## CONTROL SPECIFICATIONS

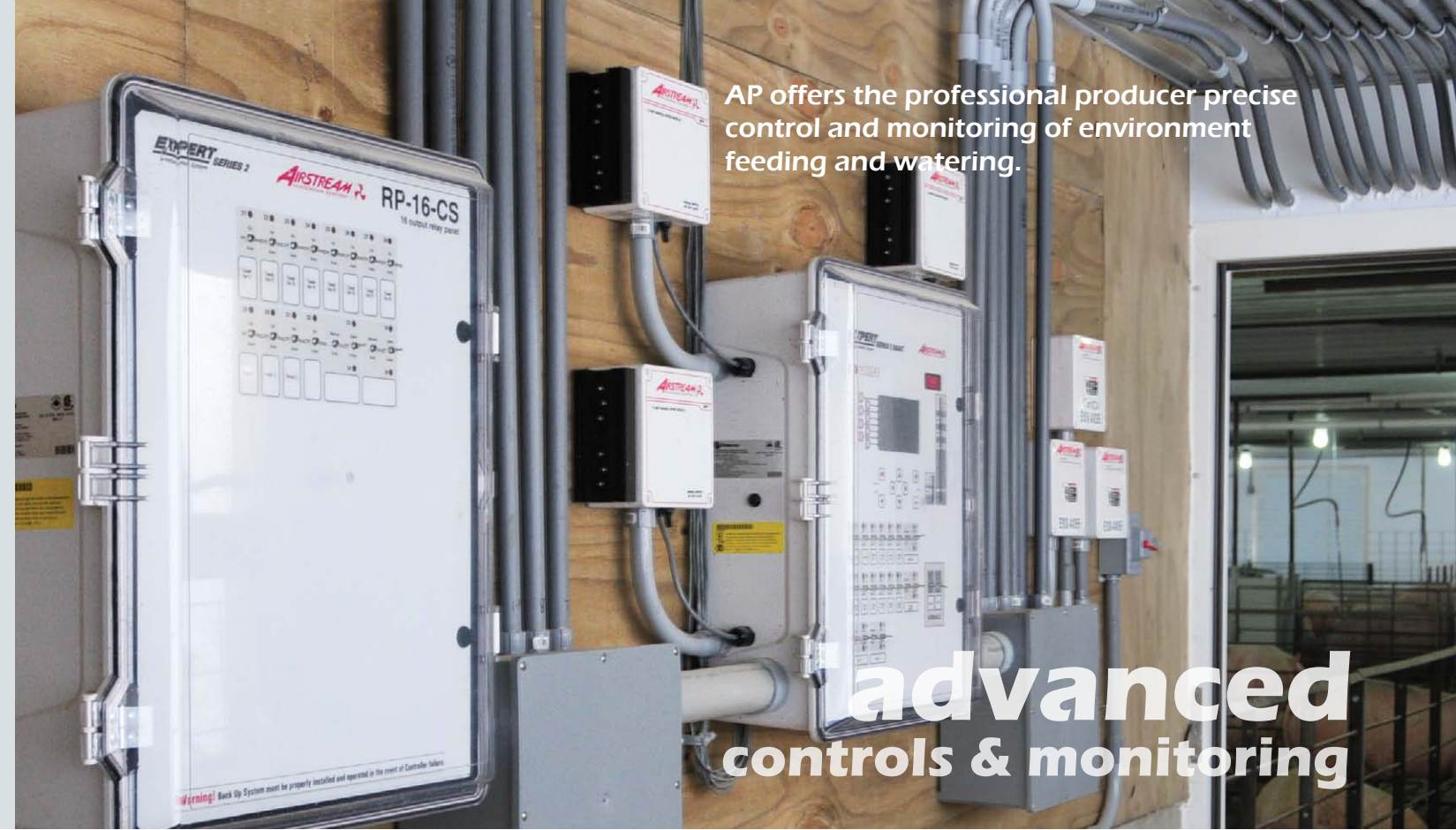| Code | Description |
|---|---|
| MPV | 10 amp variable speed booster control (for controls w/1 var. speed) |
| MPVV | 20 amp variable speed booster control (for controls w/2 var. stages) |
| MPV-010 | 10 amp slave module for expert controls |
| PF-6 | Potentiometer feedback control w/display (must be used w/a TC-4 or TC5 series control |
| HM-10 | 10 amp variable control for heat mats or lamps w/display |
| TC1-C | Variable speed control without display |
| TC1-CD | Variable speed control with display |
| 6607-8046 | Var-O-Matic manual variable speed control |
| TC1-1SD | Single stage on-off control with display |
| TC4-4SD | 4 stage on-off control with display |
| TC4-1V2S | 1 variable, 2 on-off stages with display |
| TC4-1V3S | 1 variable, 3 on-off stages with display |
| TC1-NV | Natural ventilation control, with 1 on-off stage |
| TC4-NVS | Natural ventilation control, with display and 2 on-off stages |
| TC5-3N3SA | Natural ventilation control, 1 chimney, 2 natural curtain, 1 mist, 2 heat, alarm, display |
| TC5-8SDA* | 8 stage on-off, alarm stage, display, humidity probe optional |

