

Operating Instruction

HY-MAG

Competition

Serial number: _____

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General

Our control box type HY-**MAG** Competition is a high-quality menu and micro-processor controlled control box providing maximum efficiency for the HY-**MAG** Water Conditioning Units sizes DN20 to DN65. The control box is set ex works to the individual water conditioning units.

The instruction render a survey on the menu guide and the individual programming possibilities for the operator.

The control box shall only be started if the Harting plug connection between control box itself and water conditioning unit is closed! Insert Harting connection of the control box into the corresponding bushing at the water conditioning unit and close safety bracket.

NOTE : The HY-**MAG** Competition control box is provided with a transparent plastic glass. To be able to change or set control operations, the plastic cover must be opened with the right-hand closure. Once setting has been finished, the glass must be closed again with an audible noise.

Initiating phase

Once the control box was connected to the mains power and switched on, the initiating phase and an initial system check is started automatically. Every individual and actually running operating sequence is shown in the LCD – display.

Standard display :

<p>HYDROTEC Competition V. 1.00</p>
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Control box test :

<p>Control box - test Control box OK</p>
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Short-circuit test :

<p>Short-circuit - test Test OK</p>

Operation - test:

Technical operation check of complete HY-**MAG** system (control box and water conditioning unit). The below individual sequences are shown

<p>Actor – test current: xxx mA</p>

Test current to water conditioning unit See list of individual current rates for units (nom. width)

<p>Actor – test Hydromag type: DN 20/25</p>

Pre-set water conditioning unit – example HY-**MAG** DN20/25

<p>Actor – test Time reman. clearance: OK</p>

Check remanence clearance

Normal operation

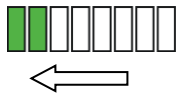
The control box automatically switches to normal operation once the initiating phase has elapsed, whereby the individual actual operation sequences are shown in the display and by the LED lights.

The individual operation phases are shown optically. The below display monitoring is shown during continuous operation.

LED – light sequence

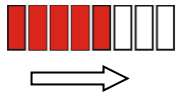


All 8 LED's light successively (GREEN phase), positive d.c. (approx. 100 V) is released to the water part
Duration about 8 s

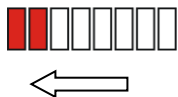


REFIT® – Phase

Duration about 2 s (magnetic remanence clearing, LED extinguishes successively to the left within 2 seconds – GREEN LED)



All 8 LED's light successively (RED), negative d.c. (approx. 100 V) is released to the water part
Duration about 8 s



REFIT® – Phase

Duration about 2 s (magnetic remanence clearing, LED extinguishes successively to the left within 2 seconds – RED LED)

Display monitor

Thu 11.10.2001	10:30
Cont. operation	+ xxx mA

Monitoring of day, date and time
Operation state Monitoring current
The current ratings for the corresponding HY-MAG types are shown in the below list

Thu 11.10.2001	10:30
Cont. operation	+ 0mA

Thu 11.10.2001	10:30
Cont. operation	- xxx mA






Thu 11.10.2001	10:30
Cont. operation	- 0mA

The shown current rating is dependent on the type of water conditioning unit.

HY-MAG DN20 / DN25	235 mA ± 10%
HY-MAG DN32 / DN40	345 mA ± 10%
HY-MAG DN50 / DN65	465 mA ± 10%


Menu sequences

Input and programming of HY-MAG Competition control box by pressing the front foil buttons (behind transparent cover) as below:

- 
 Call up menu.
Return from the individual menu levels.
- 
 Clear parameters.
- 
 Selection of individual menu sequences in menu levels, modification and setting of parameters.
- 
 Selection of individual menu sequences in menu levels, modification and setting of parameters.
- 
 Retrieval of individual menu sequences, confirmation/ acknowledgement of settings

NOTE: The monitoring returns to Standard Mode if input is delayed for more than 30 seconds and standard operation is shown in the display.


Main programme menu

The individual sub-menus are selected in the main menu. The main menu is reached by pressing the button  once.

