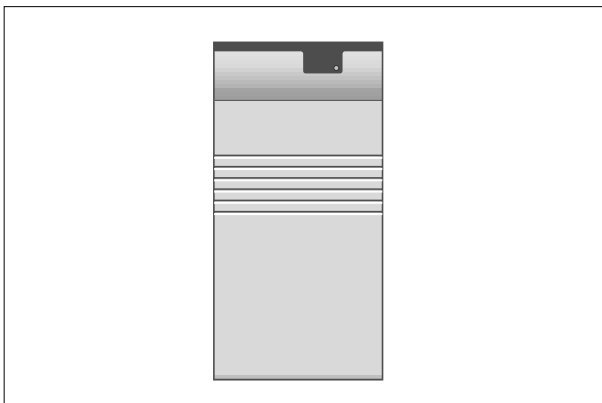


Installation Guide - Alarm Module T941AM8

T941AM8 has 8 physical inputs for connection to external alarm devices. Inputs are galvanically isolated, have transient protection, and can be programmed for making or breaking contacts. There are an additional 56 logical inputs that can only be activated by programmed parameters.

A FLASH PROM in T941AM8 enables remote programming of the program and parameters. T941AM8 is used in teleCOURIER 900, telePROTECT 900, and CTS 900.

T941AM8 is not intended for connection to public telephone networks.



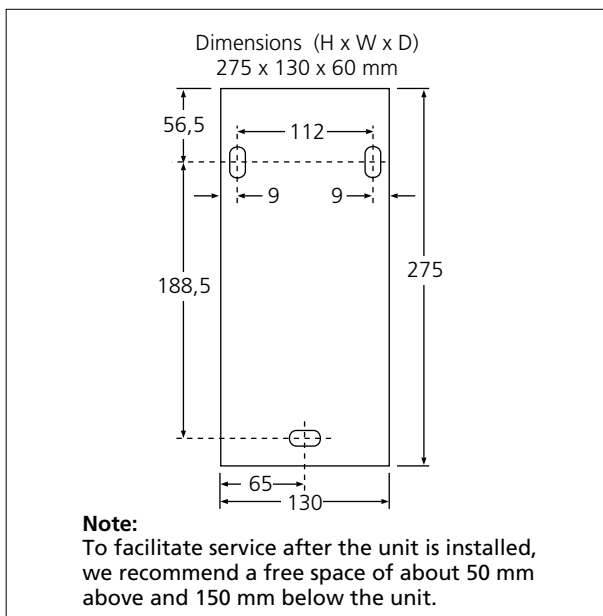
1. General

As a complement to this installation guide, see also the "System Installation" document for the respective system:

teleCOURIER 900, doc. no. TD 90227GB,
telePROTECT 900, doc. no. TD 90678GB, or
CTS 900, doc. no. TD 90795GB.

Supply voltage: 12,5 Vdc \pm 10%

Current consumption: 150 mA max
+ 100 mA max for all inputs.
For selection of input connection see point 9.



Delivery includes:

- T941AM8
- Modular bus cabling
- If T941AM8 is to be used in a system with speech, speech module T941SM must be mounted on the PC board. Installation Guide TD 90648GB for T941SM should be included in the delivery

Tools etc., required:

- Screw driver
- Screws for installation
- Soldering iron

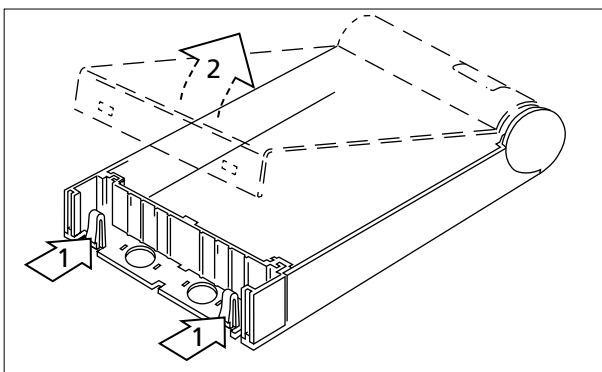
2. Installation

The alarm module should be placed in a dry environment with a temperature range of 0 to +40°C.

