OPERATING MANUAL and INSTALLATION INSTRUCTIONS for **CHW 1211 for b_110**

IntelliCon®-CHW with WIFI

COMMERCIAL HYDRONIC HEATING SYSTEM ECONOMIZER

Description

The *IntelliCon-CHW with WIFI* is a patented Wifi enabled microprocessor-based fuel-saving controller for hydronic heating systems 2.5MM BTUs and above. It reduces fuel consumption, wear on boiler parts and burner emissions by actively managing the burner, in conjunction with the boiler operating-control, to properly match the boiler's output to the required load. This controller indicates average savings on a continuous basis. In addition, certain parameters are programmable via virtually any wifi enabled device capable of running a Web Browser. All of the programmable parameters, savings values, and other key data is stored in non-volatile memory.

Electric Ratings

Power input: 24,115,220 VAC ± 10%, 5 Watts max., 50/60Hz
Control circuit input: 24,115,220 VAC ± 10%, 0.1A max. Burden
Relay Contact: Form B, 10A @ 220 VAC (General Purpose)

Environmental Conditions

For Indoor Use
Maximum Altitude (2000M)
Rated Ambient Temperature 32 - 120˚F. (0 - 49˚C.)
Maximum Rh 90% non-condensing
Mains Supply Voltage Fluctuations ± 10%
Transient Over-Voltage Category (III)
Pollution Degree (2)

Wifi Transmitter Certifications

The Wifi module contained in this control is certified for use in both the United States and Canada. It is also compliant with European (EU) standards.

United States of America:
This device complies with Part 15 of the FCC Rules.
Contains Transmitter Module FCC ID: W7OMRF24WG0MB

Canada:
This device complies with Industry Canada license-exempt RSS standard(s).
Contains transmitter module IC: 7693A-24WG0MB

Operation is subject to the following two conditions:
(1) this device may not cause harmful interference.
(2) this device must accept any interference received, including interference that may cause undesired operation.

Operation

After installation, and power applied, placing the 'On-Bypass/Reset' switch to the 'ON' position activates the control. After a system check, the power indicator on the front of the display will indicate that the power is on. In the event of a fault the power indicator will blink to indicate a trouble condition. The four-line back-lit LCD display indicates the operational mode of the device, the measured system temperatures, Time accumulators, and warning messages. The possible messages and their explanation are:

Display Messages - First Line:

STANDBY MODE - The boiler is operating under its own internal operating-control, which has turned the burner off. This occurs for a period of time after the burner has shut down.

ECONOMIZER MODE - The boiler aquastat has requested the burner to come on but the controller has sensed that there is available heat which can be used without burning fuel. The burner will remain off and useful heat will be delivered from the boiler's existing supply of hot water.

HEATING MODE – The controller has released the burner to fire.

HEATING LOW LIMIT - The controller has released the burner to run due to a load condition that has caused the water temperature to go below the programmed low limits. This condition may occur occasionally. If this message appears frequently, the boiler operating-control may need to be increased in small increments until the condition stops or the low limits may need to be adjusted (see Programming section)

During normal operation, the first three messages will appear sequentially.

Display Messages– Second and Third Line :

HEAT -- *HEATING WATER TEMP.* -- The temperature measured by the boiler outflow water sensor is displayed in °F or °C.

DOM. -- *DOMESTIC WATER TEMP.* -- The temperature measured by the domestic hot water outflow sensor is displayed in °F or °C.

RTN. -- *RETURN WATER TEMP.* -- The temperature measured by the boiler return water sensor is displayed in °F or °C.

Note: A "N/U" (Not Used), indicates a sensor that was not detected during power-up.

Display Messages – Fourth Line

AVG. SAVINGS = xx.x% -- The calculated average savings of all burner cycles since commissioning, or resetting the counters, of the controller.
The option to display this is programmable (Default = OFF).
Note: The value will not be displayed until a value that is greater than zero is calculated.

STBY HRS = xxxxxx.x -- Total hours of Standby time.
The option to display this is programmable (Default = ON).
(maximum value = 999,999.9 hours).

ECONO HRS = xxxxxx.x -- Total hours of Economizer time.
The option to display this is programmable (Default = ON).
(maximum value = 999,999.9 hours).

RT HRS = xxxxxx.x -- Total hours of Burner 'On' time.
The option to display this is programmable (Default = ON).
(maximum value = 999,999.9 hours).

In the event that a sensor fails, the power indicator will blink and the unit will return control to the boiler's operating control. The display will indicate which sensor has failed and the "SYSTEM BYPASSED" message will be displayed. If a sensor fault message appears; call your installer for service.

The control can also be placed into a BYPASS mode by placing the 'On-Bypass/Reset' switch to the BYPASS position for servicing or in the event the control is interfering with the operation of the boiler. The Wifi portion operates independently of the Energy Saving portion of the control.

There is no 'OFF' position of the 'On-Bypass/Reset' switch. Power is always applied unless disconnected.

