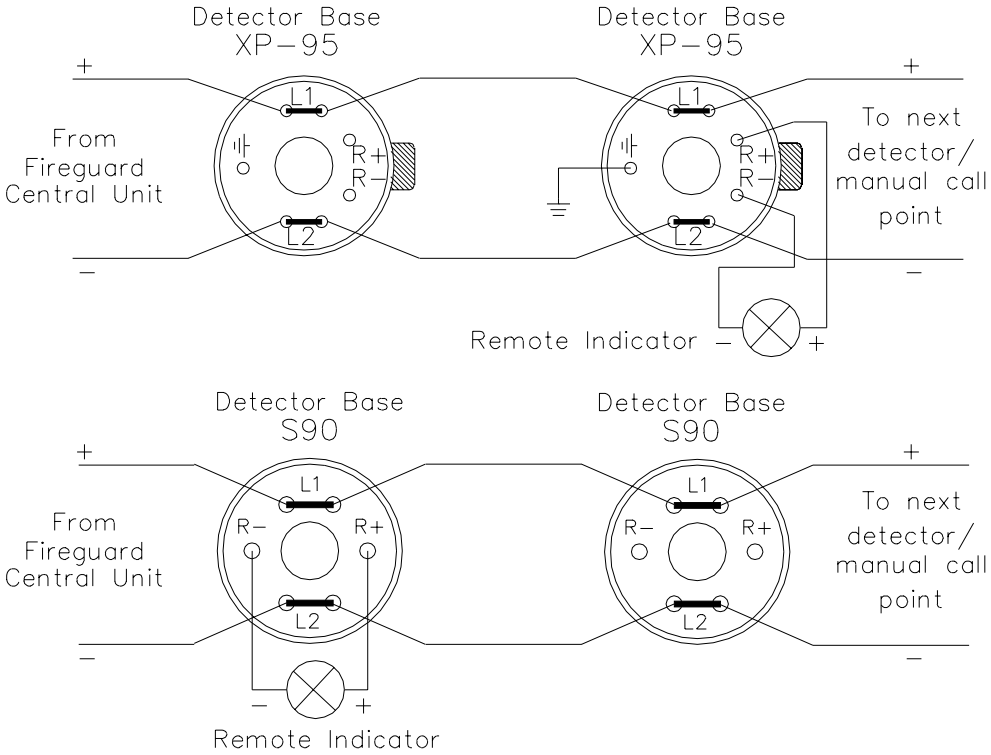


Figure 6 Connection of Apollo analogue detectors 29634a43.wmf

The detectors are to be programmed to the correct address in accordance with the programming diagram given in appendix A.

The detectors are to be mounted by pressing them into the sockets and turning them to the right. Ensure that the socket is identified with the correct loop number and address.

The addressable loop components are ionic detectors (with address), optical detectors (with address), heat sensitive detectors (with address) and manual call point unit (with address). Note that the smoke and heat sensitive detectors in the zone monitor shall not be counted amongst the addressable loop components, but the sub-loop shall be counted.

NB: The installation of loop wires in the proximity of high voltage cables — transformer stations and similar areas with strong electrical fields — can cause disturbance in loop communication. Contact Eltek for further information.

Manual Call Point Unit

Connection of analogue outputs:
The plus cable from the main cabinet/manual alarm is to be connected to the terminal 1 (+) and the minus cable to terminal 2 (-) on the manual call point unit. The cables from the next manual call point unit are to be connected from terminal 1A (+) and 2A (-), respectively.

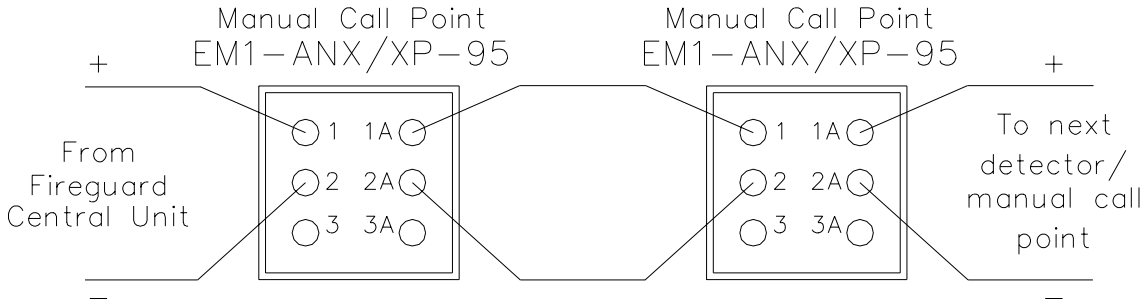


Figure 7 Connection of Apollo analogue Manual Call Points 29634b43.wmf

Zone Monitoring Unit

If a branch from the main loop is necessary, this must be carried out by means of a zone monitoring unit. The unit is to be connected to the main loop and addressed in the same way as a detector.

Up to ten conventional S30/S60 detectors can be connected to each zone monitoring unit. The S-30 detectors shall not be addressed and neither counted in the number of addressable detectors. NOTE! The last S30/S60 detector must be terminated with a 6K8 terminal resistance.

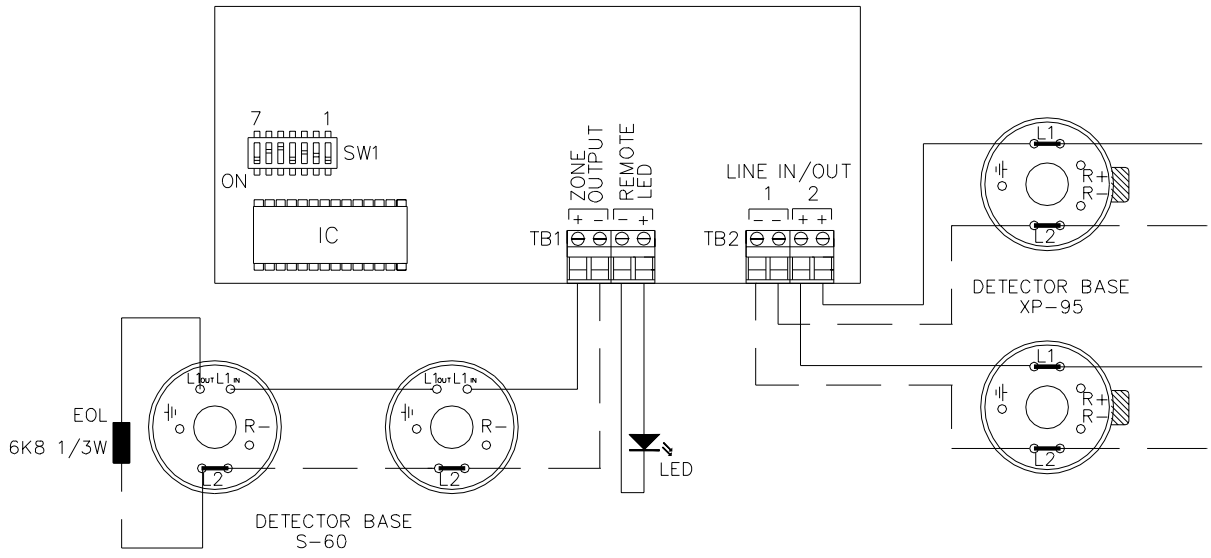


Figure 8 Connection of Zone Monitoring Units 32202n3.wmf

I/O Unit

For analogue (ANX) loop only

If several control circuits/sounder circuits are required, I/O units can be used. Up to 8 x I/O units can be used per detector loop. Each I/O unit is equipped with 1-3 unloaded contacts that can be used as control circuits/sounder circuits. These circuits are sectionable.

The I/O unit is to be connected to the main loop in the same way as a detector and shall be addressed from 100 to 107.

NB: I/O units must be defined in the set-up menu before they can be used.

Refer to "T37322-N3 — DIO, Distributed Input Output Unit", on page 36 for connection details.

Complete Fire Loop

An example of a complete analogue (ANX) loop is shown below. Note! Only type S90/XP95 detectors can be used in the main loop.

