Autostart 700

Automatic Generator Controller

ms5893
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catalogue section 75

The proven industry standard for over 10 years, the Autostart 700 provides fully automatic start up, load transfer, fault monitoring and shutdown of a stand-by diesel generator.

Key features

- Keyswitch selectable operating mode:–
  Auto, Test/Manual, Lamp Test or Off/Reset
- 96 x 96mm DIN standard, front panel mounted case
- 7 fault/status LED indicators:–
  mains fail, start fail, overspeed, low oil pressure, high engine temperature, charge fail, plant fail
- Switchable 12 or 24 V DC power supply
- Magnetic pickup or AC alternator speed sensing
- Fully adjustable timer and control options

Operation

The 4 position, front facia keyswitch is used to select Autostart's operating mode. Green and red LEDs around the switch indicate the selection of Auto or Test (manual) modes. The key is common to all units and is removable in the Off and Auto positions only.

Off/reset

Removes all power from the unit and resets all alarms.

Lamp test

Lights all LEDs and activates a lamp test output. Operation otherwise as for Auto mode.

Auto mode

When Autostart and the generator are required to be on standby, positive DC must be applied to the mains failure terminal (pin 23).

When a mains failure occurs, power is removed from pin 23 and Autostart waits for a user adjustable 'start delay'. If mains is restored in this period, the timer resets and the system returns to standby.

If the mains supply remains failed, Autostart initiates an automatic start sequence, consisting of up to 9 engine crank/rest attempts, with each crank/rest 'pulse' period adjustable to give a maximum of 0.5 to 30 seconds.

If a successful engine start is detected (engine speed above 40%), Autostart disengages and latches out the starter motor. If Autostart does not detect that the engine is running after the set number of start attempts, a 'start fail' fault is signalled. Once the engine is fully running – with speed above 90%, AC voltage above 66%, and oil pressure good – Autostart attempts to load the generator by activating it's Load Relay.

A mains return is signalled by re-applying battery positive to pin 23. The generator continues to run on load until the end of the user adjustable 'change-back' delay. Autostart then takes the generator off load, but allows it to run on for an adjustable 'cool' time before stopping the engine and returning the system to standby.

Specification

Power supply:	
operating voltage:	9 – 16 V DC (12V setting) 18 – 32 V DC (24V setting) fully charged battery backup allows total loss of supply for > 1 min
current consumption	typically 200 mA
Inputs:	
generator AC input:	
operating voltage range	50 – 300 V AC rms
nominal frequency range	< 50 Hz. to > 400 Hz. at rated engine speed
magnetic pickup:	
operating voltage range	5 – 100 V AC rms
nominal frequency range	< 600 to > 6 kHz.
Outputs:	*(all ratings for resistive load)*
crank and fuel relays	+ DC (switched SPNO contact) 16A max. @ 24V DC
alarm relay	+ DC (switched SPNO contact) 5A max. @ 24V DC
load relay	volt free SPCO contacts 16A max. @ 240V AC
auto mode output	+ DC (switched), 250mA max.
lamp test	+ DC or – DC (switch selectable), 250mA max.
tachometer/calibration	To suit moving coil meter 0 – 1mA fsd, 75 Ω coil. Output at rated speed = 0.75 mA
Adjustable settings:	*(all settings approximate)*
start delay	1 to 60 seconds
change-back delay	1 to 60 minutes
cool delay	0.2 to 5 minutes
crank pulse/dwell	0.5 to 30 seconds
override time	0.5 to 30 seconds
overspeed trip level	100 – 120% of calibrated speed
Physical:	
overall dimensions (W x H x D)	96 x 96 x 150 mm
panel cut-out size	DIN standard 92 x 92 mm
weight	approx. 700 g
operating ambient temperature	–10 to +55 °C

If the mains fails again during the 'change-back' or 'cool' delays, both these timers reset and Autostart either maintains or re-applies the generator load.

Test mode

Autostart may be configured to give an immediate, automatic engine start when Test mode is selected. Alternatively, operator controlled starting and stopping can be achieved using remote panel push buttons.

In test mode, the generator will run indefinitely until the key is switched to Off/reset (causing the generator to stop) or to Auto mode (Autostart goes through controlled 'change-back' and/or 'cool' times before shutting down the engine).

Autostart may be set to allow or inhibit the loading of the generator if the mains should fail while the engine is running in Test mode.

Fault protection and alarm system

Autostart's engine fault protection and alarms operate in both Auto and Test modes. 7 LEDs on the front facia give indication of generator faults and mains status.

Dedicated inputs are provided for use with low oil pressure (LOP) and high engine temperature (HET) fault switches. Top facia switches allow set-up for use with fault switches that open or close during fault, with wiring to positive or negative DC. These inputs are inhibited while the engine is at rest, during starting and until the end of the override time (adjustable up to 30 seconds). After that time, a LOP or HET fault causes an immediate engine shutdown.

