Autostart 720S (V1.04/V1.05) Engine/Generator Controller Installation Reference Sheet

murphy ™

Familiarisation
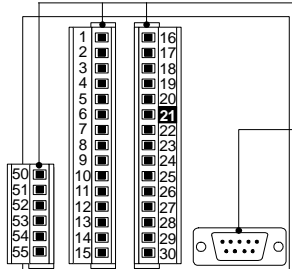
Front Facia

FRANK W. murphy

AUTO: Gen. on load
Freq: 50 Hz

AUTOSTART
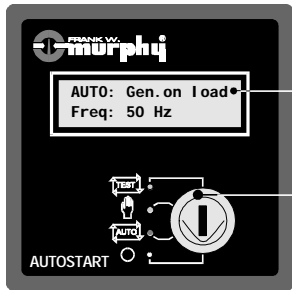
32 character, back-lit LCD (Liquid Crystal Display)

4 position operating mode switch:–
○ Off/reset
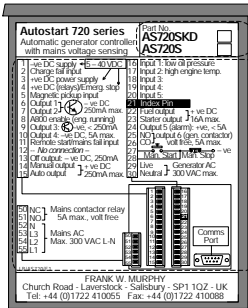AUTO Auto
✋ Manual
TEST Test

Rear Facia

3 x two-part connectors, numbered 1 – 15, 16 – 30 and 50 – 55
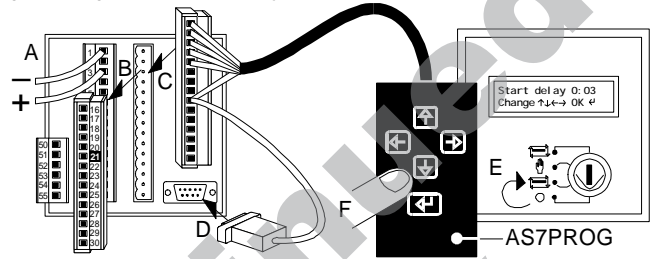
RS232 communication port

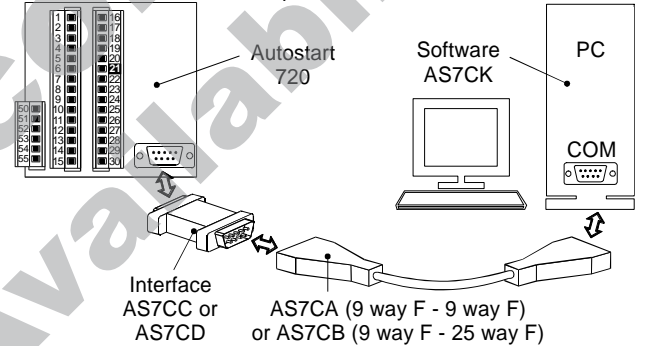### Top Facia and Labelling

Part Number

Electrical connection details

Connection - Programming and Communication

Programming via hand-held keypad model AS7PROG:-

Start delay 0: 03
Change ↑↓ ←→ OK ↵

AS7PROG

A Switch Autostart OFF, and ensure DC power supply is connected
B Remove terminal block 16 - 30
C Connect AS7PROG terminal block
D Insert AS7PROG D-connector
E Switch unit to AUTO mode
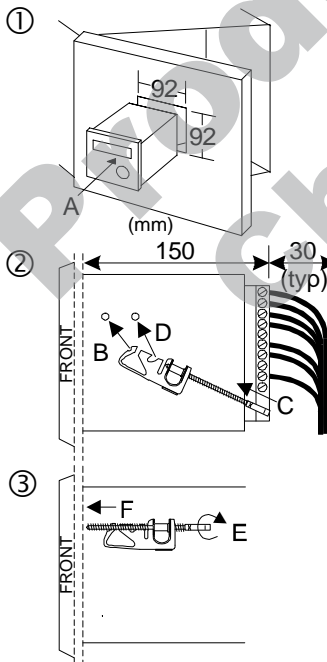F Enter PIN (default is '1234')
G Program using keypad/display

Programming and monitoring via local PC, software and comms link:-
(N.B. remote modem link also possible: see document MI5266)

Autostart 720

Software AS7CK

PC

COM

Interface AS7CC or AS7CD

AS7CA (9 way F - 9 way F) or AS7CB (9 way F - 25 way F)

*Further information, also available at **http://www.fwmurphy.co.uk***

Document	Description
MS5260	*AS720 sales bulletin and specification*
MI5265	*AS7xx programming reference and check sheets*
MI5266	*AS7xx PC software and communications*