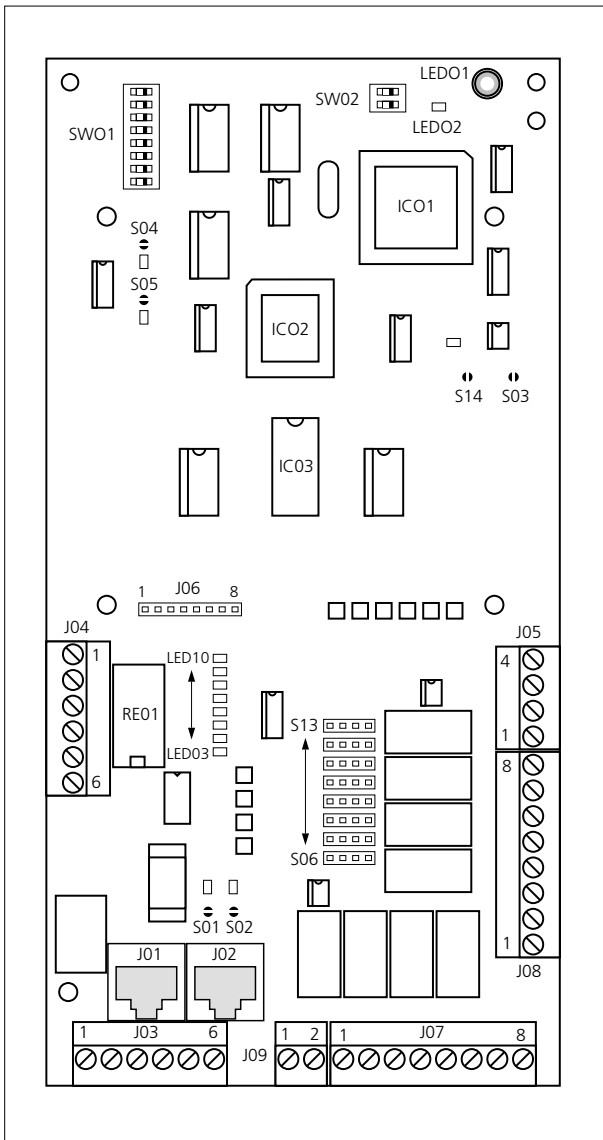
The alarm module can be connected together with other units in the 900 system, either via modular system bus cabling or via twisted-pairs (point 8).

To replace the PC board, see point 14.

The second drawing at left shows dimensions for installing the alarm module.



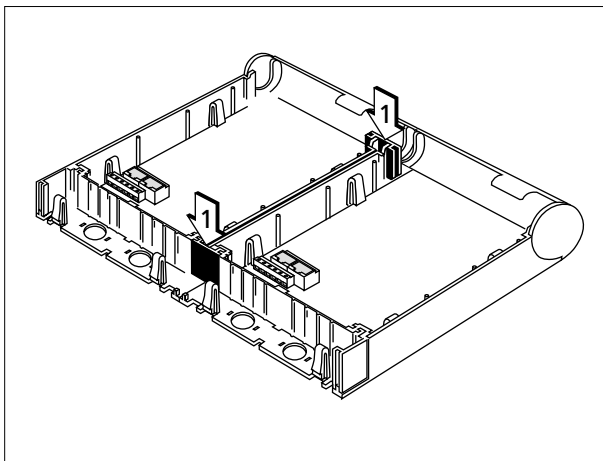
Use a screwdriver or similar to release the cover by applying a light pressure to the two snap catches (1) and remove the cover (2).



PC board

3. Screw Connectors etc. for Installation

- J01, J02: Modular bus cabling for connection of A, B, D, and SP bus.
- J03: Supply voltage and connection of A or B bus.
- J04: System fault. *(Not used in CTS 900.)*
- J05: External acknowledgement input. *(Not used in CTS 900.)*
- J06: Connector for speech module 941SM. *(Not used in CTS 900.)*
- J07: Alarm inputs 1–4.
- J08: Alarm inputs 5–8.
- J09: Supply voltage for alarm inputs and external acknowledgement input. For galvanic isolation an external power supply is required *(always used in CTS 900).*
- S01, S02: Jumpers for selection of A or B bus. *(Not used in CTS 900.)*
- S03: Not used.
- S04, S05, Jumper points that must be soldered together to enable use of software program S940AM. See point 12.
- S06-S13: Jumpers for selecting type of alarm inputs, i.e. make/break or ring signal, or for external power supply (e.g. nurse call).
- SWO1: Address selector switch.
- SWO2: Switch, must always be set to OFF.
SWO2:1 is used for test
SWO2:2 is used to generate test pagings.
- LEDO1 Function indicator for green, red, or orange indication
- LEDO2: Sum alarm indicator
- LEDO3–LED10: Indicators for alarm inputs 1–8
- IC02: Flash PROM, program memory

