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USER MANUAL

B74

CONTROL AND PROTECTION SYSTEM FOR MANUAL OPERATION GENSETS

USER MANUAL

SUMMARY

1. GENERAL FEATURES

The protection device, with a drilling "DIN" panel, has a front panel with an integrated key and optical status.
The device allows endothermic engine starting and breakdowns protection when it's working.
The embedded microprocessor board performs all the logic functions of the device in order to achieve good weather proof performances. Its working is assured also with mechanical vibrations.
Only selected electronic components are used for its assembling to assure working stability during the time.

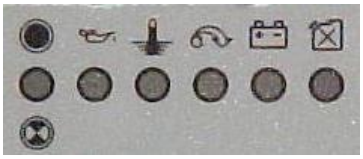
2. THE FRONT PANEL

The ***By74*** device supplies the standard engine protections and allows to directly carry out engine starting operation.

Main elements of the front panel:

Starting key device
The key allows 3 operating mode:
a) Device non enabled (OFF)
b) Device enabled
c) Start-up

Engine stop button
It allows to stop then engine when need



Optical status group
It supplies the device working status

Led	Meaning
ON (supply)	Lights when the device is ready
Low oil pressure *High water temperature* *Overspeed*	Lights when the L.O.P./H.W./Overspeed is alarmed through external contact carrying out a connection to earth. The protection arising causes • The lighting of the corresponding led indicator • The event storage • The disabling of other alarms • The activation of an automatic timed stop cycle (both energised and de-energised type available) • The activatin of an external audible horn (static output) Push the stop button on the front panel or switch the key to the off position to reset.
Battery charger alternator	In normal mode, when the engine is running, the battery charger alternator energising circuit is closed to achieve battery recharger. If the self-energising doesn't take place, the corresponding led indicator won't light on.
Fuel reserve	Lights when the fuel reserve is alarmed through external contact carrying out a connection to earth. The audible horn signal holds as long as this condition.

N.B: FLASHING LED = protections disabled. Alarm conditions are monitored but don't cause engine stopping. After engine starting:

FIXED LIGHT LED = protections enabled after a 15 sec delay (except for overspeed). In the meanwhile current will be injected in the +D pin to energise the battery charger alternator.

3. OPERATING MODE DESCRIPTION

The ***B74*** logic internal working scheme can be summed up as follows:

a) at the start-up device (the first right step of the key) there is an automatic test cycle of 1 sec for leds and horn which is repeated 3 times. At the end ot the test phase the device is activated. The ON led indicator (supply) will begin to flash, as like as other led indicators corresponding to active alarm inputs, but with no engine stop cycle (in case of fuel reserve the horn will be activated). Going on with the start-up phase, the ON led indicator will stop flashing and, after a 15 sec delay, the protections (except overspeed) will be enabled. In the meanwhile current will be injected in the +D pin to energise the battery charger alternator.

b) When the engine is running, the battery charger alternator energising circuit is closed to achieve battery recharger. If the self-energising doesn't take place, the corresponding led indicator won't light on. Protections (L.O.P., H.W.T, Overspeed) are enabled and the device is in surveillance mode.

c) in case of alarm arising (e.g. L.O.P.), the corresponding led indicator will light on fixed, the event will be stored and the horn will be activated. An engine stop cycle of about 30 sec will also started. You can choose energising or de-energising stop by the right output connection.

d) if ***By74*** device is supplied but there is no engine start-up, it will stay in stand-by mode for about 60 sec (flashing ON indicator). After this time it will enter the engine surveillance mode to detect possible alarms.

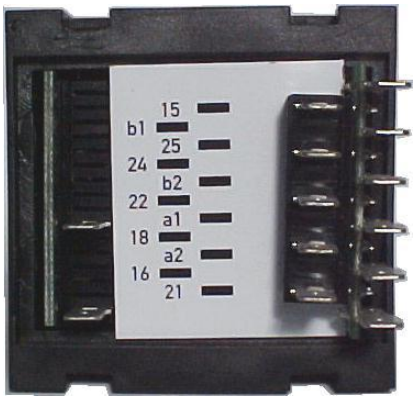
4. TECHNICAL FEATURES

Panel drilling	68 x 68 mm
Depth	130 mm
Start-up key contact current	20 A
Stop key contact current (energising/de-energising)	10 A
Stop time	30 sec
Arising alarms delay	15 sec
service	none
operation temperature	-10 ; +70 °C

5. CONNECTIONS

terminal	**meaning**
15	positive battery
b1	Horn Output contact (max 100 mA)
25	Overspeed input contact
24	+D (Battery charger alternator energising)
b2	Engine Start-up output contact
22	High water temperature input contact
a1	Negative battery
18	Low oil pressure input contact
a2	De-energising stop output contact
16	Fuel reserve input contact
21	Energising stop output contact

Generator overspeed
Generator frequency is measured on the two dedicated screw terminals.
The overspeed frequency is adjusted from 50 Hz to 70 Hz on the regulation hole.



Rear view: terminal block

Side view: connection diagram