HEVAC
Control Agencies

AIRAH 2018 AWARDS

AIRAH AWARDS 2018 FINALIST

HCP7 V2

CarPark VENTILATION CONTROLLER

HEVAC CARPARK VENTILATION CONTROLLER HCP7v2

HEVAC CP CONTROL
IDLE   MaxCO= 8

MENU / ENTER   MUTE / ESC
TEST ▲   STATUS ▼

LOW-fan-HIGH   STROBE   SIREN   OK   FAULT & TEST
R1   R2   R3   R4   R5
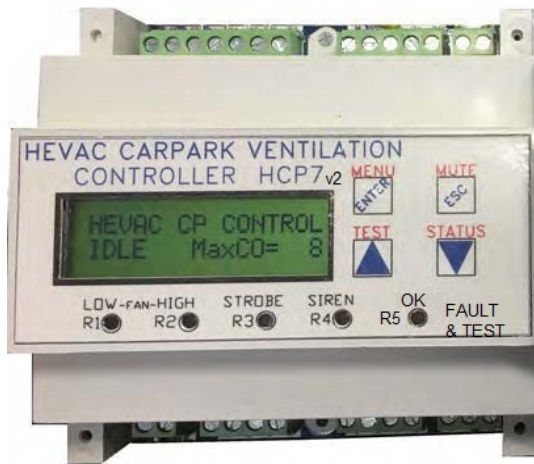
HEVAC HGS GAS WALL SENSOR

SIREN / STROBE

Features

- PROGRAMS TO COMPLY WITH BOTH **OCCUPIED & UNOCCUPIED** STANDARDS
- INTERNAL TIME SW. FOR OPTIONAL **PEAK PERIOD FORCED FAN RUN**
- ADJUSTABLE **IDLE MODE TIMER** TO FORCE FAN RUN (GAP & DURATION)
- CLEAR PLAIN ENGLISH L.C.D MESSAGE'S OF INPUT & OUTPUT STATUS
- HANDY **TEST / DEMO ROUTINE** FOR EASY COMMISSIONING & TESTING
- CAN READ ANY COMBINATION OF **CO & NO2** SENSORS
- UPTO 7 SENSORS, **EXPANDABLE** TO 42 WITH EXPANSION MODULES
- **NEW : EVENT LOGGER, N/O or N/C FAN FAULT I/P & IM OK RELAY OUTPUT**
- SETTINGS SITE ADJUSTABLE (**PASSWORD PROTECTED**)
- **RS485 MODBUS** COMMUNICATION
- **TIME WEIGHTED AVERAGE** OR **CURRENT VALUE** SENSOR RESPONSE

Use

The HCP7 has been purpose built to comply with AS1668.2 Car Park CO control requirements in occupied & non occupied non naturally ventilated car parks. The controller can also be set to respond to NO2 sensors. Output operation can be easily set as 2 speed on/off or to modulate a fan via a VSD. Forced fan ON overrides are available & interlocked with internal time switches both for peak times and to start after an adjustable idle period for minimum ventilation requirements. The HCP7 can read up to 7 sensors directly or via expansion modules (EXP7) up to 42 sensors. External monitoring is also available via RS485 MODBUS. All output relays are voltage free permitting the use of AC or DC circuitry and are rated at 240v 8A. The HCP7 can be powered from 12-24 v DC or AC.