Returning the switch from the 'Bypass/Reset' position to the 'On' position will have different effects based upon how long the switch was in the 'Bypass/Reset' position. If it was placed in the Bypass/Reset position for less than 2 seconds, nothing will happen. If placed there for 2 – 3 seconds, only the Economizer portion of the control will reset. If placed there for more than 6 seconds, both the Economizer and the Wifi, will be reset. To reset just the Wifi, the '+Menue' switch (see fig. 1A or 1B for location on page 7) pushbutton must be depressed for more than 7 seconds and released.

Installation

The controller is electrically installed in series (**NEVER IN PARALLEL**) with the boiler operating-control as shown conceptually in the wiring diagrams. It is very important that it be installed, electrically, before any interlocks to ensure proper operation of the burner and to eliminate any alarm or fault conditions that could be caused by the IntelliCon controller holding the burner off. **AT NO TIME SHOULD ANY SAFETY CONTROLS OR CIRCUITS BE CIRCUMVENTED.** Check and determine the voltages of the burner control circuit and power circuit prior to installation.

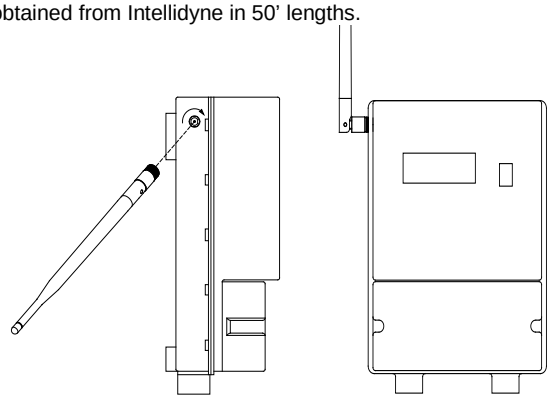
For safety, power to the boiler must be off during installation.

Mounting

The control should be mounted using screws in a 3-point mounting configuration. Screw size should be minimum #8 (4.0mm) - maximum #10 (5.00mm). Length should be suitable for mounting material thickness.
Mount the unit vertically. Consideration should be given to visibility of the Display, Wiring, Sensor-lead routing, Antenna, and access to the unit. With Wifi reception in mind, mount the unit as far as possible from items that may block reception. It is a good idea to check the possible mounting location with a wifi enabled device, testing whether or not reception of the desired network is present. One mounting point is centered on the rear of the unit, near the top, and is for the unit to rest or hang upon. The other two mounting points are accessible through the wiring compartment, in the lower corners of the enclosure. The control may also be mounted on a flat horizontal surface using the molded-in ½"-NPT conduit fittings on the bottom of the control.

Antenna

Looking at the diagram below, mount the included Antenna to the control. When looking at the control from the left side, the antenna attaches to the antenna connector by screwing it on in a clock-wise direction. After attaching, it should be rotated so that it can be configured as shown. If necessary for reception, the antenna may be remotely mounted using an extension cable of type RG-58 coaxial cable, and terminated with RP-SMA connectors. A straight male connector at one end and a female (preferably a bulk-head) connector at the other. A bulk-head fitting facilitates mounting of the antenna to a bracket at the remote location. Extension cables may be obtained from Intellidyne in 50' lengths.



Wiring

All wiring and connections must comply with Local and National Electrical Codes. Connections are made in the wiring compartment using 1/4" (6.35mm) push-on crimp connectors. The unit should be wired as shown in the wiring diagrams on page 7. It is important to read all of the instructions and the WIRING NOTE. Ensure that POWER TO THE UNIT IS OFF DURING INSTALLATION.

Sensors: (see note # 8 below)

Plug one of the temperature sensor cables into the "Supply" sensor jack (see Fig. 1A or 1B on page 7 for locations). Attach the sensor to the boiler's outflow pipe as close to the boiler as possible using tape, Tie-Wraps, or other suitable method (see Fig. 2 on page 8). Make sure that the sensor makes good thermal contact with the pipe. Cover the sensor with a piece of pipe insulation (not provided) and secure in-place.

For boilers that also supply domestic hot water, an additional temperature sensor is needed. This sensor is plugged into the 'Domestic' sensor jack. Mount the sensor on the boiler's domestic water outlet pipe as close as possible to the boiler. Mount the sensor using the same procedure as that of the 'Heating Sensor'. This sensor is not used if the boiler does not supply domestic hot water.

If Return water temperature indication and sensing is desired, plug this temperature sensor into the 'Return' sensor jack, and attach the sensor to the heating system return pipe as close to the boiler as possible. Mount the sensor using the same procedure as that of the 'Supply Sensor'. While this sensor is not required for proper operation, it does enhance operation.

If any of the sensor leads are too short they may be extended using any 2 conductor stranded wire appropriate for the operating conditions.

