Honeywell Enraf

Instruction manual SPU II Hard alarm output contacts

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Honeywell Enraf

Preface

This manual is intended for technicians involved with the commissioning and service of the Honeywell Enraf Series
854 level gauges (models ATG & XTG) with the option hard alarm output contacts.

For mechanical and electrical installation of the 854 ATG or 854 XTG, refer to the Installation guide 854 ATG and 854 XTG. Refer also to the list of related documents in the Appendix.

A description preceding the technical procedures gives the technical information necessary to understand its functioning. It is recommended to read this description prior to performing any of the procedures.

Safety and prevention of damage

Refer to the Safety chapter in the Instruction manual of the 854 ATG or 854 XTG for the safety aspect of the instrument and for personal safety and the safety conventions.

Legal aspects

Enraf B.V. disclaims any responsibility for personal injury or damage to equipment caused by:

- Deviation from any of the prescribed procedures;
- Execution of activities that are not prescribed;
- Neglect of the general safety precautions for handling tools, use of electricity and microwave radiation.

EC declaration of conformity

This instrument is in conformity with the protection requirements of EC Council Directive 89/336/EEC.
The CE conformity marking fulfils the provisions of

EN 50081-2 Generic Emission Standard
EN 50082-2 Generic Immunity Standard
73/23EEC Low Voltage Directive

When installed, maintained and applied according to requirements as specified in this manual.

Additional information

Please do not hesitate to contact Honeywell Enraf or its representative if you require additional information.

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1 Introduction

The Honeywell Enraf series 854 ATG and XTG are servo based level gauges. These instruments are designed to accurately and reliably measure the product level and two additional interface levels in large storage tanks.

One of the optional functions in both the level gauges is the hard alarm output contacts. The SPU II board (**S**ervo **P**rocessor **U**nit) is then equipped with two alarm relays. The alarm relays can be used as level alarm output contacts or as digital output.

The two relays are of the SPDT type and standard wired as normally closed (NC). If the normally open (NO) contact is required, the wiring at the SPU II board has to be changed from NC to NO (refer to figure 1.1).

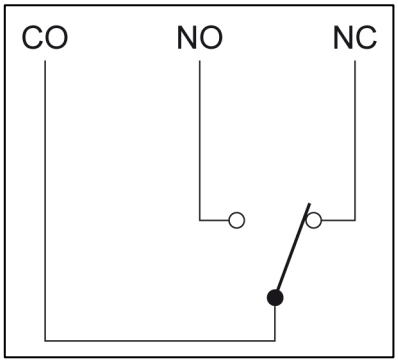

Figure 1.1 Relay contacts

Operation of the relays

- Relays as hard alarm output contacts:

  Both relays can be linked to one of the four level alarms (HA, HH, LA, LL) which can be programmed in the 854 level gauge.
  For instance: relay 1 (RL1, contacts at terminals 5 and 6) operates on the high high level alarm setting (item **HH**). The linking is realized by software (item settings). The action on alarm condition (energized or de-energized) can also be obtained via a software (item setting).

- Relays as digital output:

  Another way of operating the relays is “remote controlled”. One item controls both relays. This has to be issued by the host or via the 847 PET (Portable Enraf Terminal).

2 Commissioning

For information how to program items, refer to the instruction manual series 854 ATG level gauge, the instruction manual series 854 XTG level gauge or to the instruction manual 847 Portable Enraf Terminal.

For connection of the external wiring circuit, refer to the installation guides of the series 854 ATG or 854 XTG.

2.1 Changing contact wiring from NC to NO

Refer to figure 2.1.
If the alarm contact wiring has to be changed into normally open, proceed as follows:

1 Switch off main power from the 854 level gauge;
2 Open the electronic compartment cover;
3 Remove PCB retaining screw and slide locking latch on the XPU(-2) board to the right and remove the XPU(-2) board;
4 On the SPU II board, change over the wiring at the at terminal strips CN1 and CN2 from NC to NO;
5 Re-install the XPU(-2) board, slide locking latch to the left and place PCB retaining screw;
6 Close the electronic compartment cover;
7 Apply mains power.