AS1668.2 - 2012 COMPLIANCE

***NOTE ***: **AS1668.2-2012 Calls for CO ppm sensor response to be based on a Time Weighted Average (TWA) set over an 8 hour period (exposure limit time frame), and with different O/P trigger values depending on the space being used as an occupied or unoccupied CarPark**. The standard sets occupied carparks to comply to a maximum exposure limit (%EL over 8 hours) of 30ppm & 60ppm for unoccupied carparks. Hevac has found that although the specified settings for unoccupied carparks satisfy the heath & safety standards and conserve energy, they give poor comfort response to sudden build up of annoying fumes from an idling car or forklift etc, So as a reasonable compromise, Hevac has preset the HCP7 controller to exceed the AS1668.2 requirements, using the controllers "CUSTOM" programming menu to set outputs as follows : The Fan Enable relay (R1) is set to respond to "current value" (CV not TWA) with a 1 minute ON delay, the VSD ramp to start from 20ppm & ramp to 35ppm, High speed relay to energize at 35ppm & off at 20ppm, the Strobe light O/P also set to CV (not TWA) as an early warning of high CO or NO2 contaminants & the Audible Alarm O/P's set to use TWA measurement. We have also chosen to set the TWA to average over 1 hour not 8hrs. The site commissioning technician can change most settings (with the custom menu) or select one of the inbuilt preset occupied or un-occupied programs that fully comply to the standards, but compliance to meet minimum standards then shifts from HEVAC to the programmer. **Note** : AS1668.2-2012 no longer calls up the use of NO2 sensors, although HEVAC still recommends their system inclusion particularly when many diesel trucks or cars use the parking facilities. The "CONFIGURE" menu for editing is password protected, please contact our office on 0395627888 or refer to the supplied programming manual. The controller incorporates a simple event data logger, or a 3rd party Modbus connected monitoring / data logging module c/w web interface is also available if required. Please refer to the standards for other criteria that affect system compliance.

IT SHOULD BE NOTED THAT THE CODE DOESNT ACTUALLY CALL UP THE REQUIREMENT OF A STROBE LIGHT , THIS HAS BEEN A TRADITION THAT CONTROL SUPPLIERS HAVE ALSO SUPPLIED AND SET TO TRIGGER AS AN EARLY WARNING BEFORE THE REQUIRED SIREN TRIGGER POINT IS REACHED.
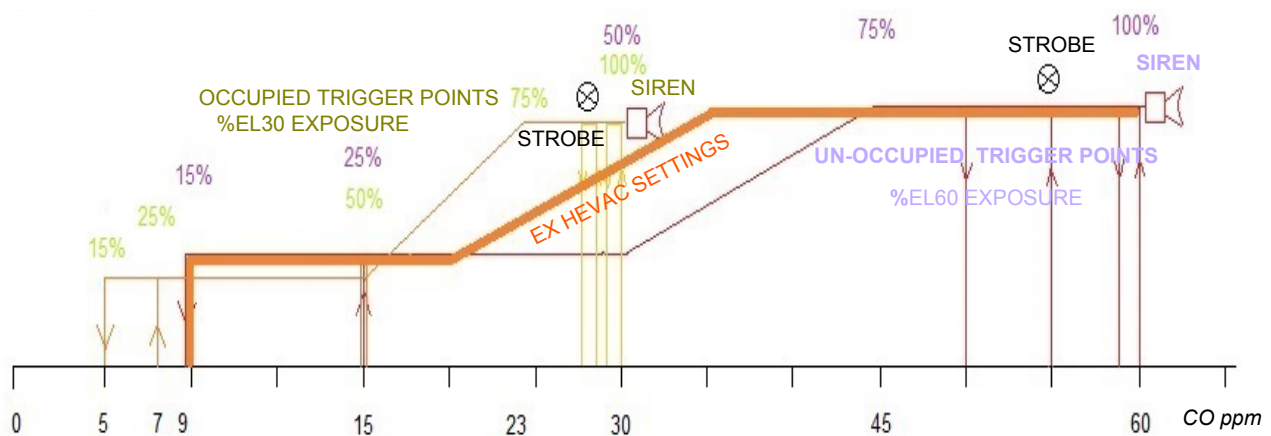
THE CODE ALSO CALLS UP FORCED RUNNING OF THE FAN SYSTEM TO MEET MINIMUM VENTILATION REQUIREMENTS IN A 24HR PERIOD. AS SUCH THE HCP7 INCLUDES AN IDLE TIMER THAT TRIGGERS FAN OPERATION FOR 10 MINUTES (ADJUSTABLE) IF THE FAN SYSTEM HASNT STARTED IN THE PREVIOUS 24HRS (ADJUSTABLE).