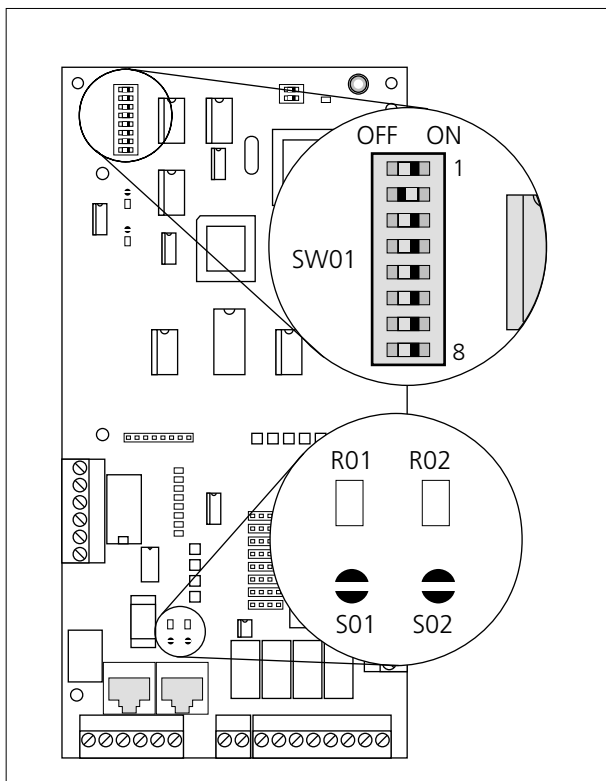


4. Installation Together With Other 900 Units

1. Remove upper and lower covers. The lower rectangular pieces are used to fasten units to each other (1).
2. Fasten the unit with three screws, see the illustration on page 1.

5. Addressing

Select the proper address by setting address selector switch SW01 (see the document System Installation, under "Addressing"). The address must not be 00 nor the same as any other 900 unit address.

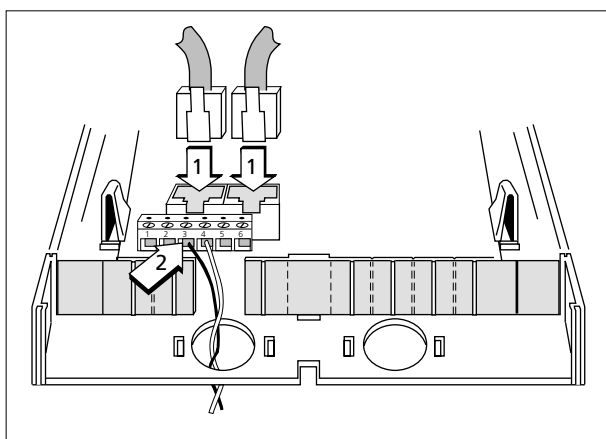


6. Selection of A or B Bus

A bus is normally used (*always used in CTS 900*). To use B bus: remove the 0 ohm resistors R01, R02 from the PC board and solder together jumper points S01 and S02. (See drawing above.)

7. Wiring Runs

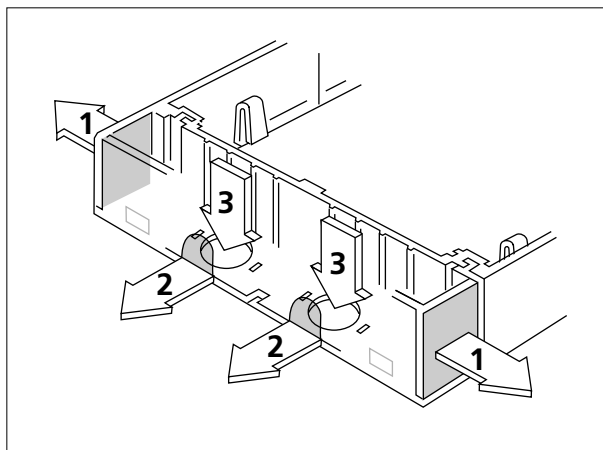
The plastic partition (shaded in the drawing) is scored to facilitate breaking at convenient intervals.