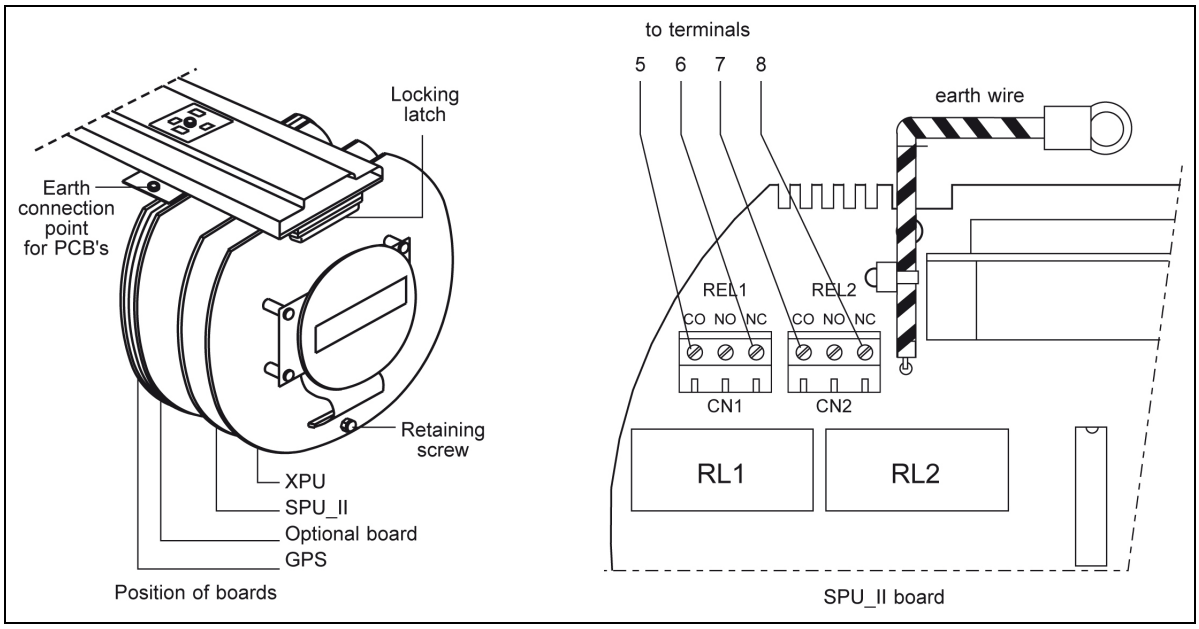

Figure 2.1 Alarm relays on SPU II board

	SPU II in 854 ATG	SPU II in 854 XTG
CN1 - CO	black wire, marked ‘5’, to terminal 5	brown wire to terminal 5
CN1 - NO / NC	black wire, marked ‘6’, to terminal 6	brown wire to terminal 6
CN2 - CO	black wire, marked ‘7’, to terminal 7	grey wire to terminal 7
CN2 - NO / NC	black wire, marked ‘8’, to terminal 8	grey wire to terminal 8

2.2 Control items for relay output contacts

The following two items needs to be set (checked) for the proper operation of the alarm relays on the SPU II board.

Item	Name	Description
W1=	Protection level 1	Enter protection level 1.
RY=	Relay alarm mode	Six characters; default setting: HA - LA - . The six characters are represented as: A1, A2, M1, A3, A4, M2. Characters A1, A2 and M1 controls relay 1; characters A3, A4 and M2 controls relay 2. This item defines to which alarm the relays are linked.
RZ=	Relay mode	Four characters; default setting: DEDE. The four characters are represented as: B1, B2, B3, B4. Characters B1 and B2 operates on relay 1; characters B3, and B4 operates on relay 2. This item defines operation modes of the relays.
EX	Exit	Exit protection level 1.

A1, A2 (A3, A4) — Relay 1 (2) linked to:

HH	High high level alarm
HA	High level alarm
LA	Low level alarm
LL	Low low level alarm
RC	Relay set-up for remote control (via item **RN**)
NM	Relay not mounted

M1 (M2) — Relay 1 (2) alarm mode:

A	Relay will always be active if: alarm level is reached
-	Relay will only be active if: alarm level is reached ***and*** there is no test status active.
W	Relay will only be active if: alarm level is reached ***and*** there is no test status active ***and*** there is no water dip measurement active.

B1 (B3) — Relay 1 (2) operation mode:

E	normally energized
D	normally de-energized

B2 (B4) — Relay 1 (2) fail mode:

E	energize relay on gauge fail
D	de-energize relay on gauge fail

3 Operation

The two alarm relays can be remotely controlled by the host or by means of the 847 PET (Portable Enraf Terminal). Item **RN** (relay command) controls both alarm relays.

Item	Name	Description
RN=	Relay command	Eight characters. The eight characters are represented as: C1, T1, T2, T3, C2, T4, T5, T6. C1, T1, T2 and T3 for relay 1; C2, T4, T5 and T6 for relay 2. Date item **RN** is used for remote control of the relays.

C1 (C2)	**Relay 1 (2) command:**
A	activate relay
D	de-activate relay
K	acknowledge alarm
-	don't change

T1, T2, T3 (T4, T5, T6)	**Relay 1 (2) time data field:**
000 - 999	Time setting in seconds for 'activate' command only. If the time field is set to 000, the relay is continuously activated. For other commands, dummy values must be specified (e.g. RN=K000-000).

Note:

*The 'acknowledge' command can only be given if the relays are set-up for level alarm operation; the other command can only be given as the relays set-up for remote control (refer to item **RY**).*

The actual relay status can be checked by data item **RX** (relay status):

Item	Name	Description
RX	Relay status	Two characters. The first character (B1) is related to relay 1; the second character (B2) is related to relay 2.

B1 (B2)	**Status of relay 1 (2)**
K	acknowledge alarm
A	activated relay
D	deactivated relay
T	time setting is active
F	relay fail
N	relay is not mounted (and not checked)

4 Trouble shooting

The 854 ATG and 854 XTG are self diagnostic instruments. Detected errors will be shown as status information on the display (854 ATG only), or can be requested as an item by the PET (or host).

Item **ES** (error SPU request) contains the SPU II error code.

The following two SPU error codes refer to the operation of the alarm relays:

0851	Relay 1 fail	Relay 1 has not been mounted (check item **RY**), or relay 1 fails to operate (check with item **RX**; change relay 1).
0852	Relay 2 fail	Relay 2 has not been mounted (check item **RY**), or relay 2 fails to operate (check with item **RX**; change relay 2).

Appendix Related documents

Title	Part No.
Installation guide 854 ATG Level Gauge	4416.225
Installation guide 854 XTG Level Gauge	4416.276
Instruction manual series 854 ATG level gauge	4416.220
Instruction manual series 854 XTG level gauge	4416.275
Instruction manual 847 Portable Enraf Terminal	4416.210

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