Operational notes

"TIME WEIGHTED AVERAGE" (TWA) is a method used to average out sensor readings to produce an average output value calculated over a set period , whereas "CURRENT VALUE" (CV) produces the actual current real time sensor value. To save energy & meet minimum safety requirements AS1668.2 calls up the use of TWA measured over an 8 hour period, Most CO control systems on the market tend to ignore this and can only respond to current value (which exceeds requirements but uses more energy).This controller can be set to use any combination of TWA or CV for the various outputs. The controller can also be set to force ON fan operation between several configurable blocks of time, intended for use when high periods of traffic are expected and to save cycling and fume build up. The controllers internal time switch is factory preset to force fan operation Monday to Friday in the morning between 7am till 9am and in the evening between 5pm till 7pm (adjustable). **To enable** this feature an external **link** or switch must also be **connected** between terminals **"M" & "D3"**.
This input can alternatively be used as a forced fan run input (for example) from a switch, a movement sensor (with built in run on timer) or & a thermostat. Also forced fan run "speed" is programmable.
The controller also makes use of an "Idle Run Timer" routine that keeps track of the last fan operation time and automatically starts the fan to satisfy minimum ventilation requirements. The preset factory settings force fan ON operation after 24 hours of idle time and then to run for 10 minutes , both gap & duration settings are user adjustable. HEVAC have also included a feature to Inhibit this forced ON operation by use of an internal time switch, which blocks the Idle Timer triggering fan operation between certain hours so as not to cause unneccessary noise (for example) during night hours in an apartment building. The factory settings for this inhibit timer is to block operation between the hours of 10pm till 9am , Note : This inhibit routine does not stop a genuine fan start call due to a build up of CO or NO2 which is enabled to operate 24/7 as per the code.
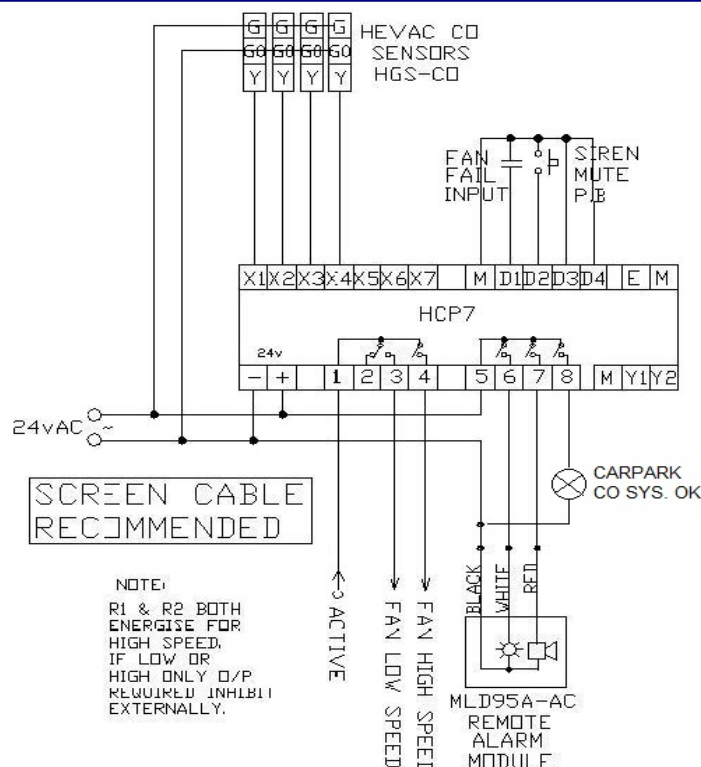
The number of connected sensors and the sensor measurement maximum value (allowing other brand of sensors to used) are user adjustable in the menu system under the password protected " CONFIGURE CONTROLLER " sub menu. Please contact HEVAC on 039562788 for the password to edit values.