1. Use pliers to break off a suitable section.
2. Run the wiring out through the partition.

Wiring can be run three ways from the alarm module:

- Remove the rectangular pieces and run the cabling out through the side (1).



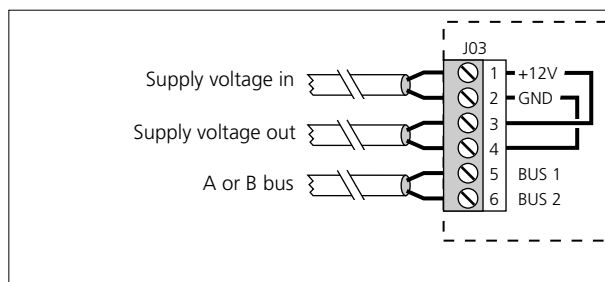
- Break off sections at short side of case and run the cabling downwards (2).
- Run the cabling through the round holes at the bottom of the case (3)

Secure the wiring with cable straps.

8. Connecting Supply Voltage and Buses

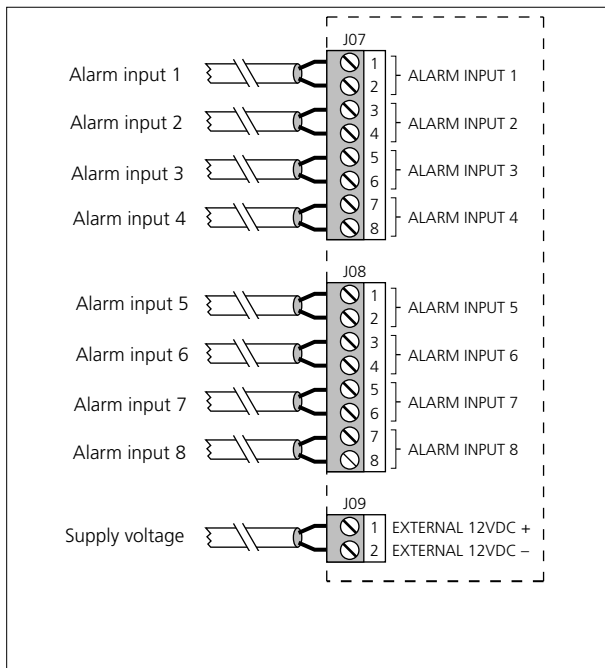
1. Supply voltage is connected to screw 1 and 2 of screw connector J03. (See the document "System Installation", under "Supply Voltage").
2. Connect modular bus cabling to J01 and J02 (1 in drawing at below left), *and/or* A or B bus to J03 screw 5 and 6 (dwg below and 2 in drawing at left). **Use only A bus in CTS 900 !**

NOTE: The data lines are polarised. Use only twisted-pairs for two-wire connections!



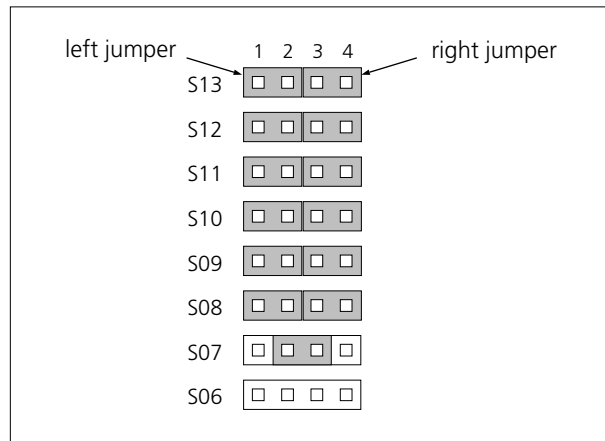
9a. Connecting Alarm Inputs for Voltage-Free Make/Break

1. Connect twisted-pairs to alarm inputs that are to be used: J07 for inputs 1–4 and J08 for 5–8.
2. Connect supply voltage to J09.
This can be taken from J03-3 and -4.
However, for galvanic isolation an external power supply must be connected to J09 (*always used in CTS 900*).