The below menu sequences can be retrieved by the buttons



Operation mode	Main menu Operation mode
Operation hours	Main menu Operation hours
Day / Time	Main menu Day / Time
Time zones	Main menu Time zones
Language	Main menu Language
Service	Main menu Service

The corresponding menu sequence is retrieved with the button  and the respective sub-menu shown.

Mode of operation

The operator can select between 3 different operation modes for the HY-MAG water conditioning units.

Continuous operation

HY-MAG operates on a continuous 24 hour/day basis

Operation mode
Continuous operation

Timer control




The control box is in standby mode (LED standby). Switch-on and –off times are controlled by the internal timers. One switch-on and –off time per day can be programmed.

Operation mode
Timer control

Operation off

No operation of HY-MAG - no water treatment/conditioning. Such operation mode shall **not** be selected and set for normal operation but exclusively for test mode!

Operation mode
Conditioning off

The above operation modes can be selected by pressing the buttons   and the correct mode then be confirmed and acknowledged by pressing the button  once.

The control box and/or monitoring returns automatically to main menu after the setting has been confirmed.

Operating hours

The operating hours of the HY-MAG unit are registered by 2 separate counters.


Absol. value: Total operation time of HY-MAG unit in the actual installation. (Operation hours since start-up). Standby-times are not registered and thus, not shown.


Relative value Operating hours of unit counted from a certain period of time. The counter can be reset by the operator. (Operating hours since last reset).

The below display is shown after the main menu sequence 'operating hours' is retrieved:

Oper. hours abs 000250
Oper. hours rel 000015



The operator is in a position to reset the relative operating hours by pressing the button  once and the relative operating hours counting from the last reset are shown in the display.

The operating hours can be cleared by pressing the button  once or the buttons also is used to reach and return to the previous display.

<p>000015 oper. hours since 08.10.2001 14:50</p>
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Clearing the relative operating hours results in an automatic store and monitoring in line 2 of the actual time of clearing.





<p>000000 oper. hours since 10.10.2001 09:40</p>
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Date / Time


The operator can alter the internal timer and the date as described below. The main menu Date / Time must initially be retrieved, whereby the display shows the actual setting.

<p>Date: Wed 10.10.2001 Time: 09:45</p>

If the setting is to be altered, press the button  and should no modification be requested, the sub-menu can be left by pressing the button .

The active field that can be altered is marked with a line underneath. Alter the setting by pressing the buttons  or  until the desired figure is visible. The setting is finished once the Cursor is not flashing anymore. The mode is achieved by pressing the corresponding button . The menu can be left by pressing the button  once.

<p>Date: <u>Wed</u> 10.10.2001 Time: 09:45</p>
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NOTE: If the button  is pressed during the modification phase, the input is interrupted and the changed figures not be registered.

Time zones

The switch-on and –off times of the unit can be programmed in the menu ‘Time zones’ after the operation mode ‘Timer control’ was retrieved. One such setting is possible per day.

A group of several days or also individual days can be programmed by the operator. Switch-on and switch-off times are controlled and initiated by the internal timer.

Groups:
(several days)

Mo ... Su

Select time zone:
Mo .. Su: **:* - **:*

Mo ... Fr

Select time zone:
Mo .. Fr: **:* - **:*

Sa ... Su



Select time zone:
Sa .. Su: **:* - **:*


Individual days:


Mo, Tue, Wed, Thu, Fr, Sa, Su


Select time zone:
Mo: **:* - **:*

and so on – for every day in the week.

An initial selection of the desired menu is possible with the Cursor buttons   , the menu

is then retrieved by pressing the button  once and the switching times can then be altered with the Cursor buttons. The figure that can actually be altered is marked with a line underneath.

Once the correct setting is achieved, the button  must be pressed until the line underneath is no longer visible. If the total switch settings for the selected and retrieved group of days /individual day are to be cleared, press the button

 once.

The times for switch-on and switch-off can be selected right on the dot. Below is an example for setting switch time - group of days Mo-Su, switch-on 6.00 a.m., switch-off 10.00 p.m.