Checkout

Recheck wiring one last time and make sure that the temperature sensor(s) is/are plugged into the proper connector(s). The sensor(s) are only detected during power-up. Set the controller's switch to 'Bypass/Reset' and restore power to the boiler. Wait about 10 seconds then place the controller's switch to the 'On' position. After a brief check of the electronics and displaying various parameters of the controller, the sensor(s) will be detected and the 'Power/Normal' indicator should light continuously. It is important to verify recognition of the sensors by viewing the temperature reading(s), on the display. If the installed sensor(s) are not detected, the IntelliCon controller will not function properly. After the sensor-check, depending upon the temperature of the boiler water, the controller will go into one of its various operating modes. If the controller went into 'STANDBY MODE'; **note the operating-control setting** and force a burner call by temporarily adjusting the operating-control higher and verifying the change of mode of the controller to the 'ECONOMIZER MODE', 'HEATING MODE' or 'HEATING/LOLIM' mode. If the controller went into the 'ECONOMIZER MODE' you can either wait for the water temperature to drop and for the controller to go into 'HEATING MODE' or 'HEATING/LOLIM', or by removing a sensor plug, the controller will go into bypass mode, and the burner should fire shortly thereafter. If, after adjusting the operating-control, the controller went directly into 'HEATING MODE' or 'HEATING/LOLIM' the burner should fire shortly thereafter. The burner should run continuously until the call from the operating-control is satisfied. Once satisfied, the burner should stop firing and the controller should go into the 'STANDBY MODE'. The controller and burner following the above sequence, confirms a properly wired and functioning control. **If the operating-control was previously adjusted, make sure to return it to its' original setting.** If the burner runs for a brief second then stops, or the controller does not come out of "STANDBY MODE" (even though the operating-control is calling for the burner to run), the most likely cause is either a reversed 'Call' and 'Burner' connection and/or an improper common (24 or 115/220) connection for the control circuit. See figures 1A and 1B on page 7 for the location of these connections, and read the IMPORTANT note (number 7) below.

Service and Troubleshooting

After Installation and Checkout, the controller does not require maintenance and will provide years of trouble free operation. The unit may be taken out of the circuit at any time by placing the switch to the 'Bypass/Reset' position. In this position, the unit has no effect on the system and the burner is controlled as it was prior to the controller's installation. This allows service personnel to troubleshoot or work on the system without the controller intervening.

If at any time the Power/Normal light on the front panel blinks continuously, a sensor is not operating properly and The *IntelliCon®* controller has automatically gone into 'bypass mode'.

If the message "TIMER FAULT" is displayed the switch should be placed into the OFF/Bypass position and service called.

If the burner is running and the control is in "STANDBY MODE" a problem exists and service should be contacted.

IMPORTANT - READ CAREFULLY

1. **Failure to follow these instructions may result in damage to the system or cause a hazardous condition.**
2. **Installer must be experienced, qualified, and in certain locations, licensed to work on the system that this control is being installed on.**
3. **After installation is complete, follow the check-out procedure as provided in these instructions to confirm proper system operation.**
4. **Intellidyne LLC is not responsible for improper installation or any damages that may result from improper installation.**
5. **Actual wiring may differ from that shown in the diagrams.**

6. **Equipment may have controls not shown.**
7. **Because the controller can operate with different voltages for the power and control circuits, it has separate common connection for these circuits. It is necessary that these connections are connected to the proper commons or the unit will not function properly. *See the wiring diagrams on page 7 for details.***
8. **For CE compliance, all wiring and sensor leads must be installed in grounded metallic conduit.**

IMPROPER VOLTAGE SELECTION MAY DAMAGE THE UNIT AND VOID THE WARRANTY.

PROGRAMMING

This model requires a wifi enabled web browsing device (i.e. smart phone, tablet or notebook computer) to facilitate programming. For security purposes this must be done local to the control (within 30 feet [10 meters]) and will require pairing of the two. This will allow configuring the control and enabling it to join a local network and send usage and diagnostic information to a host server.

Once paired, the parameters may be changed, the host server address modified (if needed), and the downloading of data to the host enabled. By default, downloading to the host is disabled.
Pre-Purge time, Temperature indication in either °F or °C, Heating Water Low-Limit, Dynamic Heating Water Low-limit, Domestic Water Low-Limit, Dynamic Domestic Water Low-limit, Return Water Low-Limit, Maximum Economizer Hold-Off Time, Standby-Timer Override, and whether or not the Standby, Economizer and/or Burner Run-Time Hour accumulators are Displayed. The system may also be returned to factory default values and the accumulators may be independently cleared.

All of the default values have been carefully selected to result in the greatest savings for the broadest scope of heating system applications. Individual system requirements may require changes. Please note that all of these programmable parameters will affect the amount of savings. Prudent changes are strongly advised.