3. Check that jumpers S06–S13 are inserted for the corresponding alarm inputs (1–8) that are used (see *dwg.* below).

- For voltage-free make/break of an alarm input with **common** external power supply both left and right jumper must be inserted (i.e. in position 1-2 and 3-4).
- For voltage-free make/break of an alarm input with **individual** external power supply (e.g. nurse call) the corresponding jumper must be in position 2-3.
- **Alarm detection requires a current of at least 0,4 mA.**
- **Max voltage on make/break alarm inputs is 48 V.**



Jumpers S06-S13:

S08-S13 with jumpers inserted for voltage-free make/break with **common** power supply.

S07 with jumper inserted for voltage-free make/break with **individual** external power supply.

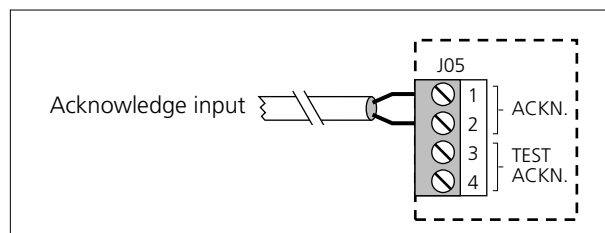
S06 with jumpers removed for ring signals.

9b. Connecting Alarm Inputs for Ring Signals

1. Connect twisted-pairs to alarm inputs that are to be used: J07 for inputs 1–4 and J08 for 5–8.
2. Check that jumpers S06–S13 are **not** inserted for the corresponding alarm inputs (1–8) that are used (see *dwg.* above).
 - For an alarm input used for **ring signals** both left and right jumpers must be removed.

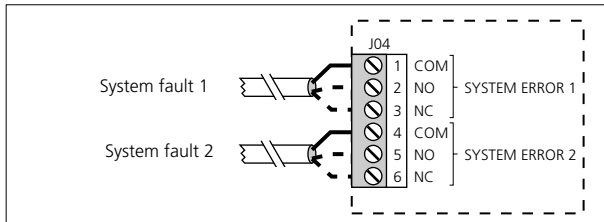
10. Acknowledgement Input Connection (Not used in CTS 900.)

1. Connect twisted-pair to ACKN, screw 1 and 2 on connector J05, (unpolarized).
2. Connect supply voltage to J09. (See *dwg.* at left above). This can be taken from J03-3 and -4.
However, for galvanic isolation an external power supply must be connected to J09.



11. System Error Indication (not used in CTS 900)

System fault relay RE01 has two parallel contacts that can be connected for make or break function.



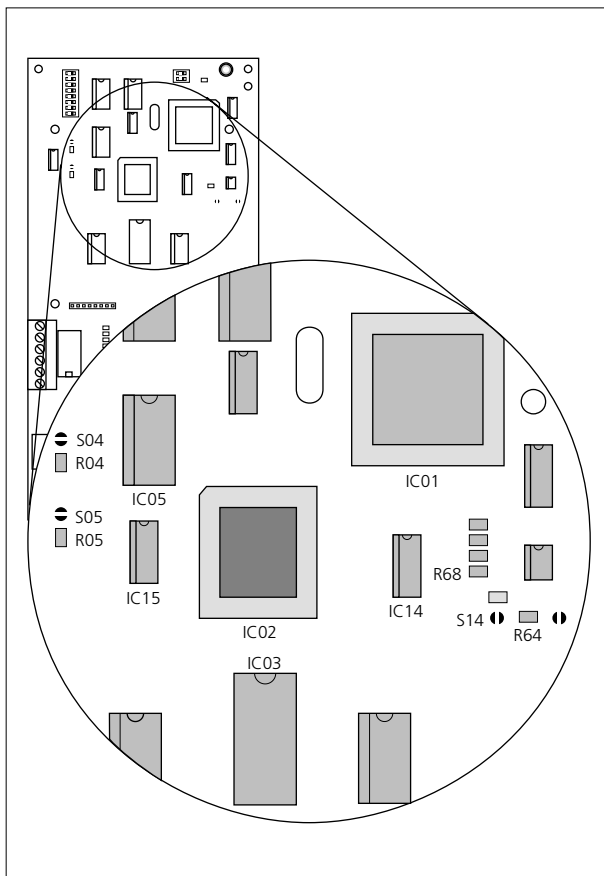
For system fault loop 1 connect the twisted-pair to J04: screw 1 and 2 for make contact
screw 1 and 3 for break contact