| Code | Description |
|---|---|
| TC5-12SDA* | 12 on-off stages, alarm stage, display, humidity probe optional |
| TC5-1V6SA* | 1 var., 6 on-off stages, alarm stage, display, humidity probe optional |
| TC5-1V10SA | 1 var., 10 on-off stages, alarm stage, display, humidity probe optional |
| TC5-2V2SA* | 2 var., 2 on-off stages, alarm stage, display, humidity probe optional |
| TC5-2V4SA* | 2 var., 4 on-off stages, alarm stage, display, humidity probe optional |
| TC5-2V8SA* | 2 var., 8 on-off stages, alarm stage, display, humidity probe optional |
| TC5-1N4FIA | Power natural ventilation control, 1 var., 1 on-off, 1 curtain, 1 mist, 1 heat, alarm stage, display, humidity probe optional |
| TC5-1N5FIAB | Power natural ventilation control, 1 var., 1 or 2 on-off stages, 1 curtain, 1 mist, 2 heat zones or cascade, alarm stage, display, humidity probe optional |
| TC5-1N8FA | Power natural ventilation control, 1 var., 1 on-off, 1 curtain, 1 mist, 1 heat, alarm stage, display, humidity probe optional |
| TC5-2N6FA | Power natural ventilation control, 2 var., 2 on-off stages, 2 curtain, 1 mist/heat, 2 heat-zones or cascade, alarm, display, humidity probe optional |
| TC5-T1A | 11 stage power/natural/tunnel control, 1 var. alarm stage, display, humidity probe optional |
| TC5-T6A* | 11 stage power/natural/tunnel control, alarm stage, display, humidity probe optional |
| TC5-ITA | Timed inlet control with alarm |