It is very important that if there is any kind of a delay (more than fifteen (15) seconds), from the time that the Operating-control calls for the burner to start and the burner actually starts (without the controller in the circuit), that this time delay value be entered into the controller as a Pre-Purge time (e.g. actual pre-purge timer, Flue Damper interlock, etc.). If there is a delay and the correct value is not programmed into the controller, the savings calculations will be incorrect.

ALL PROGRAMMING IS ACHIEVED THROUGH THE WEB INTERFACE. ITEMS CHANGED ON THE SCREEN WILL NOT BE SENT TO THE CONTROL UNTIL THE "SAVE CHANGES" BUTTON IS SELECTED.

Entering Configuration Mode:

Please read the following several times as it needs to be completed properly. For security purposes, the control has a time limited access period within which you must join it with your Wifi/Web enabled device. Once joined, there is a 30 minute inactivity timer after which the control will exit from the configuration mode. Once you become familiar with the process it will become much more intuitive and should normally be accomplished in less than a minute,

To enter the configuration mode you must pair your wifi/web enabled device with the control. This needs to be accomplished within 5 minutes or one of two things will happen. One, if the control has never been connected to the customers wifi network, the wifi transmitter will shut own until the control is reset or the wifi board is reset. Two, if the control has previously been connected to the customers Wifi network, the control will reconnect to it. After Pairing, you will be able to access the configuration screens via the Web Bowser on your device. In the event that you forget to exit the configuration mode, there is a 30 minute inactivity timer after which the control will respond in one of the two ways described before.

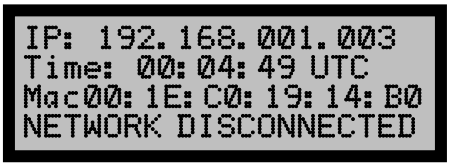
The following procedure must be followed:

Step 1: Ensure that the antenna and all required sensors are connected, and power is supplied to the control. Place the ON-Bypass/Reset switch to the Reset position. After 10 seconds, place the switch to the On position. Shortly afterwards you will see the Copyright notice Screen.

On line 2 of the display, the controller software version and circuit board revision level will be displayed. On line 4 the control will indicate that it is waiting to communicate with the Wifi board. Within 20 seconds this will change to indicate the Wifi module firmware revision and the wifi board software version.

If a timeout message is displayed instead, repeat step 1. If no communications can be established with the wifi board, this indicates a hardware fault and the unit will need to be replaced. All units are 100% tested at the factory.

Step 2: Press and hold the 'Enter' pushbutton (see Fig. 1A or 1B on page 7 for pushbutton locations). The following screen will be displayed on the control.



Note that the 1st line of the display indicates the current IP address of the control. This value (192.168.1.3) and can't be changed by the user. Next, the 3rd line down contains the controls MAC address. Write this down in the space provided below. The unit's MAC address will be used to determine the unit's 'security key' and the unit's 'SSID' (or Network Name) as it is called. This MAC address is comprised of 6 pairs of numbers (0 – 9) and/or characters (A – F), separated by ":" (colons). This address is unique to this control. Please see the example below. Note that line 4 of the display shows that the Network is NOT connected.

Please write the information is the spaces provided below. The Security Key will be calculated from the MAC address by transposing pairs 2 through 6 of the Mac address, and the SSID from the 5th and 6th pairs. *Please note that when determining the 'Security Key' you are only transposing the pairs, NOT the numbers within the pairs.*

Configuration Mode IP address: 192 . 168. 1 . 3

Controller MAC address: _____:_____:_____:_____:_____:_____
MAC address pairs: 1 2 3 4 5 6

Controller SSID: INTELLI_ _____ _____
MAC address pairs: 5 6

Note: there is an '_' underscore character after 'INTELLI'. Very important!

To determine the 'security key' to pair with the control, transpose 5 of the 6 pairs (the 1st is discarded) of the MAC address (written above) in the following format:

Controller Security Key: _____ _____ _____ _____ _____
MAC address pairs: 6 5 4 3 2

Example for determining the Controller SSID and WEP KEY

***Mac address*:** 00 : 1A : 2B : 3C : 44 : 5F
Controller SSID: *Intelli_445F* *note the "_" character*
WEP Key: *5F443C2B1A*