Panel Installation

① 92 × 92
A (mm)
150 | 30 (typ)

② FRONT
B D C

③ FRONT
F E

Typical Connection (Automatic Mains Fail Generator application)

MAINS L1 L2 L3 N
mains contactor
L O A D L1 L2 L3 N
generator contactor
MCCB
GENERATOR L1 L2 L3 N

GCR1
MCR1
MCR GCR bypass

+ve DC
fuse
Reset RPO3 RPO1
RPO4 RPO2
emerg. stop
3 x 1A
5A

Autostart 720

remote start
A WL
magnetic pickup
manual auto
−ve DC

1A
manual start
manual stop
RST
RAL
RFL

inputs
IP5 IP4 IP3 HET LOP

fuel
starter
alarm
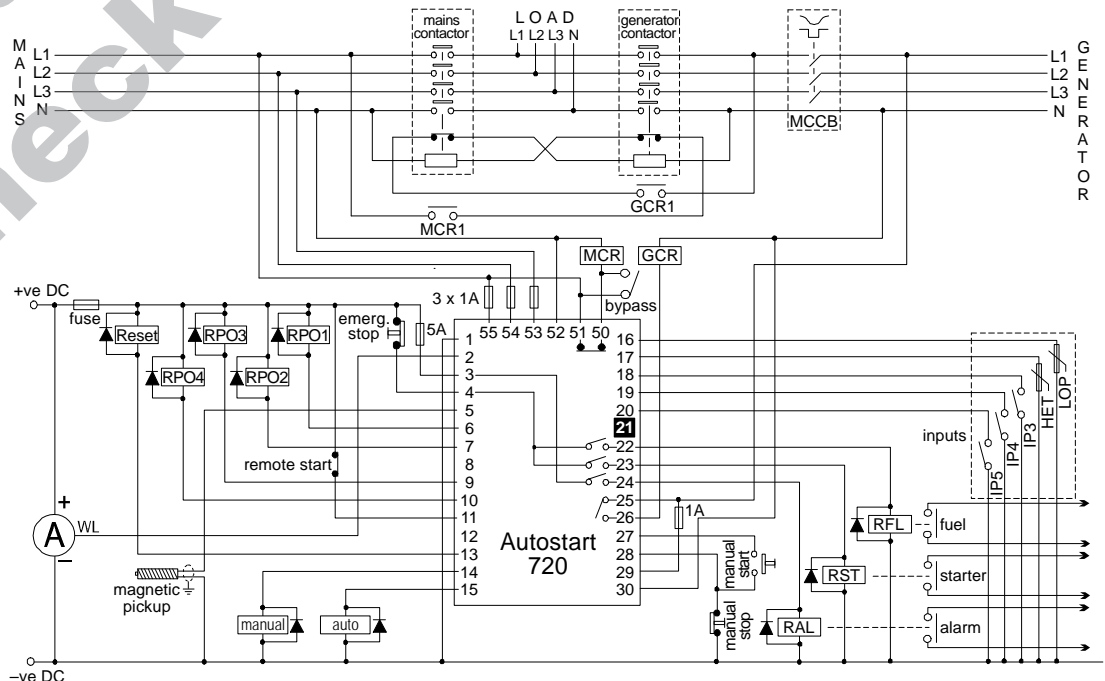
Electrical Connection

Screw terminals may be loosened/tightened using a 3mm flat-head screwdriver. <u>All connections should be made with Autostart switched off and wiring isolated from the DC and AC supplies.</u> The terminal functions are:-

Pin   Function

1   Negative DC power supply
3   Positive DC power supply
Autostart may be powered from any smooth DC supply in the range 5 and 40 V, normally the engine's 12V or 24V panel/battery supply. Connect a 5 Amp anti-surge fuse in the positive DC line (pin 3).

2   Charge fail input
A 'charge fail' condition occurs when this pin is switched to negative DC. Pin 2 may be connected to the WL terminal of a charge alternator (Autostart provides the necessary excitation current), or to the 'charge fail' output of a BC700 series charger, or direct to negative DC via relay contacts which close on fault.

If a charge fail alarm is not required, leave pin 2 open circuit and program the 'WL crank release' setting to - - (off).

4   Positive DC (feed for relays)/Emergency stop
Pin 4 is a positive feed for the Fuel and Start outputs (pins 22 and 23). If required, emergency stop switches (push to break, mechanically latching types) may wired between positive and pin 4.

5   Magnetic pickup
May optionally be used to sense engine speed. Connect one terminal of the pickup to pin 5, the other terminal to pin 1 or battery negative. The interconnection should employ a two core and screen cable, with the screen earthed at one end only.