S30/S60 detectors are to be used in the zone monitor loops, and these must be connected to the main loop by means of a zone monitor unit.

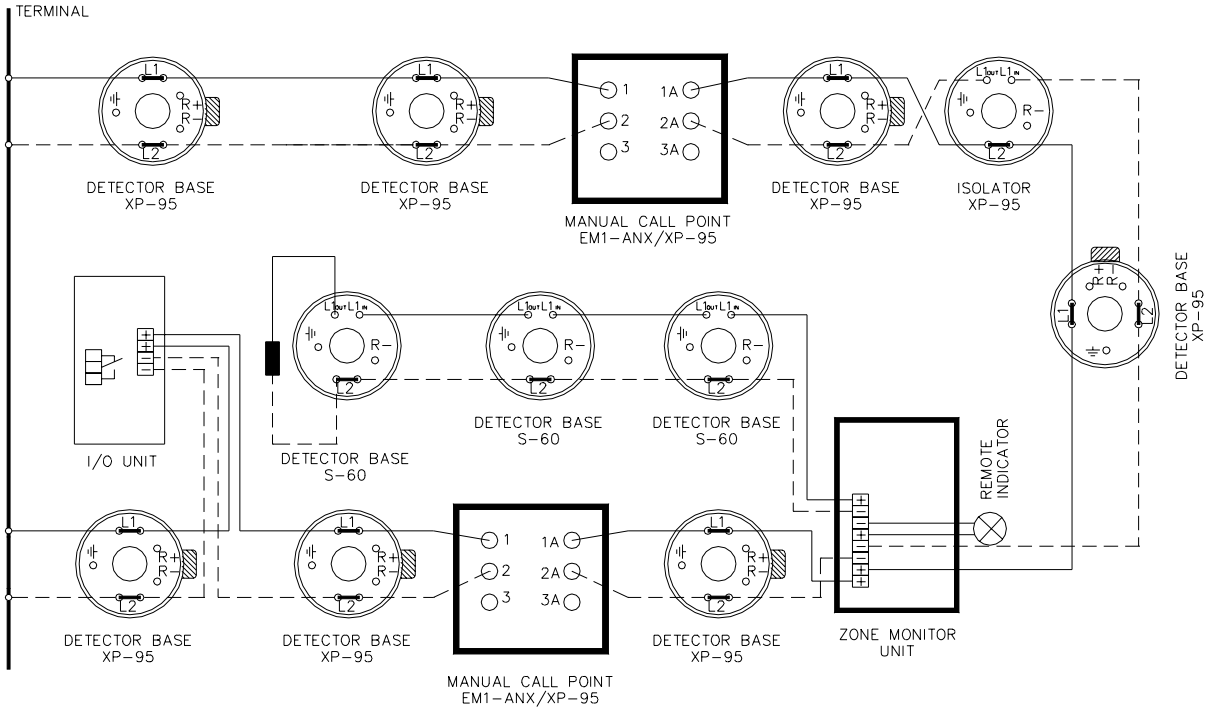
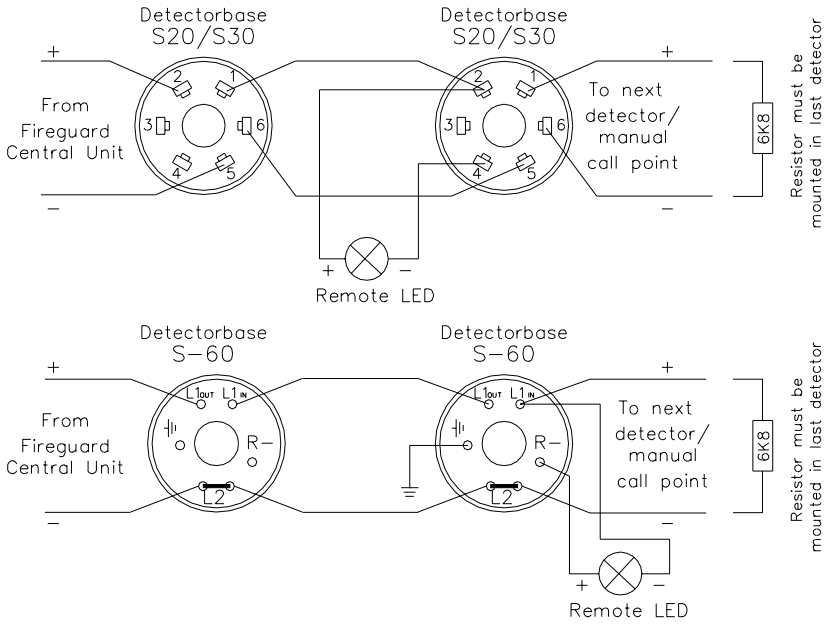


Figure 9 Complete fire loop 31660n42.wmf

7. Loop Components Conventional (ZLX) Loops

Detectors / Remote Led



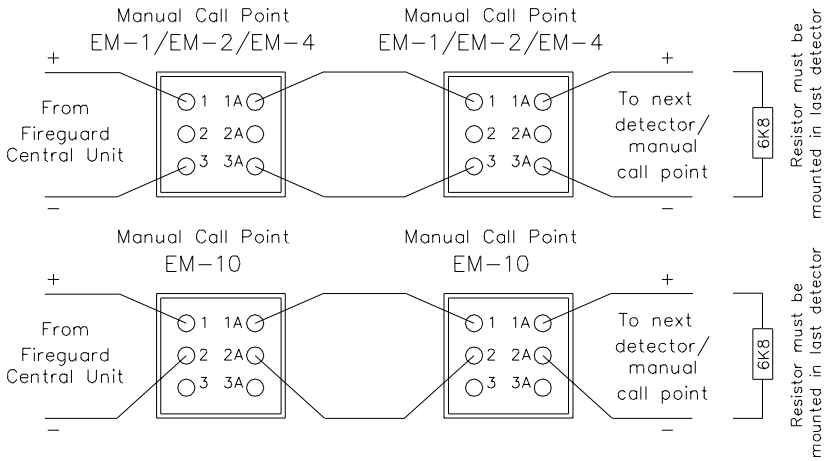
Connection for conventional output:
The plus cable of the loop is to be connected to terminal 2 and the minus cable to terminal 5. Connection of the next detector is to be made from terminal 1 (+) and terminal 6 (-). Any remote led is to be connected to terminals 2 (+) & 4 (-).

The detectors are to be mounted by pressing them into the sockets and turning them to the right. Ensure that the socket is identified with the correct loop number and address.

Figure 10 Connection of Apollo Conventional Detectors
29635b42.wmf

NB: Installation of loop wires in the proximity of high voltage cables — transformer stations and similar areas with strong electrical fields — can cause disturbance in loop communication. Contact Eltek for further information.

Manual Call Points



Connection of conventional version:
The positive wire from the main cabinet/manual alarm is to be connected to terminal 1 (+) and the negative wire to terminal 3 (-) on the manual call point unite. The cables from the next manual call point unit are to be connected from terminal 1A (+) and 3A (-), respectively.

Figure 11 Connection of Conventional Manual Call Points
29635a42.wmf

8. Sounder & Control Circuit Components

Sounders

All sounders in a circuit are to be connected in parallel and terminated with a terminal resistance for the sake of monitoring. The maximum allowable loading per circuit is 1A/24B or about 20 sounders. Note that if branches and/or star connection is used then the monitoring will not function.

The polarity for the panel shown is for normal operation. In the alarm mode the polarity will be reversed.