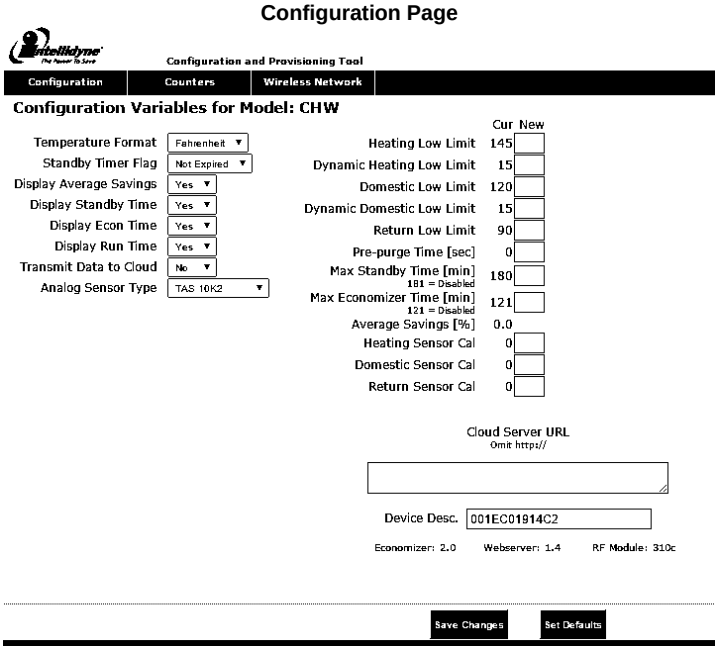
THERE ARE NO SPACES IN THE SSID or WEP Key.

Step 3: Due to time limits, repeat Step 1 if necessary.

Step 4: On your Wifi/Web enabled device go to the section where you determine which Wireless network to join. When there, change to the network with the SSID that matches that written down in Step 2. When prompted, enter the 'Security Key' determined in Step 2. Verify that you have joined the desired network.

Step 5: Next, open a WEB browser on your Wifi/Web enabled device. In the address location enter the controller's default IP address which is **192.168.1.3** and press 'Enter' or 'Go'. The Browser should take you to a WEB page that looks like that below. This page, and others will allow you to configure the control. Note that the tabs just below the Intellidyne logo are navigation buttons to the different pages. Pressing the navigation for the same page that you are viewing, will refresh the data on that page. Refreshing a page is a recommended procedure after any changes are made to ensure that the changes took effect and that your changes are correct.

Configuration Page



The Configuration Page, illustrated above, is used to set the various parameters needed for the proper and most efficient operation of the energy saving portion of the control. The energy saving functionality of the control is not dependent upon the wifi operation and will achieve savings with or without the control being connected to a wifi infrastructure. The items below, describe the various parameters.

Temperature Format -- The controller will indicate in whatever units is currently selected (default value = Fahrenheit). This setting will alter how the temperature values are displayed.

Standby Timer Flag – This works in conjunction with the *Max Standby Time* value. This indicates to an installer that the Max Standby Timer has expired. *See Max Standby Time below.*

Display Average Savings - This controls whether or not the "Average Savings" is displayed (default = OFF). Note – the accumulator is active even if not displayed.

Display Standby Time -- This parameter controls whether or not the Standby Time accumulator is displayed. Note – the accumulator is active even if not displayed.

Display Econ Time -- This parameter controls whether or not the Economizer Time accumulator is displayed. Note – the accumulator is active even if not displayed.

Display Run Time -- This controls whether or not the Burner Run-Time accumulator is displayed. *Note – the accumulator is active even if not displayed.*

Transmit Data to Cloud -- This parameter controls whether the control will send its data to a cloud server and works in conjunction with the URL (web) address set in the Cloud Server URL section below. The default setting for this parameter is 'No'. This must be set to 'On' for the controller so send its data to the 'Cloud Server'.

Analog Sensor – This parameter allows the selection of different types of analog temperature sensors. The Default value is "TAS 10K2". This value should only be changed at the recommendation of technical support.

Heating Low Limit - This parameter is used to set the absolute lowest limit temperature for the heating water. When the heating water temperature goes below this setting, the controller will no longer attempt to achieve any savings and will return control to the operating-control. The default value of this setting is 145˚ (62˚C) and may be adjusted from a minimum of 90˚F (32˚C) to a maximum of 180˚F (82˚C). If the 'Heating' water temperature goes below this value while the operating-control is calling for the burner to run, the controller will indicate "HEATING/LOLIM" on the display.

Dynamic Heating Low Limit - This parameter is used by the controller to set the low limit temperature for the 'Heating' water. This differs from the 'Heating Low Limit' above, in that this value automatically tracks the 'Heating' water temperature and sets the low limit to the value of the heating water temperature at the time of the burner call minus the value selected here. When the heating water temperature goes below this setting, the controller will no longer attempt to achieve any savings and will return control to the operating-control. The default setting of this value is 15˚F (8˚C) and may be adjusted from a minimum of 5˚F (3˚C) to a maximum of 26˚F (14˚C). If the 'Heating' water temperature goes below this value while the operating-control is calling for the burner to run, the controller will indicate "HEATING/LOLIM" on the display.

Domestic Low Limit - This parameter is used to set the absolute lowest limit temperature for the 'Domestic' hot water. When the 'Domestic' hot water temperature goes below this setting, the controller will no longer attempt to achieve any savings and will return control to the operating-control. The default value of this setting is 115˚ (46˚C) and may be adjusted from a minimum of 90˚F (32˚C) to a maximum of 180˚F (82˚C). If the 'Domestic' hot water temperature goes below this value while the operating-control is calling for the burner to run, the controller will indicate "HEATING/LOLIM" on the display.