For system fault loop 2 connect the twisted-pair to J04: screw 4 and 5 for make contact
screw 4 and 6 for break contact

12. Jumpering for Software Program S940AM

To enable use of software program S940AM remove 0 ohm resistors R04, R05 and R68 (not R64), and solder together jumper points S04, S05, and S14. In this case, an EPROM can be used as program memory IC02 instead of the FLASH memory.

Software program S940AM also affects the function of LED01 (orange indication is replaced by green).

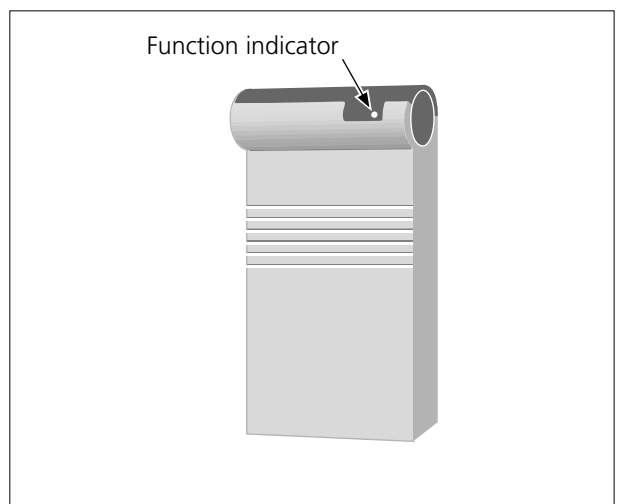


13. Installation Test Procedure

1. Check that switch SW02 is set to OFF.
2. Energize the 900 system. Function indicator LED01 on the alarm module should light red for about 1 second and then go over to a flashing orange.

If it continues to indicate with a steady red check that supply voltage is $12,5 \text{ Vdc} \pm 10\%$.

Flashing red indicates a program fault.



3. If the alarm module is connected to a central, the indicator should show a steady green indication within 90 seconds.

If the indicator continues to blink orange, check:

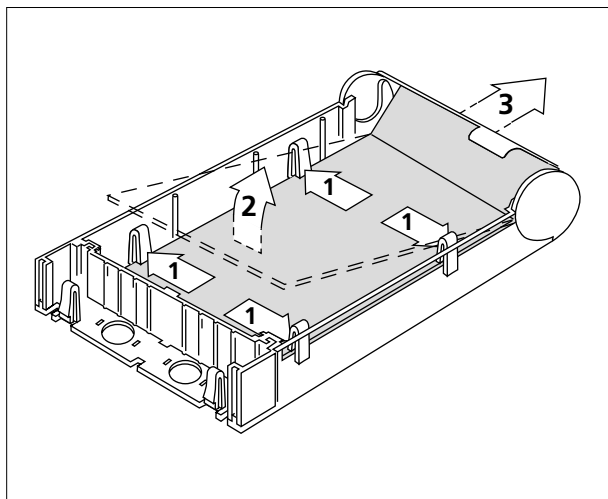
- polarity
- connections on alarm module
- Alarm module is properly addressed

If everything seems to be OK but the function indicator still blinks, the fault is probably located outside the alarm module: Check the other 900 units according to the document System Installation, or contact your dealer.

4. Replace the cover.

When all other units are installed, perform the system test described in the "System Installation" document for the respective system:

- teleCOURIER 900, doc. no. TD 90227GB,
- telePROTECT 900, doc. no. TD 90678GB, or
- CTS 900, doc. no. TD 90795GB.



14. PC Board Replacement

1. Deenergize the unit.
2. Remove the cover.
3. Lift off the screw connectors from the PC board.
4. Press the four holding clips to release the PC board (1). The heat sink is mounted on the PC board and is replaced simultaneously.
5. Install the new PC board in the case and make sure the board clicks into position.
6. Set all switches and jumpers as they were on the original circuit board and replace the screw connectors.
7. Check installation according to point 13 "Installation Test Procedure".