Analog output "Y2" is factory preset as a 10vDC output signal source for use (as example) as a EC fan full speed signal source via a "Auto/Manual" selector switch or for use as a sensor I/P test = full scale.
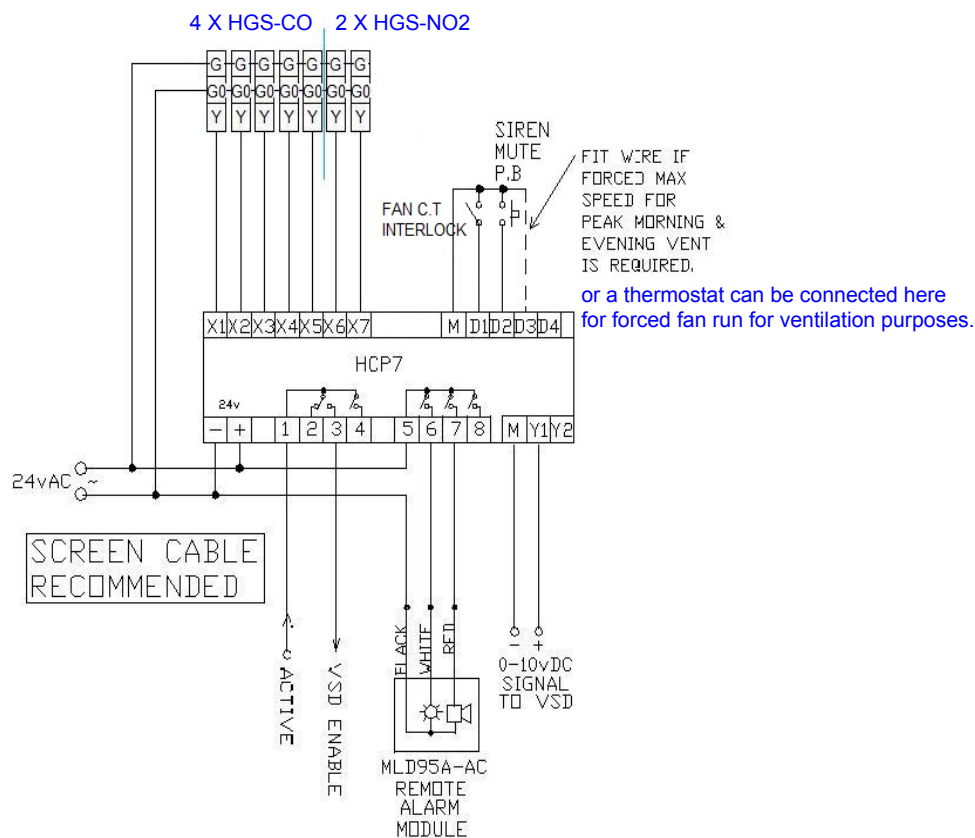
New features recently added now gives this controller simple data logging for event triggers to help diagnose faults and system behavior, Relay 5 now acts as an "I'm OK" output which holds relay 5's contacts closed when the controller has power and is operating correctly, and the user choice to set the fan fault input "D1" to react to close on fault (factory default) or open on fault, which better suits the use of C.T's for fan proving. Note fan fault response is only triggered when there is a fan run call.

This is a basic guide only, For complete editing & setup instructions please refer to the programming manual .

Application Example (1) 4 HEVAC HGS-CO SENSORS CONNECTED using 2 SPEED LO-HI FAN CONTROL

HEVAC

Application Example (2) 4 X HEVAC CO SENSORS & 2 X HEVAC NO2 SENSORS c/w MODULATING VSD OUTPUT

4 X HGS-CO   2 X HGS-NO2

SIREN MUTE P.B

FIT WIRE IF FORCED MAX SPEED FOR PEAK MORNING & EVENING VENT IS REQUIRED.

FAN C.T INTERLOCK

or a thermostat can be connected here for forced fan run for ventilation purposes.

X1 X2 X3 X4 X5 X6 X7   M D1 D2 D3 D4

HCP7

24v − + 1 2 3 4 5 6 7 8 M Y1 Y2

24vAC

SCREEN CABLE RECOMMENDED

ACTIVE

VSD ENABLE

BLACK WHITE RED

MLD95A-AC REMOTE ALARM MODULE

0-10vDC SIGNAL TO VSD

Application Example (3) 14 DWYER CO SENSORS , c/w MODULATING VSD OUTPUT

DWYER CO SENSORS GSTA-C

FAN FAIL INPUT   SIREN MUTE P.B

X1 X2 X3 X4 X5 X6 X7 M D1 D2 D3 D4 E M   X1 X2 X3 X4 X5 X6 X7 E M

HCP7   EXP7

24v − + 1 2 3 4 5 6 7 8 M Y1 Y2   24vDC − +

24vAC

SCREEN CABLE RECOMMENDED

ACTIVE

VSD ENABLE

BLACK WHITE RED

MLD95A-AC REMOTE ALARM MODULE

0-10vDC SIGNAL TO VSD