Dynamic Domestic Low Limit - This parameter is used by the controller to set the low limit temperature for the 'Domestic' hot-water. This differs from the 'Domestic Low Limit' above, in that this value automatically tracks the 'Domestic' hot-water temperature and sets the low limit to the

value of the heating water temperature at the time of the burner call minus the value selected here. When the heating water temperature goes below this setting, the controller will no longer attempt to achieve any savings and will return control to the operating-control. The default setting of this value is 15˚F (8˚C) and may be adjusted from a minimum of 5˚F (3˚C) to a maximum of 26˚F (14˚C). If the 'Domestic' hot-water temperature goes below this value while the operating-control is calling for the burner to run, the controller will indicate "HEATING/LOLIM" on the display.

Return Low Limit - This parameter is used to set the low-limit temperature for the 'Heating' water Return. When the return water temperature goes below this setting, the controller will no longer attempt to achieve any savings and will return control to the operating-control. The default setting of this value is 90˚F / 32˚C) and may be adjusted from a minimum of 70˚F (21˚C) to a maximum of120˚F (49˚C). If the 'Return' water temperature goes below this value while the operating-control is calling for the burner to run, the controller will indicate "HEATING/LOLIM" on the display.

Pre-purge Time -- This parameter indicates the pre-purge time currently programmed into the controller. The default value of this setting is 0 seconds and may be adjusted up to a maximum of 255 seconds.

Max Economizer Time -- This allows you to limit the maximum amount of time that the controller is allowed to remain in the Economizer Mode. The default setting of this parameter is DISABLED and may be adjusted between a minimum of 5 minutes to a maximum of 120 minutes. Setting this value to 121 minutes disables this feature. If the controller goes into the "HEATING MODE" as a result of this feature, there will be a period (".") appended to the word "MODE" on the display.

Max Standby Time -- This is used to limit the maximum amount of time that the controller is allowed to remain in the Standby Mode and is also used as a means of monitoring the internal electronics against failure. If a heating call is not sensed within the prescribed time period, the timer will expire and the control will take itself out of the circuit (fail-safe). A period (".") will be appended to the "**STANDBY MODE.**" message to indicate that this timer has expired. On the 'Configuration Web Page' the 'Standby Timer Flag' will indicate 'Expired' It will only reset upon sensing a call from the aquastat. Cycling power to the control will NOT reset the timer or flag.

The default setting of this parameter is 180 minutes and may be adjusted between a minimum of 45 minutes to a maximum of 180 minutes. Setting this value to 181 minutes disables this feature. **DISABLING THIS FUNCTION IS NOT RECOMMENDED!**

This condition is not necessarily a fault and will occur naturally if the heating system has been "off" or there are long periods of time between aquastat heating calls. The only time that this should be considered a problem is if the controller is in "STANDBY MODE." and the burner is running. This would indicate a failure of the on-board electronics and that the IntelliCon has taken itself out of the circuit (fail-safe).

Heating Sensor Cal – This parameter allows the fine tuning of the Heating water temperature indication. The default setting is 0˚ and can be varied over a range of +/- 20˚.

Domestic Sensor Cal – This parameter allows the fine tuning of the Domestic hot-water temperature indication. The default setting is 0˚ and can be varied over a range of +/- 20˚.

Return Sensor Cal – This parameter allows the fine tuning of the Return water temperature indication. The default setting is 0˚ and can be varied over a range of +/- 20˚.

Cloud Server URL – This is the default address where the data is sent for processing by a host server. This address is very important if the 'Transmit Data to Cloud' is 'On'. Do not change this address unless you are instructed to do so by tech support.

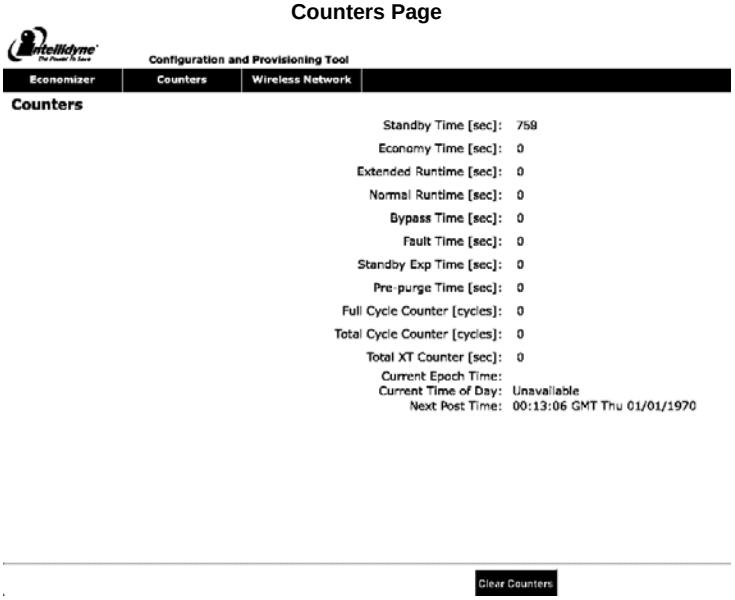
Device Desc. – This is the 'Device Description' for this control. By default it is set to the units MAC address which makes it unique. This may be set to something more useful to the end user as a means of identifying what or where this unit is installed. The maximum length of this field is 24 characters.

