

Smartgen[®]

HAT420

Automatic Transfer Switch Control Module

OPERATING MANUAL



Smartgen Electronics

Software Version

Version	Date	Note
1.0	2004-11-01	Original release.

Smartgen[®]

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1. FEATURES

- ◆ **Micro-processor based design**
- ◆ **Graphical LCD display**
- ◆ **Meter two 3-phase AC Voltages and 3-phase currents**
- ◆ **Provide supply for ATS(10A 220VAC)**
- ◆ **Configurable priority of supply**
Able to Set I master or II master or NONE master
- ◆ **Set AUTO or MANUAL via PUSHBOTTON on the front panel**
- ◆ **Two isolable N designed**
- ◆ **RS485/RS232 'Modbus' output.**
- ◆ **8 LEDs display the status**
- ◆ **Operational timers can be altered by the customer.**
- ◆ **Function LAMP TEST**
- ◆ **Provide real time clock(RTC)**
- ◆ **40 Event logs**
- ◆ **Control generator to Start**

2. DESCRIPTION

The Model is an **Automatic Transfer Control Module**. The module is used to meter two 3-phase supplies and automatically control the switches to transfer.

Operation of the module is via **pushbutton controls** (with security locking facility) mounted on the front panel with shut **I**, shut **II**, shut **O** functions. The first eight LED indicate **I Master, II Master, auto, manual, Pos(I), Pos(II), Normal(I), and Normal(II)**. Further **PushButtons** provide DISPLAY SCROLL and ENTER(set) functions.

Communication protocol allows full system integration into new and existing building management and control schemes. It is also possible to monitor the operation of the system either locally or remotely.

The module provides **metering and alarm facilities** via the LCD display which is accessed via the 'display scroll' push-button.

The following instrumentation displays are available:

- I Volts L1-N, L2-N, L3-N
- I Volts L1-L2, L2-L3, L3-L1
- I Frequency Hz
- II Volts L1-N, L2-N, L3-N
- II Volts L1-L2, L2-L3, L3-L1
- II Frequency Hz
- LOAD Amps L1,L2,L3
- LOAD kVA L1,L2,L3, Total
- Real time clock

The module accepts the **digital inputs**: SWITCH I&II position and alarm Input – active to connect to DC supply(-)

Relay outputs are provided for Shut up and off I & II , and two configurable outputs.

3. DESCRIPTION CONTINUED

Multiple alarm channels are provided to monitor the following:

- . Under/Over Volts
- . Under/Over Frequency
- . Over current
- . Miss phase

4. TIMERS AND FUNCTIONS

- .I volts normal delay timer
- .II volts normal delay timer
- .I&II volts abnormal delay timer
- .Transfer rest timers
- .Start generator delay Timer
- .Stop generator delay Timer
- .Start generator condition selected
- .Alarm out delay timer

5. SPECIFICATION

Supply:

AC supply: 180 to 260 V 50Hz 3VA

DC Supply: 8 to 35 V Continuous 3W

3-phase AC input:

0 to 460V 50Hz(3 phase)

0 to 5A (3 phase) RATED

Communication Parameter:

Serial port: RS232/RS485

Protocol: MODBUS

Baud rates: 1200/2400/4800/9600/19200

Data bit: 8bit

Parity bit:: none

module addr: 1-254

Operating Temperature Range:

-10 to +50°C

Dimensions:

192 X 144 X 93 mm

6. OPERATION

1. default password is '1234'

2. set communication baud rate:

0000 –1200bps

0001 – 2400bps

0002 – 4800bps

0003 – 9600bps

0004 – 19200bps

default value is "0003"(9600bps)

3. configurable relay out

0 0 0 0 high two bytes define configurable relay out 1, the range of value is 0-19;
low two bytes define configurable relay out 2, the range of value is 0-19. it's
define:

00 – alarm (continued out)

01 – fail to transfer

02 – warning out

03 – alarm (preset delay time)

04 – volt I normally out

05 – volt I abnormally out

06 – volt II normally out

07 – volt II abnormal out

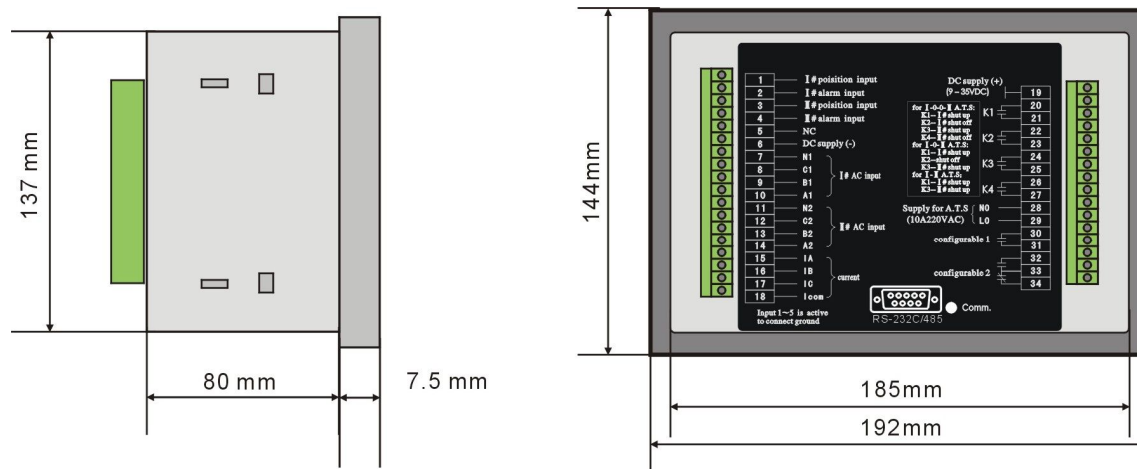
08 – over load current out

09 – system in AUTO out

10 – system in MANUAL out

- 11 – start generator
 - 12 – shut up I
 - 13 – shut off I
 - 14 – shut up II
 - 15 – shut off II
 - 16 – reserved
 - 17 – reserved
 - 18 – reserved
 - 19 – reserved
4. Communication pin define on the rear panel:
- RS485:
 1 – “+”, 9 – “-“
- RS232:
 2 – “RXD”, 3 – “TXD”, 5—“GND”
5. LAMP test oprate and reset alarm:
 Push UP&DOWN BOTTON on the font panel at same time

7. CASE DIMENSIONS



8. TYPICAL CONNECTIONS