Alter time zone:
Mo .. Su: 06:00 - 22:00

NOTE: If times different to the individual days than provided in the corresponding group of days are set, the display for the group of days show **:*-**:* and the actual switch time is set in the day monitoring.

If the switch-off time is set earlier than the switch-on time or if the times were reset (00:00-00:00), the water conditioning unit is not activated that day(s).

Language

The service menu of the HY-**MAG** Competition control box provides 2 languages. Operation and setting possible in both languages.

The menu language is initially be selected by means of the button . The corresponding language is then selected and confirmed by the buttons  or . Once the correct language is shown, confirm by pressing the button  and the setting is finished.

Language:
German

Language:
English

Service

The service menu is code protected and can be retrieved from authorised service personnel only.

NOTE: If the customer or plant operator retrieves the service menu by mistake, no buttons shall be pressed for 30 seconds and after such time period the HY-**MAG** Competition control box returns automatically to standard mode.

Password:
.....

Failure Indication

The Competition control box is provided with an automatic failure recognition. The failure type is shown.

In case of failure, the total LED-scale flashes red and the display shows the type of failure.

Moreover, it is possible to signal a failure via a potential-free contact. The correct connection is shown in the terminal plan and such relay-contact can be load as below:-

Rated current: 6A
 Rated voltage: 250V AC

max. breaking capacity: 1500W (class AC1 – Ohm load)
 max. breaking capacity: 300W (class AC15 – electro-magnetic load)
 min. breaking capacity: 500mW / 12V / 10mA

Failure 1: Undercurrent
 Coil not closed, faulty connection control box ↔ water unit

Failure: Undercurrent Thu 11.10.2001 16:17

Failure 2: Overload
 Short cut of coil, faulty coil

Failure: Overcurrent Thu 11.10.2001 16:17
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Failure 3: Short cut
 Short cut in coil connection (visible during initialisation)

Failure: Short Circ. Thu 11.10.2001 16:17
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Failure 4: Control box failure
 failure in any electrical component of the control box, e.g. faulty components

Failure: Control box Thu 11.10.2001 16:17
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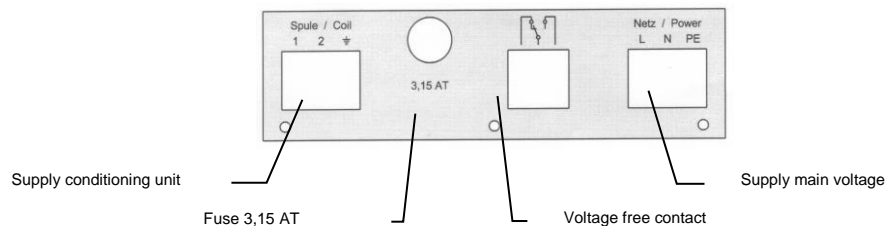
Failure – remedial action

General:

If there is no display or should no sign for any operation be visible, initially check the following:

Check whether or not the unit is switched on and mains voltage 230V/50 cps available. If that is all correct, check the fuse as per the below instruction:

The fuse is provided in the terminal unit on the ledge for the water part connections and mains supply. Please take care that the mains plug is removed prior to opening the unit! Open the lower front cover and replace fine fuse (3.15 AT).



If there is still no LED scale visible, inform the technical department of Hydrotec.

Failure 1: Undercurrent

Check connection and correct fit of Harting coupling.

Failure 2: Overload

Failure at magnet coil in water unit. Inform Hydrotec immediately in that case since there are no further local steps possible.

The first time the failure had been recognised must be noted.

Disconnect unit from mains voltage

Failure 3: Short cut

Short cut (external) of coil circuit

Disconnect unit from mains supply. Check for foreign particles in connection (spiral cable of control box and connection socket of water unit).

Restart unit. Hydrotec have to be informed immediately if the failure arises again. There are no further local measures necessary. Disconnect the unit from mains supply.

Failure 4: Control box

Faulty control box. Return box for inspection to Hydrotec along with corresponding failure report or other information.