Set Defaults Button – Located at the bottom of the page, this will reset all of the programmable parameters of the control to the factory defaults. It will not clear any of the Counters. As a precaution you will be prompted to confirm this operation prior to the unit being reset to the factory defaults.

Save Changes Button – You must click on this button to save any changes you made to this page. Once clicked, the changes will be stored in non-volatile memory. It is suggested to click on the Configuration navigation tab to refresh the screen and confirm your changes were made and are correct.

After changing any of the above values, you must click on the 'Save Changes' button to save the changes to non-volatile memory. Refresh the screen by clicking on the 'Configuration' button, just under the logo, and confirm your entries are as desired.

Counters Page



The counters page, illustrated above, is mainly for viewing purposes, and is also used by the Installer to 'Clear' the counters to zero (0). This is independent of resetting the control to the 'Factory Defaults'. There are a multitude of reasons for clearing these counters, and should be discussed with Technical Support prior to clearing them.

Clear Counters Button– Clicking on this button will reset all of the counters/timers to zero (0). It will not reset or clear any of the configuration data. *You will be prompted to confirm this operation prior to the unit clearing the counters*

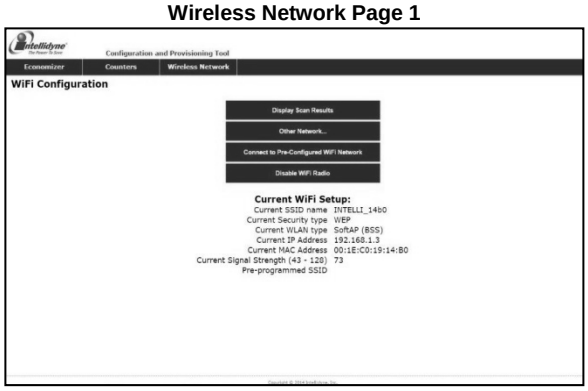
JOINING WITH A LOCAL WIRELESS NETWORK

In order for the control to send its data to a cloud server for processing, it will be necessary to have the control join a local wifi network with internet access. It will also be necessary for you to obtain the necessary network access information from the customer prior to you joining their network. The needed information is:

1 – SSID of the network and whether or not it is being broadcast.
2 – The type of security used. (WEP, WPA, WPA2 are supported)
3 – The login password or passphrase.

With the above information in-hand, you are prepared to join the control with the customers wifi network. **It is important that you only join with a network that you are authorized to do so with.**

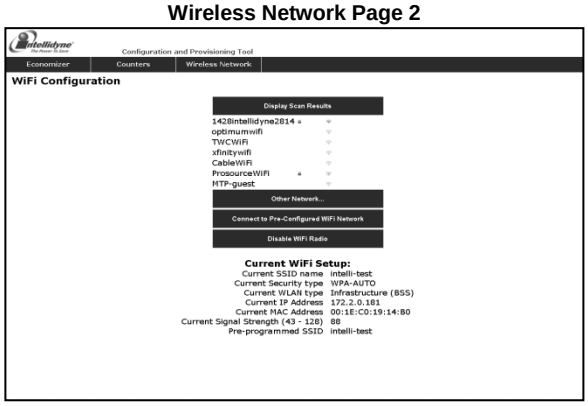
Wireless Network Page 1



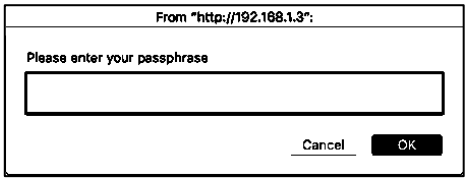
The Wireless Network page is used to view the current Wifi mode of the controller, and to enable the control to join a local network to send its data to a cloud server.

Clicking on the Display Scan Results button will expand that section and display the local networks available for pairing with this control as shown below.

Wireless Network Page 2



Selecting one of the SSID's in the Display Scan Results section will result in a pop-up message requesting the password or passphrase. Note that the password or passphrase is case sensitive and must be entered exactly.