* 50 Hz Model Available

| | Expert II | Expert WW | Expert VP-18 | Expert VT110 | Expert PN110 | Expert Natural | Exp-2V2SA | Exp-2V3SA | Exp-2V4SA |
|---|---|---|---|---|---|---|---|---|---|
| **Total Relays** | 20 or 36 | 20 or 36 | 10 | 14 | 14 | 24 | N/A | N/A | N/A |
| **On/Off Relays** | 12 or 24 | 12 or 24 | 8 | 10 | 10 | 12 | 2 | 3 | 4 |
| **Actuator Outputs (Open & Close)** | 4 or 6 | 4 or 6 | 1 | 2 | 2 | 6 | 1 | 1 | 1 |
| **Heat Stages** | 6 | 8 | 2 | 2 | 3 | 4 | 2 | 2 | 2 |
| **Brooder Stages** | 1 | N/A | 1 | 1 | 1 | 1 | N/A | N/A | N/A |
| **Fan Stages** | 12 | 12 | 8 | 8 | 8 | N/A | 4 | 5 | 6 |
| **Variable Stages** | 2 | 0 | 2 | 2 | 2 | N/A | 2 | 2 | 2 |
| **Tunnel Stages** | 2 | 2 | N/A | 1 | N/A | N/A | N/A | N/A | N/A |
| **Natural Stages** | 2 | 2 | N/A | N/A | 2 | 6 | N/A | N/A | N/A |
| **Inlet Stages** | 2 | 2 | 1 | 1 | 1 | N/A | 1 | 1 | 1 |
| **Chimney Stages** | N/A | N/A | N/A | N/A | N/A | 2 | N/A | N/A | N/A |
| **Stir Fan Stages** | 1 | N/A | 1 | 1 | 1 | 2 | N/A | N/A | N/A |
| **Clock Outputs** | 2 | 2 | 2 | 2 | 2 | 2 | N/A | N/A | N/A |
| **Mist Stages** | 1 | 1 | N/A | N/A | N/A | N/A | 1 | 1 | 1 |
| **Cooling Stages** | 1 | 1 | 1 | 1 | 1 | 1 | N/A | N/A | N/A |
| **Soaking Stages** | 1 | N/A | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Light Outputs** | 1 | 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Feeder Outputs** | 2 | 4 | N/A | N/A | N/A | 4 | N/A | N/A | N/A |
| **Back Up Relay Output** | 1 | 1 | 1 | 1 | 1 | N/A | N/A | N/A | N/A |
| **0-10 Volt Outputs**\*\* | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 |
| **Alarm Output** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**0-10 Volt outputs can be used for variable fans, heat lamps & inlets. See manual for specific details.

### Inputs

| | Expert II | Expert WW | Expert VP-18 | Expert VT110 | Expert PN110 | Expert Natural | Exp-2V2SA | Exp-2V3SA | Exp-2V4SA |
|---|---|---|---|---|---|---|---|---|---|
| **Inside Probes** | 8 | 8 | 6 | 6 | 6 | 8 | 4 | 4 | 4 |
| **Outdoor Probes** | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Inside Humidity Probes** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Outdoor Humidity Probes** | 1 | 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **Static Pressure Probes** | 1 | 1 | 1 | 1 | 1 | N/A | 1 | 1 | 1 |
| **Water Meter Inputs** | 9 | 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **Feeder Inputs** | 2 | 4 | 4 | 4 | 4 | 4 | N/A | N/A | N/A |
| **Whisker Switch Inputs** | 2 | 2 | N/A | N/A | 1 | N/A | N/A | N/A | N/A |

AP offers the professional producer precise control and monitoring of environment feeding and watering.

RP-16-CS

# advanced
## controls & monitoring

## EXPERT™ SERIES CONTROLS
The Expert line of controls can be custom configured to meet the specific requirements of your facility's ventilation systems and production practices.

## SPECIALTY CONTROLS
Precision control and monitoring of your environmental systems requires sophisticated tools you can rely on. AP offers several specialty controls with the features you'd expect to find in more expensive system controls.

## I-BOX 360™ COMMUNICATION
Receiving accurate, real time information with the ability to control vital systems in your facility from an office PC or remotely via the internet is what I-Box is all about. It's Informative, it's Intelligent, it's I-box.

**For more information on AP's many products and services, contact your local AP representative or visit us online at:**
**www.automatedproduction.com**

# EXPERT™ CONTROLS
## Standard Features

- Zoning of heaters, inlets and circulation fans with up to eight inside temperature sensors
- Power save feature, allows smaller less efficient fans to be switched off as the temperature rises
- Air inlet, chimney and curtain outputs use timer logic based staging
- Set point and minimum ventilation curves
- USB flash drive is used to duplicate programming of multiple controls (Series II is not USB, it uses Config 300)
- Seamless ventilation steps between stages when using variable speed fans
- Separate day/night set points and minimum ventilation settings
- Up to two timed outputs for feed systems, water or lights