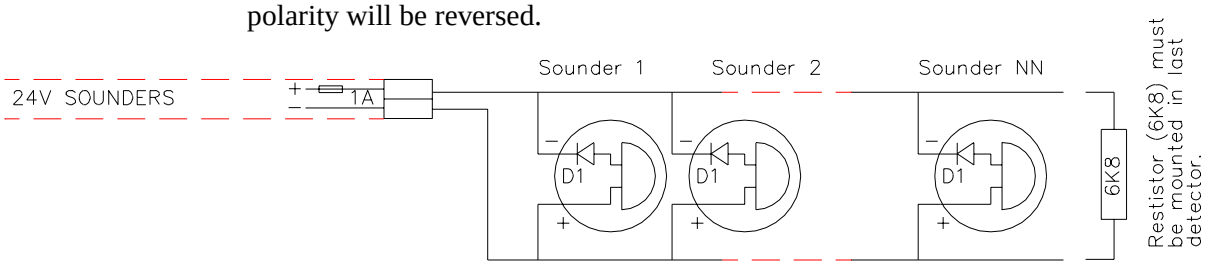
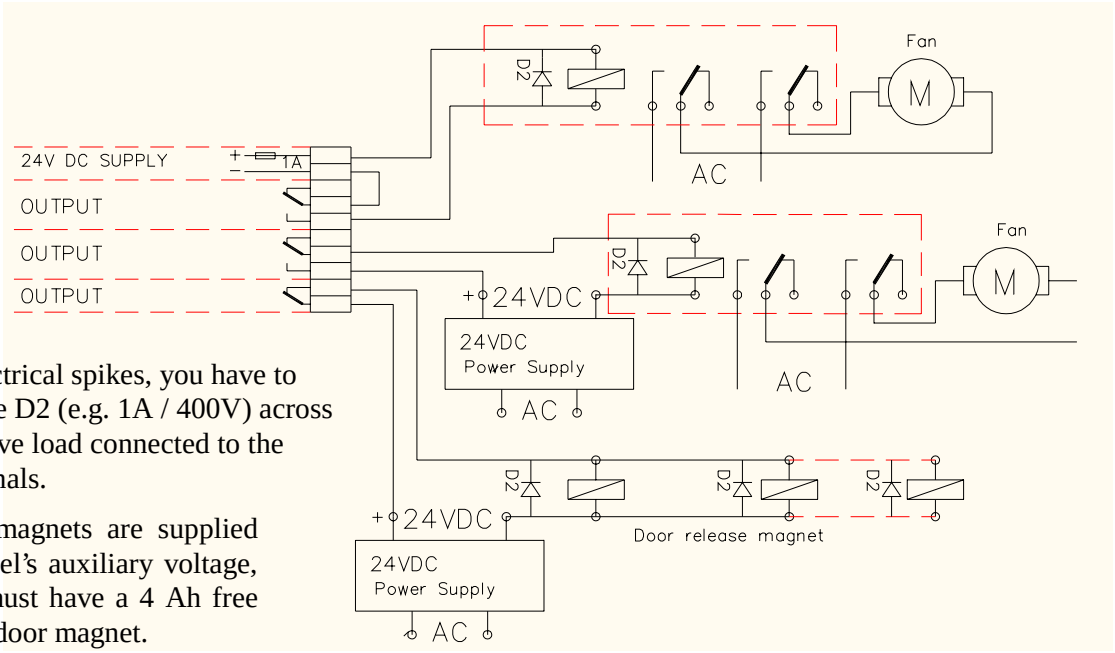


Figure 12 Connection of sounders 29638n4a.wmf

Door Magnet / Fan Stop

An external power supply is recommended for controlling fan stop and door magnets. For small loads (max. 1 A) the 24V auxiliary voltage from the ANX 95 panel can be used, provided the battery capacity is sufficient.



To avoid electrical spikes, you have to connect diode D2 (e.g. 1A / 400V) across every inductive load connected to the panel's terminals.

If the door magnets are supplied from the panel's auxiliary voltage, the battery must have a 4 Ah free capacity per door magnet.

Figure 13 Example of different control circuit connections 29638N4-Diode.wmf

9. Self Checks

This section describes the checks and measurements that the contractor / technician is to carry out before start-up begins.

Visual Inspection

The following 9 points must be checked:

1. Check that all the equipment is mounted in accordance with the contract and the appropriate installation documentation.

2. * Check that Telecommunications have installed the necessary equipment for communication with the local fire service.

3. Check that all the distribution cabinets are mounted and identified in a professional manner.

4. Check that the cabling has been carried out in a professional manner.

5. Check that the plant's fuses in the fuse cabinet are painted blue and that the fuses and circuit list is marked "FIRE ALARM".

6. Check that manual call point unit, sounders etc. that are mounted outdoors, in wet-rooms or in refrigeration/cold storerooms are of the sealed type and connected to a zone monitor unit.

7. Check that the mains earth (min. 6 mm) is connected both to the main cabinet and any sub-cabinets. (Concerns separate earthing).

8. Check that all detectors (loop components) are identified in accordance with the plant documentation.

9. Does the installation as a whole give the impression of being professionally carried out?

*Applies only to plant connected to the local fire service.

Measurements

Resistance and capacitance measurements shall be carried out with a universal instrument of acknowledged type. Measurement of resistance is to be carried out over the supply loop with a short-circuited return. Measurements of capacitance are to be carried out over the loop with an open supply and return.

NB! Do not use insulation voltmeter (megger)!

The measurements are to be performed before connection to the terminal block — the circuits must not be connected during measurement — and must not exceed the following values:

	Resistance, Ohm	Capacitance
Detector Loop	max 50 ohm	max 150 nF
Sounder Circuits	max 5 ohm	

10. Hand Over and Approval

Hand Over

When the plant is finally tested and found to be in order, the supplier's representative shall carry out the following so as to ensure the best possible operation of the plant, and also to establish the necessary co-operation and communication between the involved parties.

◊ Ensure that the building owner designates a person responsible for operation.

◊ Instruct this person together, if possible, with representatives from the local fire service to perform:

◊ daily running of the plant

◊ carry out inspection in accordance with operation instructions

◊ carry out system checks in accordance to user instructions

◊ carry out maintenance in accordance with appropriate routines

◊ ensure that maintenance work on buildings does not cause false alarms

◊ check the cause of false alarms and prevent repetition

◊ maintain running contact with the supplier concerning the operational situation, required changes and extensions etc.

◊ record operational data in the service log.

Customer Inspection and Approval of Plant

Customer inspection and approval is to be carried out in accordance with Eltek's checklist. The approval authorities are usually represented by:

- Owner of the building
- NBF
- Insurance company
- Fire service

Trial Period

False alarms can occur in new installations and modernised /extended plants. There are several causes for this, the usual ones being:

- ◊ Incorrect type of detector for the environment
- ◊ Incorrect location of detector
- ◊ Faulty or lack of operation
- ◊ Ongoing building work.

The supplier should therefore agree to a trial period with the user. The following points shall be included in the agreement:

- ◊ Who is to be informed about the operational status?
- ◊ When shall control having consequences for larger operations, be permanently connected.
  Examples:
  -Fire service
  -Extinguisher system
  -Process shutdown, etc.
- ◊ The duration of the trial period shall normally be agreed with the local fire service.

Service Contract

The user should be made aware of the advantages of signing a service contract, and be presented with a draft of such a contract, if this has not already been agreed when the system was purchased.

The fire service, other public authorities or insurance companies may demand that a service agreement be signed with the supplier.

11. User Information

User Comments

General

It is the policy of AS ELTEK that we shall work actively to ensure that out products are in accordance with our customer's expectations and requirements. In order to achieve this goal at any time, we wish to follow up our products throughout their lifetime. We therefor request your kind assistance.

Product Report (PR)

I you have any technical comments with respect to product specification, performance, maintenance or service, we would appreciate if you would fill in these comments on a copy of the form *Product Report* , (form 017), at the end of this manual and return it to us.

If desirable, you may as well contact us by telephone or fax. These numbers are listed in the front page of this manual. We will confirm receipt of all comments received, and we will inform you of changes as a result of your comments and suggestions.

Evaluation of Manual

We are continually looking for ways to make our products and our manuals as easy to use as possible. You can help us by sharing your comments and suggestions about how our manuals could be made more useful to you and about any inaccuracies or information gaps they contain.