6   Programmable output 1
7   Programmable output 2
9   Programmable output 3
10   Programmable output 4
These outputs may be programmed to give a range of signalling and control 'actions', e.g. 'preheat', 'engine running', 'overspeed', etc. Please refer to our programming literature for full details.

Electrically, all 4 outputs give a negative DC signal when active. Outputs 1 to 3 are open collector transistors, maximum rating 300mA. Output 4 is relay based, giving a negative output of 5 Amps maximum. Each output is typically used with a remote slave relay: the relay coil should be connected between each output and positive DC, with each coil suppressed using a flywheel diode or suitable suppressor network.

8   A800 enable output
This output allows 'seam free' operation with the A800 annunciator. The output may be connected directly to the A800 Enable input: the A800 fault/warning inputs are only then enabled once the Autostart detects that the engine is running. No attempt should be made to connect pin 8 to anything other than an A800 enable circuit.

11   Remote start input
Use this input to initiate an automatic engine start in AUTO mode. Pin 11 must be switched to positive DC when the engine is required to be on standby, and made open circuit to initiate an automatic start.

12   Not used – no connection

13   Off/reset output
Gives a negative DC output (250mA max.) when Autostart is switched to O (off/reset).

14   Manual mode output
15   Auto mode output
These give positive DC outputs (250mA max) when Autostart is respectively switched to manual or auto modes.

16   Input 1: Low Oil Pressure (LOP)
17   Input 2: High Engine Temperature (HET)
Connect these inputs to LOP and HET resistive senders or fault switches, and program Autostart accordingly. The other side of the sensor or switch should always be connected to battery negative.

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18   Input 3 (programmable)
19   Input 4 (programmable)
20   Input 5 (programmable)
May be used with remote contacts (open or closed to activate, positive or negative DC) to trigger a range of 'actions', e.g. shutdown fault, warning fault, lamp test, manual restore (of mains), etc.

21   Index pin (no connection)

22   Fuel output
23   Starter output
These are positive DC outputs, rated to 16 Amps, for the control of engine fuel and starter motor circuits. Connection of slave relays with suppressed coils is recommended.

24   Programmable output 5 (default setting: 'common alarm')
A positive DC relay output, rated to 5 Amps. With its default 'common alarm' setting, the output activates during any fault (warning or shutdown). The output can, however, be programmed to give other 'actions', as for inputs 1 to 4.

25   Programmable output 6 (Normally Open contact)
26   Programmable output 6 (Change-over contact)
(default setting: 'gen. Contactor')

Output 6 is a volt-free set of SPNO relay contacts, which can be programmed with the same range of 'actions' as outputs 1 to 5.

With its default 'gen. Contactor' action, the output is used to control the generator contactor coil circuit. The output activates (contacts close) when the generator is up to normal running speed, voltage and oil pressure, and after the 'warm-up' delay time has expired.

27
28

Manual Start | Manual Stop   —ve DC

These terminals may be wired as above, allowing manual mode control of engine starting and stopping. Alternatively, hard-wire pins 27 and 28 to battery negative to give an immediate engine start on switching to manual mode.

29   Generator Live
30   Generator Neutral
These are used by Autostart to sense the generator voltage, and also its frequency when a magnetic pickup is not used. The voltage and frequency information is needed to ensure the correct operation of the generator contactor output; frequency information alone is used to operate the automatic crank release and overspeed trip.

A 1 Amp anti-surge fuse should be connected in series with the generator live terminal (pin 29).

50   Programmable output 7 (Normally Closed contact)
51   Programmable output 7 (Change-over contact)
Output 7 is a volt-free set of SPNC relay contacts, rated 5A max @ 240VAC. The output may be programmed to operate with the same 'actions' as outputs 1 – 6.

With its default 'mains contactor' action, the output may be used to control a mains contactor coil circuit. The output contacts open when Autostart needs to take the mains off load, e.g. if the mains voltage falls out of limits, or during an on-load test of the generator.

52   Neutral
53   Mains AC L3 (blue)
54   Mains AC L2 (yellow)
55   Mains AC L1 (red)
Used to monitor mains AC voltage. Autostart can operate with 3 phase and neutral systems (connect all terminals above), 2 phase systems (connect 52, 54 and 55) or single phase (connect 52 and 55).

If any of the monitored phases falls below the pre-programmed 'mains fail' level, Autostart will normally start the engine. A 1 Amp anti-surge fuse should be connected in series with each phase input.

MI5263 revision A 24th Mar 2000 p2/2