- Cooling stage with cycle timer
- Alarm that monitors up to ten functions 16 are monitored in the Series II and 11 in VT110
- Clean mode with soaking stage
- Removable relays with individual indicator lights and on/off/auto switches
- Overload and over voltage protection
- Full speed start up on variable fan stages
- Records heater run time up to seventy-five days
- Records run time of up to four feed systems for up to seventy-five days
- Records high and low temperature history for up to seven days
- Records animal count, age and mortality

## Optional Features:
- Humidity sensor input - Compensates heaters, minimum ventilation rate based on humidity. Records humidity history for up to seven days
- Static Pressure input - Compensates inlets according to static pressure. Records static pressure history for up to seven days
- Outside temperature sensor with compensation
- Water meter inputs - Gives alarm in event of water spill  Records water consumption history for up to seventy five days
- Up to two additional variable speed fan or electric heat stages using 0-10 volt outputs
- Backup safety relay system available for added protection

# TC5 SERIES VENTILATION CONTROLS

AP's TC5 Series ventilation controls are sophisticated yet simple to program and operate.  These controls are designed and manufactured for specific applications such as natural, tunnel or power/natural ventilation.

## TC5 Standard Features:
- Up to four temperature sensors averaging temperature
- High/low temperature retention
- Set point and minimum ventilation curves
- Overload and over voltage protection
- Zoned or cascading heat stages
- Alarm output
- De-icing cycle on second stage variable fans

## TC5 Controllers Optional Features:
- Humidity sensor input
- Air inlet control using TC5-ITA timed logic or PF-6 inlet position module and potentiometer

# "MINI" EXPERT

The "Mini" Expert line of controls offers many of the features of the Expert series of controls at a price comparable to the TC5 Series. "Mini" Experts are ideal for farrowing and nursery rooms requiring precise control of environment.

## Standard Features Include
- Button style user interface
- Seamless ventilation steps between variable speed stages
- Internal air inlet output using timed logic staging
- Outside temperature compensation for alarm settings
- Records and displays heater run time for six days
- Input for water meter to record six days usage
- USB flash drive for duplicating and storing settings
- Day and night set points
- Overload and over voltage protection

## Optional Accessories

**HS-100**
Humidity Sensor Probe

**WMC-Meter**
Water Meter

**Static Pressure Transmitter**

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## Expert VT110

## Expert PN110

## Expert Natural Controller

See your AP representative for more information on other environmental control systems from AP.

**Your Source for Innovative Solutions.**

# I-BOX COMMUNICATION SYSTEMS

AP controllers, timers, and monitors can be linked together and monitored from an I-Box on site or remotely via the internet.

Our I-Box software package allows you to make changes to ventilation control and timer parameters, monitor current environmental conditions, data log and chart historical information.

The software utilizes pull down menus and dialog boxes to make it simple to operate.

INFORMATION IS POWER

# HML SERIES VARIABLE CONTROLLERS

**HML-20**  **HML-40**  **HML-80**

The HML Series power module is capable of varying the intensity of lights, heat lamps, heat mats, or fans.

HML series controllers feature a rugged construction with plenty of capacity. 3 models are available; 2kW (HML-20), 4kW (HML-40) and 8kW (HML-80). The HML is compatible with most dimmable CFL's (Compact fluorescent lights) including CCFL (cold cathode).

The HML features adjustable output intensity curves. 7 light curves adjust electronic lamps (CFL) and incandescent lamps. In addition, 10 fan curves are available to optimise variable fan speed range.

Available in automatic or manual control, the HML series controllers are easy to use, easy to install, and easy to service.

## Other HML Features:
- Sunset/Sunrise built in (with clock input)
- True by-pass on Manual
- Available In 2000, 4000, & 8000 Watt capacities
- 0-10 or trig signal can be used as inputs to the module
- Mini-Experts, & Experts can control the module
- Module can be used on variable fans, heat mats, or heat lamps