You can submit your comments either by making a copy and filling out the form *Evaluation of User's Manual*, (form 045), at the end of this manual or by writing to us.

We sincerely appreciate your comments about our products.

Electro Static Discharge (ESD)

General

This product is manufactured by *Eltek Fire & Safety AS* using semiconductor components. These components are sensitive to *Electro Static Discharge* (ESD). The product may be damaged or have reduced performance and lifetime, if the handling is not correct during service and transport.

NS-ISO 9001 requires that methods and means of handling that prevent damage or deterioration are provided.

Marking of components and produced items

Parts sensitive to ESD will be marked with either of the two symbols shown in the figures below:

Figure 11-1: ESD-Symbol
ESD1.PCX

Figure 11-2 ESD-Symbol
ESD2.PCX

Handling of Equipment

To maintain guarantee, all products containing semiconductor components or Printed Circuit Boards (PCB's), must be handled in accordance with the items listed in this paragraph:

- The operator must be ESD-protected by using a portable *field service kit* containing protecting mat, wrist strap and ground cords, all connected to the same ground potential as the product, see figure below.
  AS ELTEK can deliver *field service kits*

- The operator must make all grounding connections before the PCB's are removed or components are touched. The wrist strap must make good contact with the skin.

- Whenever a PCB is put aside, this must be done on the ground mat.

- All PCB's must be reinstalled in the product or put in ESD-protecting bags, before the ESD-protecting kit is removed.

- Non-conductive items such as synthetic clothing, plastic materials, etc. Must be kept clear of the working area, otherwise they might cause damage.

PCB's should be kept in ESD-protecting bags at all time during storage and transport. The bags must not be opened unless an authorised operator with the necessary equipment is working in accordance with the items listed in this paragraph.

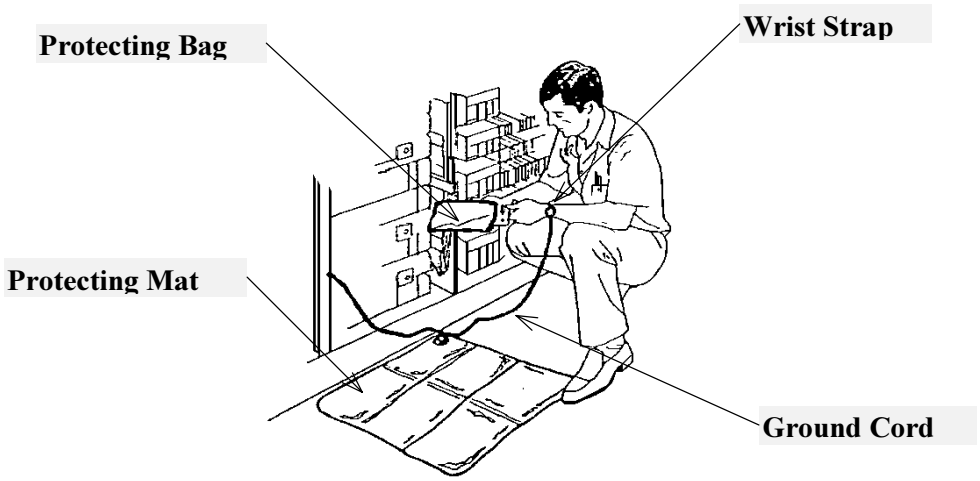


Figure 11-3 ESD Field Service Kit
ESD3.WPG

PRODUCT REPORT

Customer:	Originator:	Date:
Address:		
Phone no.:	Fax no.:	

Product name:	Article no.:	Version no.:	Serial no.:
Description:			

Please give as detailed information as possible. This will simplify our analysis and corrective action.

Please forward this Product Report to:

Eltek Fire & Safety AS
P.O. Box 3514
N-3007 DRAMMEN
Norway

Phone: **47 32 24 48 00**
Fax: **47 32 24 48 01**
E-Mail (Product Dept.): **product@eltek.no**

To be filled by *Eltek Fire & Safety AS*

Received, sign.:	Date:			
Confirmation sent Customer, sign:	Date:	Answer sent Customer, sign.:	Date:	Reg. no.:

Form 017/2-C01-ww PAVD

EVALUATION OF USER's MANUAL

SENT BY:

Company:			Zone:
Address:			
Name:	Occupation:		Date:
Phone no.:	Fax no.:		
Title of Manual:	Article no.:	Issue:	Date of Issue:

CUSTOMER RELATIONS:

❑ Installer	❑ Consultant	❑ Builder	
❑ Electrician	❑ End User	❑ Other, please specify:	Other:

EVALUATION OF USER's MANUAL:

Ratings from 1 to 6 Low High:

	1	2	3	4	5	6
1 Contents of information in the text.....	❑	❑	❑	❑	❑	❑
2 Contents of drawings and illustrations	❑	❑	❑	❑	❑	❑
3 Use of language	❑	❑	❑	❑	❑	❑
4 Examples.....	❑	❑	❑	❑	❑	❑
5 Logical build up.....	❑	❑	❑	❑	❑	❑
6 Layout.....	❑	❑	❑	❑	❑	❑
7 Paper format	❑	❑	❑	❑	❑	❑
8 Ease of use	❑	❑	❑	❑	❑	❑
9 Impression of manual compared with other Eltek Fire & Safety AS manuals	❑	❑	❑	❑	❑	❑
10 Impression of manual compared with other companies manuals ...	❑	❑	❑	❑	❑	❑
11 Other, please specify:.....	❑	❑	❑	❑	❑	❑

Please, forward this evaluation report to:

ELTEK Fire & Safety AS
P.O. Box 3514
N-3007 DRAMMEN
Norway

Phone: **47 32 24 48 00**
Fax: **47 32 24 48 01**
E-Mail (Product Dept.): **product@eltek.no**

ERRORS IN USER's MANUAL

Please, specify all printing errors, drawing errors, faulty specifications, references, etc.
Please, also specify on what page(s) the errors occur, or send some examples.