An overspeed condition, measured through the generator AC or magnetic pickup inputs, also results in an engine shutdown. This trip will operate at any time after the engine has started (it is not inhibited by the override timer). The overspeed trip level may be user set between 100% and 120% of the (calibrated) normal running speed.

A 'plant fail' fault may be activated at any time by connection of battery negative to pin 21, shutting down the engine or preventing it from starting. This fault input is non-latching.

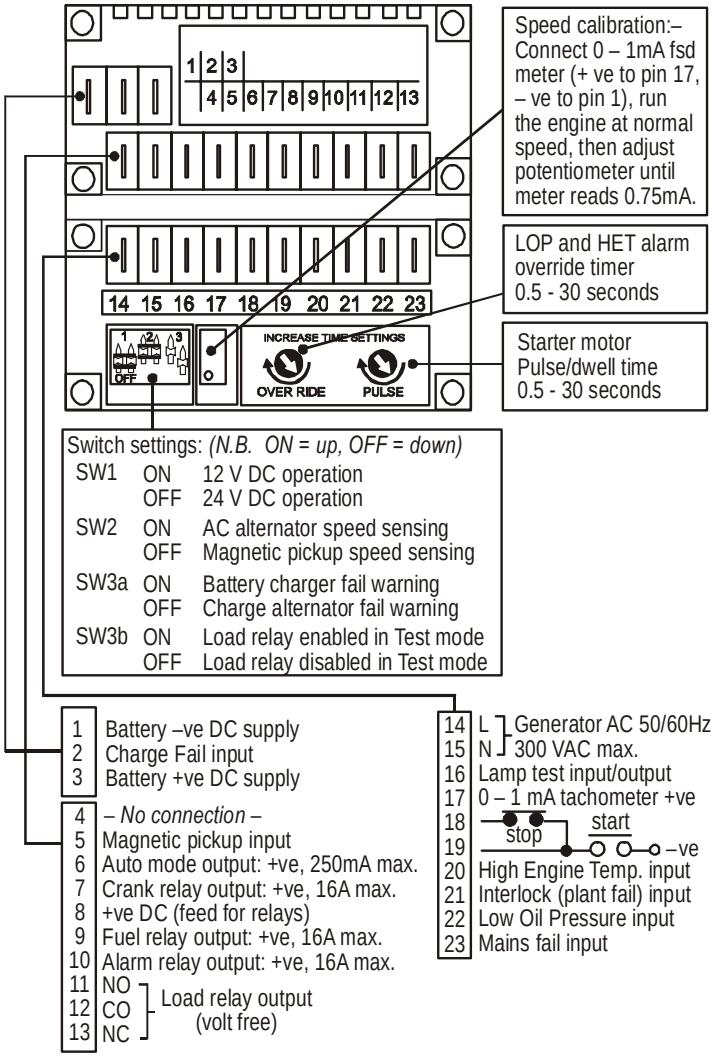
The charge fail warning LED lights (but Autostart takes no other action) when the voltage on pin 2 falls to negative DC. This input can be set to operate at any time (when using mains battery chargers) or only once the engine is running (for charge alternators).

Autostart's common 'alarm' relay operates during LOP, HET, overspeed, plant fail and start fail faults.

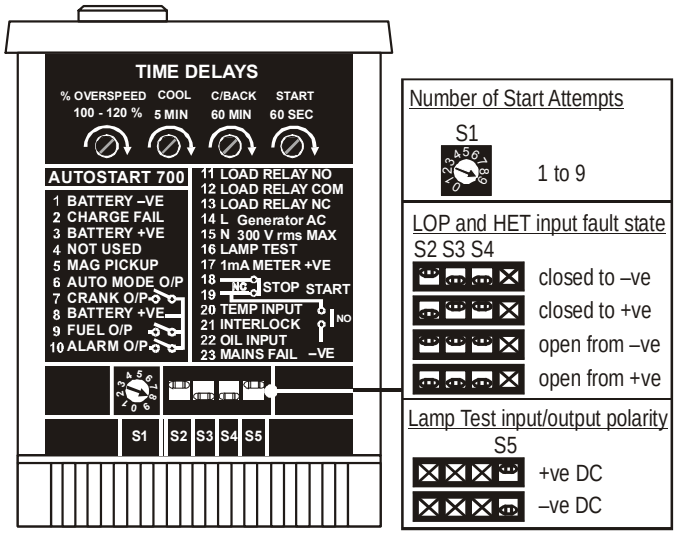
How to order

Stock code	Model	Description
76.70.0025	AS3/E230	Autostart 700, 230VAC/50Hz, standard settings
76.70.0286	AS3/E230SPCL	Autostart 700, 230VAC, customer specified settings

Rear facia settings and connection



Top facia settings



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