Form 045/2-C01-ww PAVD

12. Appendix A: Tables, Drawings, etc.

DIL-Switch Address Table for S90 Detectors

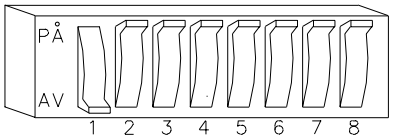
Address Code	Switch No/ Position 1	2	3	4	5	6	7	Address Code	Switch No/ Position 1	2	3	4	5	6	7	Address Code	Switch No/ Position 1	2	3	4	5	6	7
1	□	■	■	■	■	■	■	34	■	□	■	■	■	□	■	67	□	□	■	■	■	■	□
2	■	□	■	■	■	■	■	35	□	□	■	■	■	□	■	68	■	■	□	■	■	■	□
3	□	□	■	■	■	■	■	36	■	■	□	■	■	□	■	69	□	■	□	■	■	■	□
4	■	■	□	■	■	■	■	37	□	■	□	■	■	□	■	70	■	□	□	■	■	■	□
5	□	■	□	■	■	■	■	38	■	□	□	■	■	□	■	71	□	□	□	■	■	■	□
6	■	□	□	■	■	■	■	39	□	□	□	■	■	□	■	72	■	■	■	□	■	■	□
7	□	□	□	■	■	■	■	40	■	■	■	□	■	□	■	73	□	■	■	□	■	■	□
8	■	■	■	□	■	■	■	41	□	■	■	□	■	□	■	74	■	□	■	□	■	■	□
9	□	■	■	□	■	■	■	42	■	□	■	□	■	□	■	75	□	□	■	□	■	■	□
10	■	□	■	□	■	■	■	43	□	□	■	□	■	□	■	76	■	■	□	□	■	■	□
11	□	□	■	□	■	■	■	44	■	■	□	□	■	□	■	77	□	■	□	□	■	■	□
12	■	■	□	□	■	■	■	45	□	■	□	□	■	□	■	78	■	□	□	□	■	■	□
13	□	■	□	□	■	■	■	46	■	□	□	□	■	□	■	79	□	□	□	□	■	■	□
14	■	□	□	□	■	■	■	47	□	□	□	□	■	□	■	80	■	■	■	■	□	■	□
15	□	□	□	□	■	■	■	48	■	■	■	■	□	□	■	81	□	■	■	■	□	■	□
16	■	■	■	■	□	■	■	49	□	■	■	■	□	□	■	82	■	□	■	■	□	■	□
17	□	■	■	■	□	■	■	50	■	□	■	■	□	□	■	83	□	□	■	■	□	■	□
18	■	□	■	■	□	■	■	51	□	□	■	■	□	□	■	84	■	■	□	■	□	■	□
19	□	□	■	■	□	■	■	52	■	■	□	■	□	□	■	85	□	■	□	■	□	■	□
20	■	■	□	■	□	■	■	53	□	■	□	■	□	□	■	86	■	□	□	■	□	■	□
21	□	■	□	■	□	■	■	54	■	□	□	■	□	□	■	87	□	□	□	■	□	■	□
22	■	□	□	■	□	■	■	55	□	□	□	■	□	□	■	88	■	■	■	□	□	■	□
23	□	□	□	■	□	■	■	56	■	■	■	□	□	□	■	89	□	■	■	□	□	■	□
24	■	■	■	□	□	■	■	57	□	■	■	□	□	□	■	90	■	□	■	□	□	■	□
25	□	■	■	□	□	■	■	58	■	□	■	□	□	□	■	91	□	□	■	□	□	■	□
26	■	□	■	□	□	■	■	59	□	□	■	□	□	□	■	92	■	■	□	□	□	■	□
27	□	□	■	□	□	■	■	60	■	■	□	□	□	□	■	93	□	■	□	□	□	■	□
28	■	■	□	□	□	■	■	61	□	■	□	□	□	□	■	94	■	□	□	□	□	■	□
29	□	■	□	□	□	■	■	62	■	□	□	□	□	□	■	95	□	□	□	□	□	■	□
30	■	□	□	□	□	■	■	63	□	□	□	□	□	□	■	96	■	■	■	■	■	□	□
31	□	□	□	□	□	■	■	64	■	■	■	■	■	■	□	97	□	■	■	■	■	□	□
32	■	■	■	■	■	□	■	65	□	■	■	■	■	■	□	98	■	□	■	■	■	□	□
33	□	■	■	■	■	□	■	66	■	□	■	■	■	■	□	99	□	□	■	■	■	□	□

7 DIL switches for addressing purposes

□ =switch in «**OFF**» position
■ = switch in «**ON**» position

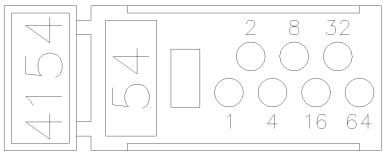
MAX 99 Addresses

Figure 4 DIL switch



DIL switch on addressable unit

Programming Detectors with the X-Pert Card



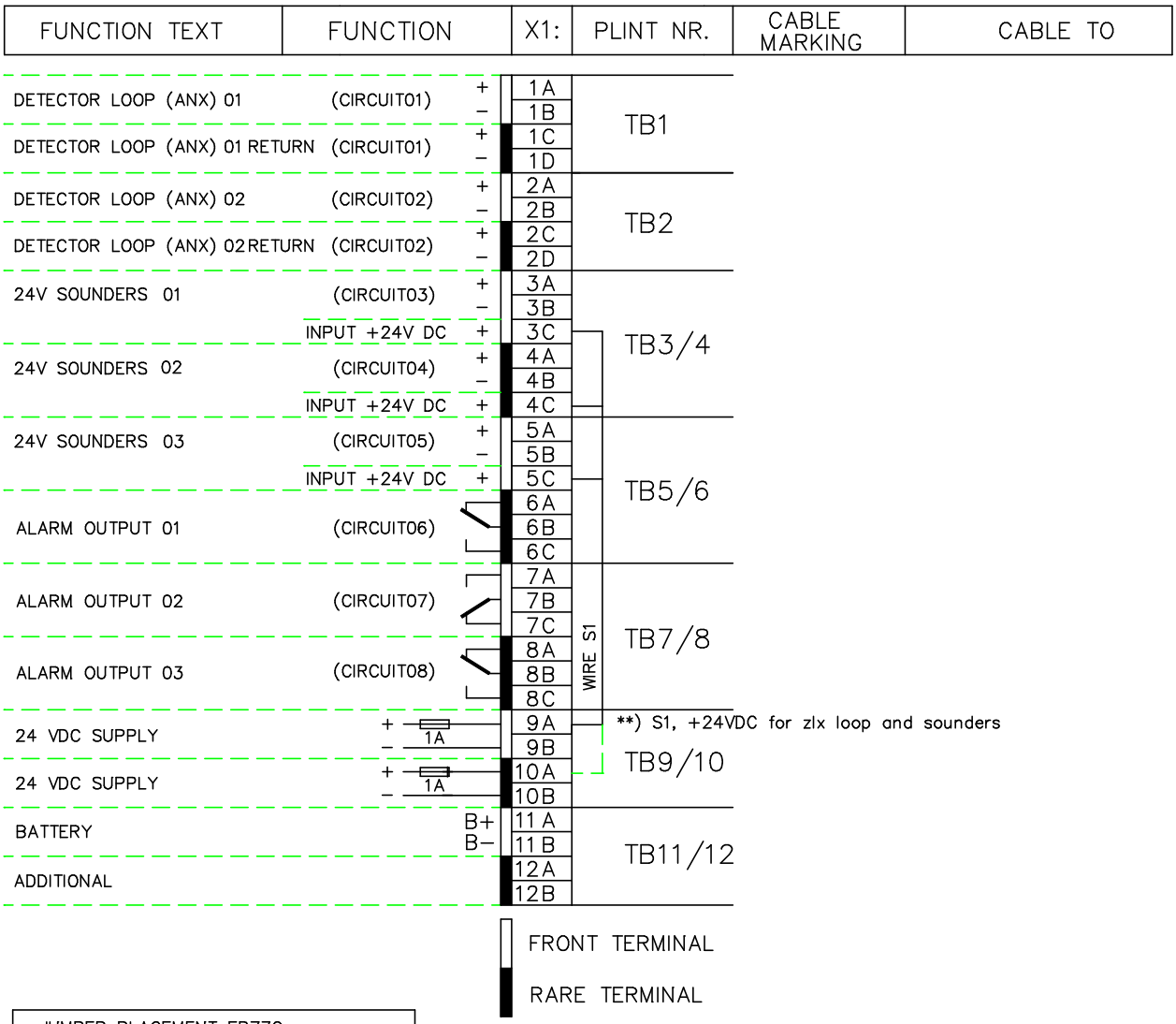
The XP95 detectors are automatically coded when they are twisted into their sockets. A removable plastic key contains a code number that informs the detector where it is placed in the number sequence. Therefore, detectors can be replaced without addressing problems.

Figure 12-1 XPERT Card for programming of XP95 bases and address table below mon_key.wmf

ADDRESS CODE	REMOVE BUTTONS	ADDRESS CODE	REMOVE BUTTONS	ADDRESS CODE	REMOVE BUTTONS
1	1	**36**	4+32	**71**	1+2+4+64
2	2	**37**	1+4+32	**72**	8+64
3	1+2	**38**	2+4+32	**73**	1+8+64
4	4	**39**	1+2+4+32	**74**	2+8+64
5	1+4	**40**	8+32	**75**	1+2+8+64
6	2+4	**41**	1+8+32	**76**	4+8+64
7	1+2+4	**42**	2+8+32	**77**	1+4+8+64
8	8	**43**	1+2+8+32	**78**	2+4+8+64
9	1+8	**44**	4+8+32	**79**	1+2+4+8+64
10	2+8	**45**	1+4+8+32	**80**	16+64
11	1+2+8	**46**	2+4+8+32	**81**	1+16+64
12	4+8	**47**	1+2+4+8+32	**82**	2+16+64
13	1+4+8	**48**	16+32	**83**	1+2+16+64
14	2+4+8	**49**	1+16+32	**84**	4+16+64
15	1+2+4+8	**50**	2+16+32	**85**	1+4+16+64
16	16	**51**	1+2+16+32	**86**	2+4+16+64
17	1+16	**52**	4+16+32	**87**	1+2+4+16+64
18	2+16	**53**	1+4+16+32	**88**	8+16+64
19	1+2+16	**54**	2+4+16+32	**89**	1+8+16+64
20	4+16	**55**	1+2+4+16+32	**90**	2+8+16+64
21	1+4+16	**56**	8+16+32	**91**	1+2+8+16+64
22	2+4+16	**57**	1+8+16+32	**92**	4+8+16+64
23	1+2+4+16	**58**	2+8+16+32	**93**	1+4+8+16+64
24	8+16	**59**	1+2+8+16+32	**94**	2+4+8+16+64
25	1+8+16	**60**	4+8+16+32	**95**	1+2+4+8+16+64
26	2+8+16	**61**	1+4+8+16+32	**96**	32+64
27	1+2+8+16	**62**	2+4+8+16+32	**97**	1+32+64
28	4+8+16	**63**	1+2+4+8+16+32	**98**	2+32+64
29	1+4+8+16	**64**	64	**99**	1+2+32+64
30	2+4+8+16	**65**	1+64		
31	1+2+4+8+16	**66**	2+64		
32	32	**67**	1+2+64		
33	1+32	**68**	4+64		
34	2+32	**69**	1+4+64		
35	1+2+32	**70**	2+4+64		

Connection Drawings

- ◊ T29628-N4 — Terminal Connection ANX95, Analogue
- ◊ T30743-N4 — Terminal Connection ANX95, Conventional
- ◊ T28400-N4, page 1 — ANX95 Cables for COM1 and COM2
- ◊ T28400-N4, page 2 — ANX95 Cables for COM1 and COM2
- ◊ T37322-N3 — DIO, Distributed Input Output Unit



	S	C
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		

JUMPER PLACEMENT EP770

CIRCUIT01 (ANX.DL)	J2,3
CIRCUIT02 (ANX.DL)	J5,6
CIRCUIT03 (SOUNDERS)	J8,10
CIRCUIT04 (SOUNDERS)	J12,14
CIRCUIT05 (SOUNDERS)	J16,18
CIRCUIT06 (ALARM OUTPUT)	J21
CIRCUIT07 (ALARM OUTPUT)	J25
CIRCUIT08 (ALARM OUTPUT)	J29

NOTES:

1. 24VDC SUPPLY
   Max. load 1A/24VDC
2. SOUNDERS OUTPUT:
   Max. load pr. circuit 1A/24VDC
3. Sounders and alarm outputs are shown in normal condition.
   Max load pr. output 1A/24VDC
4. Sounders must be feeded with +24VDC

230 VAC must not be connected to the alarm outputs

Dato/Date 1993–07–21	Konstr./Design JRC	Kontroll/Controlled	M?lestokk/Scale
Arkiv/Archive P–ARKIV	Tegnet/Draw JRC	Godkjent/Approved	

A/S ELTEK

Terminal connection drawing:
FIREGUARD ANX95
2DL(ANX)–3S–3AO
Art: 233165

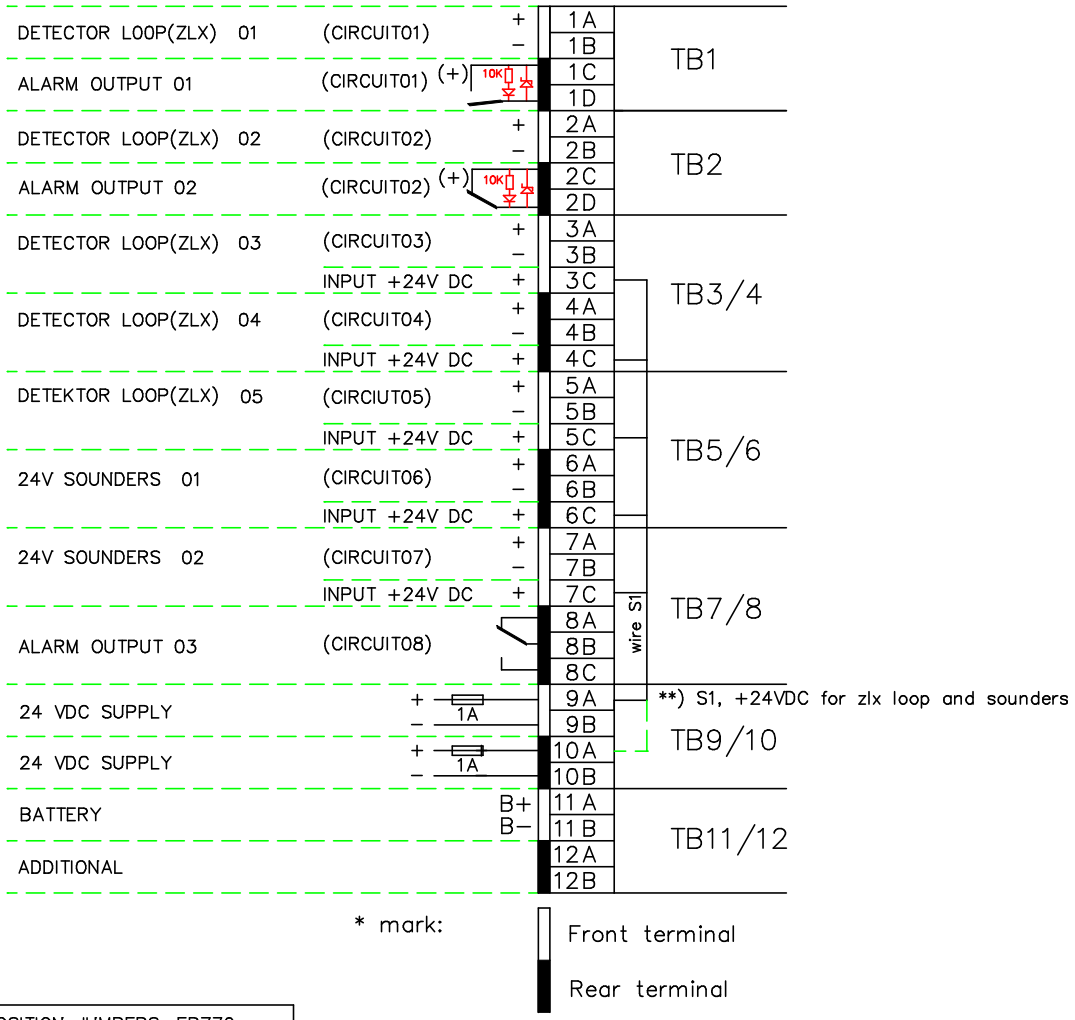
Erst. for/Replace for	Erst. av/Replaced by

T29628–N4

Henvisning/Reference AC BRANN 62 29628–N4	Ordre nr./Order no.	Konsulent/Consultant

12 Appendix A: Tables, Drawings, etc.

FUNCTION TEXT	FUNCTION	X1:	PLINT NO.	CABLE MARKING	CABLE TO



	S	C
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
K		
L		
M		

POSITION JUMPERS, EP770

CIRCUIT01 (ZLX.DL) CIRCUIT01 (AO)	J1
CIRCUIT02 (ZLX.DL) CIRCUIT02 (AO)	J4
CIRCUIT03 (ZLX.DL)	J10,11
CIRCUIT04 (ZLX.DL)	J14,15
CIRCUIT05 (ZLX.DL)	J18,19
CIRCUIT06 (S)	J20,22
CIRCUIT07 (S)	J24,26
CIRCUIT08 (AO)	J29

NOTES:

1. 24VDC SUPPLY:
   Max. load 1A/24VDC
2. SOUNDERS:
   Max. load pr. circuit 1A/24VDC
3. Sounders and alarm outputs are shown in normal condition
   Max. load pr. output 1A/24VDC
4. Alarmoutputs 01−02 are polarity dependent, and they are connected in parallel with R=10K
   If supply voltage should be connected to alarm outputs 01−02, do as follows:
   Alarm output 01: connect + to 1C (circuit 01).
   Alarm output 02: connect + to 2C (circuit 02).
5. Detector loops 01−05 and sounders 01−02 must be feeded with +24VDC

NOTE: Max total load must not exceed 2,5 Amp.
Do not connect 230 VAC to the alarm outputs.

Dato/Date	Konstr./Design	Kontroll/Controlled	M?lestokk/Scale	A/S ELTEK
1994−01−31	JRC			
Arkiv/Archive H−ARKIV	Tegnet/Draw JRC	Godkjent/Approved		

Terminal dwg:
FIREGUARD ANX95
5DL(ZLX)−2S−3AO

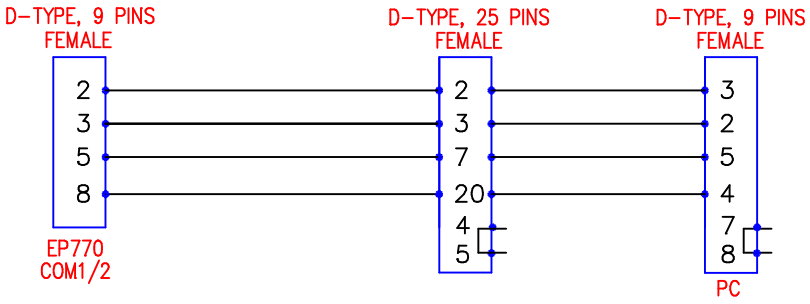
Erst. for/Replace for	Erst. av/Replaced by

T30743−N4

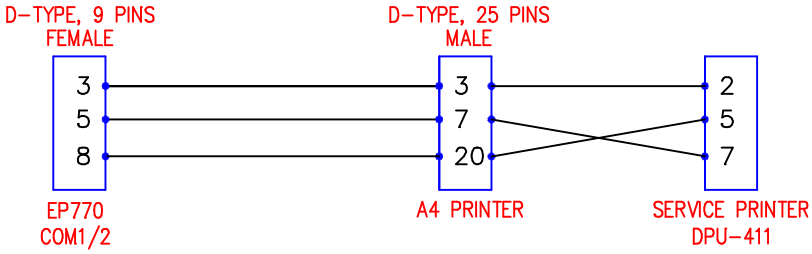
Henvisning/Reference	Ordre nr./Order no.	Konsulent/Consultant
AC BRANN 76 30743N4		

12 Appendix A: Tables, Drawings, etc.

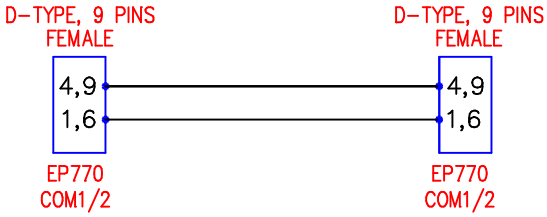
ANX 95 – PC



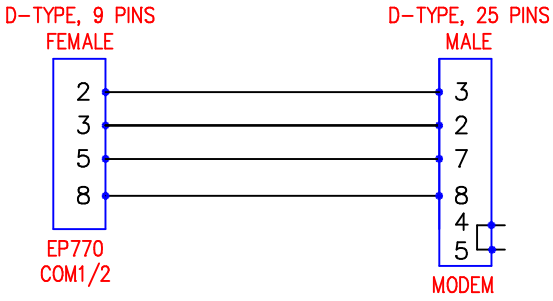
ANX 95 – PRINTER



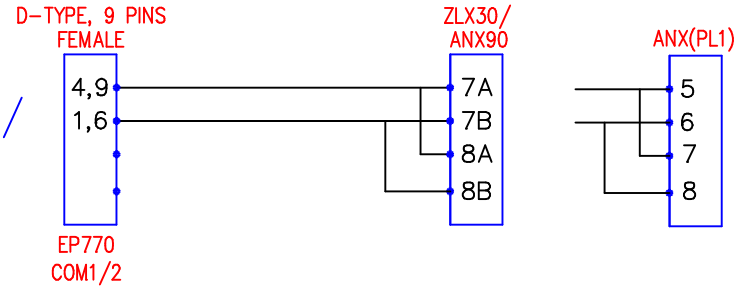
ANX 95 – ANX 95 (SLAVE-MASTER/ MASTER-SLAVE)



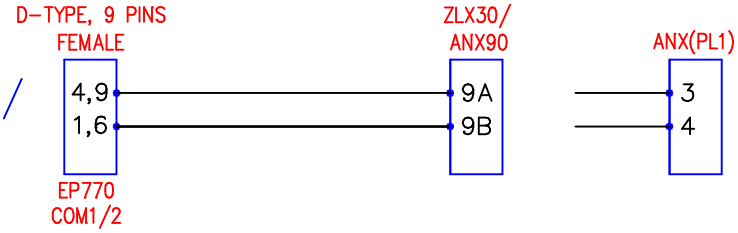
ANX 95 – MODEM



ANX 95 – ANX/ZLX 30/ ANX 90 (MASTER)



ANX 95 – ANX/ZLX 30/ ANX 90 (SLAVE)



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L		
M		

Dato/Date	Konstr./Design	Kontroll/Controlled	M?lestokk/Scale	A/S ELTEK
1999-05-25	FA			
Arkiv/Archive P-ARKIV	Tegnet/Draw TEM	Godkjent/Approved		

CONNECTION DRAWING:
CABLES – COM1/2 ANX95

Erst. for/Replace for	Erst. av/Replaced by

T28400-N4-6

Henvisning/Reference	Ordre nr./Order no.	Konsulent/Consultant
AC 28400NA6		PAGE 1 OF 3

12 Appendix A: Tables, Drawings, etc.

	S	C
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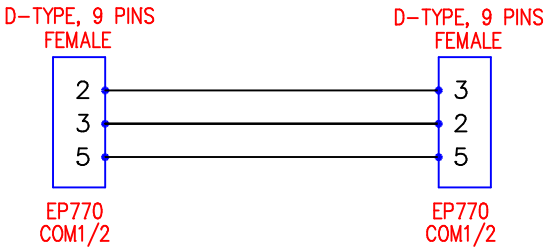
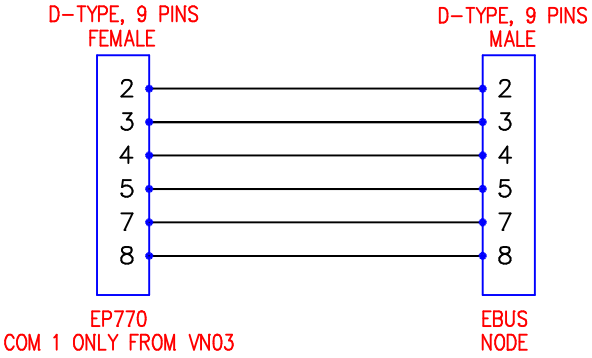
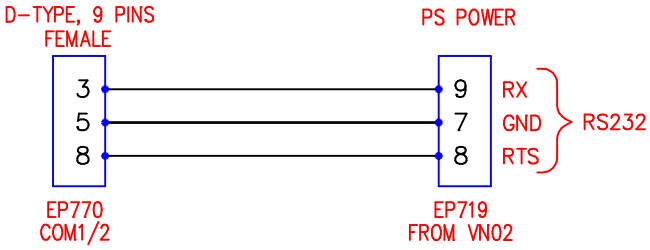
ANX 95 – ANX 95 RS232 XCOMM SLAVE–MASTER/MASTER–SLAVE



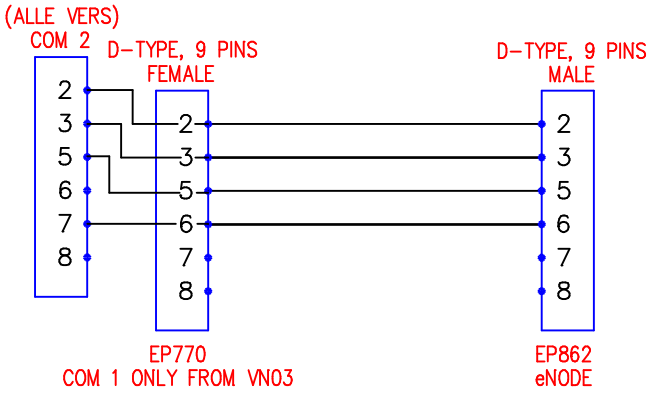
ANX 95 – EBUS NODE (EIB)



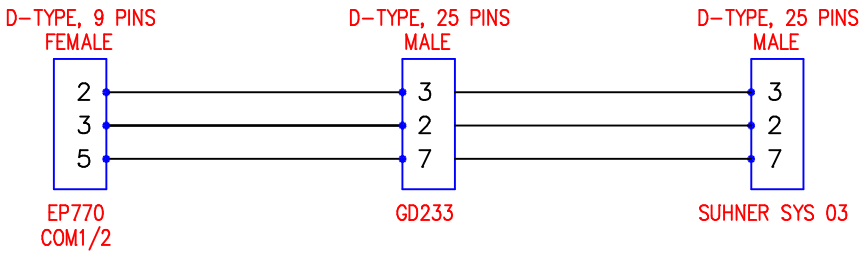
ANX 95 – PS SYSTEM



ANX 95 – eNODE



ANX 95 – RS232 FIBER INTERFACE



Dato/Date	Konstr./Design	Kontroll/Controlled	M?lestokk/Scale	A/S ELTEK
1999–05–25	FA			
Arkiv/Archive P–ARKIV	Tegnet/Draw TEM	Godkjent/Approved		

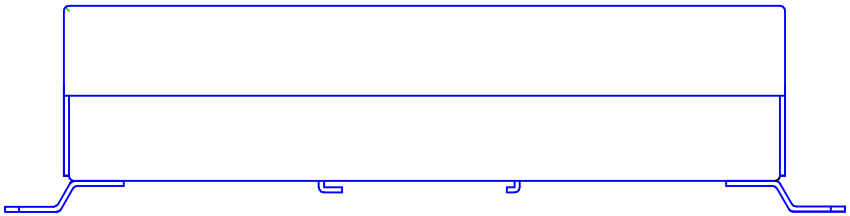
CONNECTION DRAWING:
CABLES – COM1/2 ANX95

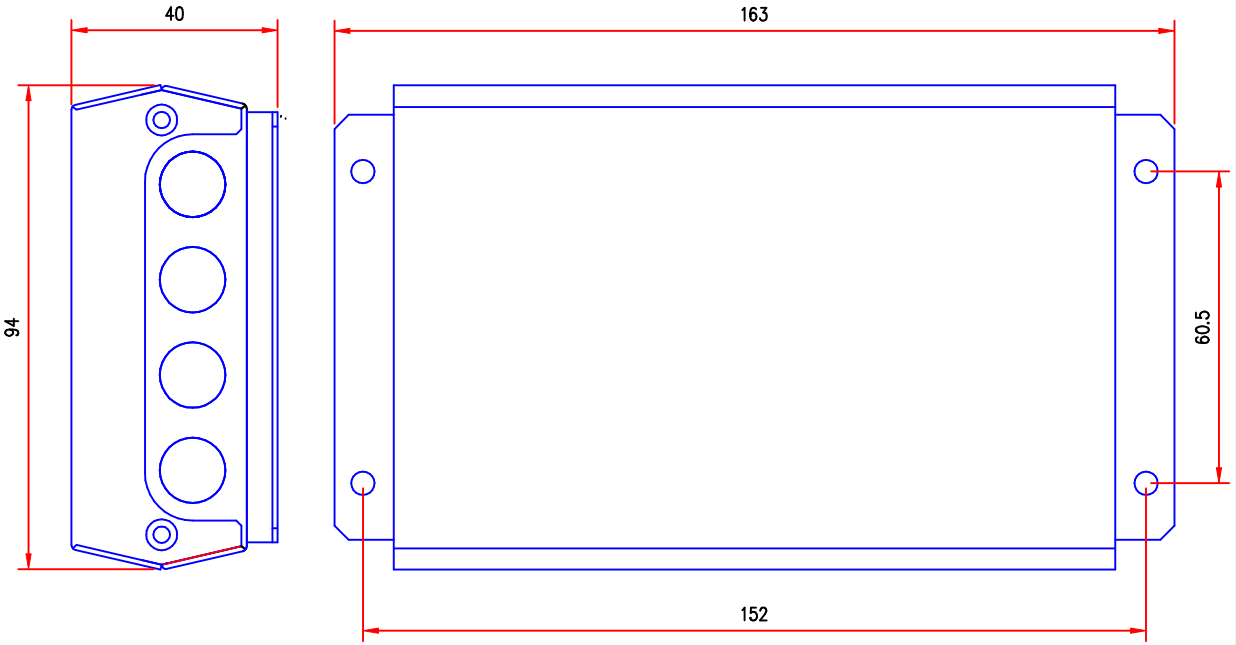
Erst. for/Replace for	Erst. av/Replaced by

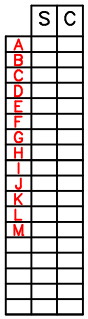
T28400–N4–6

Henvisning/Reference	Ordre nr./Order no.	Konsulent/Consultant
AC 28400NB6		PAGE 2 OF 3

12 Appendix A: Tables, Drawings, etc.





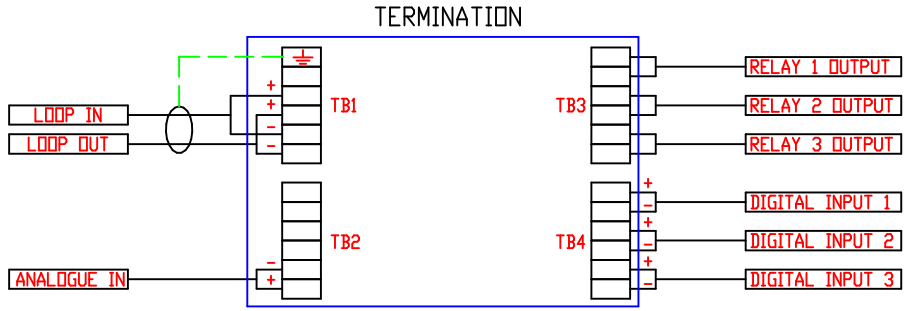


Technical notes

Weight	0.45kg
Protection	IP20
Dimension	163 x 94 x 40mm
Material	1mm Aluzink
Colour	Grey, RAL 7024
Part number	235580
Quiescent current	2,5mA
Supply voltage	17-28V
Relay output	2A/30V

Notes

1. DIN-rail mounting, or use 4 screws (M4)
2. For details regarding connection, see terminal drawing T36564-N4.



Dato/Date 1998-10-29	Konstr./Design BRL	Kontroll/Controlled	Målestokk/Scale 1:1	A/S ELTEK
Arkiv/Archive P-ARKIV	Tegnet/Draw TEM	Godkjent/Approved		

GENERAL PRODUCT DRAWING
DISTRIBUTED INPUT/OUTPUT UNIT
(DIO)

Henvisning/Reference AC_37322N3	Ordre nr./Order no.	Konsulent/Consultant

Erst. for/Replace for | Erst. av/Replaced by

T37322-N3

12 Appendix A: Tables, Drawings, etc.

Eltek

Eltek Fire & Safety AS
P.O. Box 3514
N-3007 DRAMMEN
Norway

Phone: +47 32 24 48 00
Fax: +47 32 24 48 01
E-Mail: product@eltek.no
Internet: http://www.eltek.no

Art. No.: 35 1201.033
Issue 2, February 2000