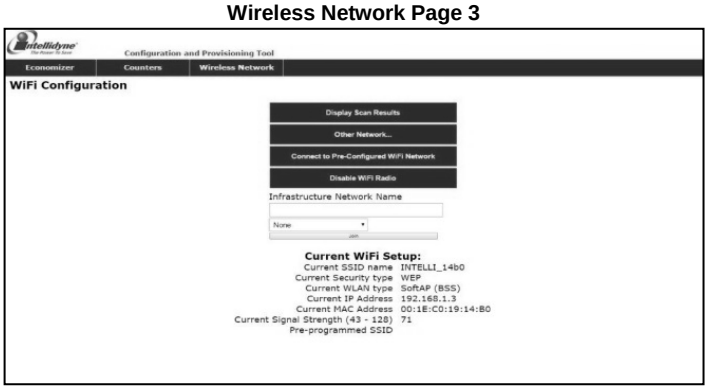


If, based upon the information you were given, you do not see the customer's network, or the customer indicated to you that the SSID was not being broadcasted, you will need to join with the network in the following way.

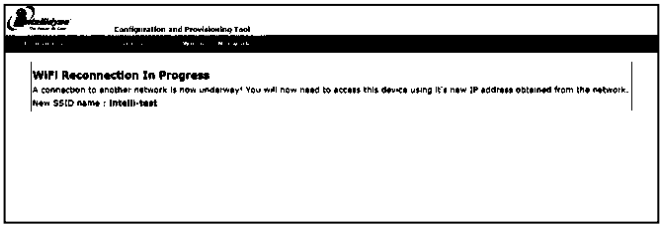
First, click on the Wireless Network tab to refresh the screen, Next, click on the Other Network button and the following screen will appear.

Enter the Infrastructure (wifi) Network Name (or SSID) and then click on the drop-down arrow on the field just below and select the method of security. If there is none then click on the join button. If there is security, select that method and then click on the join button. You will be prompted as explained above to enter the password or passphrase.

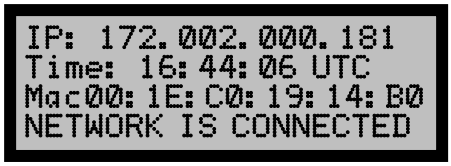
Wireless Network Page 3



Upon entry of the necessary information, you will be presented with the following screen.

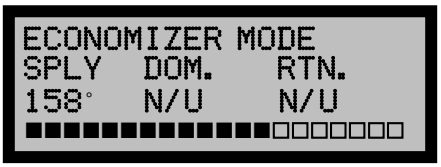


Give the control about 1 minute to join the customer's wireless network. Joining can be confirmed by pressing and holding the Enter pushbutton as before. The following screen will be displayed on the controller's display.

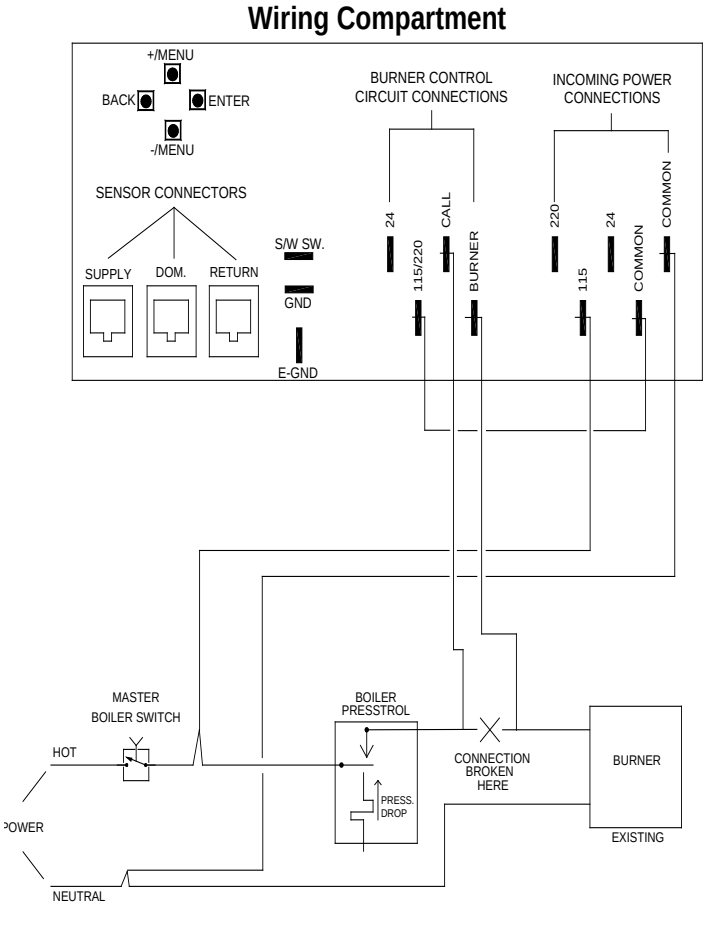


Note that Line 1 displays the IP address assigned to the control by the wifi network. On line 2 the correct UTC time is displayed. Line 3 has not changed, and Line 4 now shows the Network is Connected.

The signal strength of the network connection can be viewed by pressing the '-Menu' button. Line 4 of the display (see below) will show a bar graph representing 0 – 100% signal strength. Each bar represents 5%. 10% - 15% signal strength usually results in dependable communication.

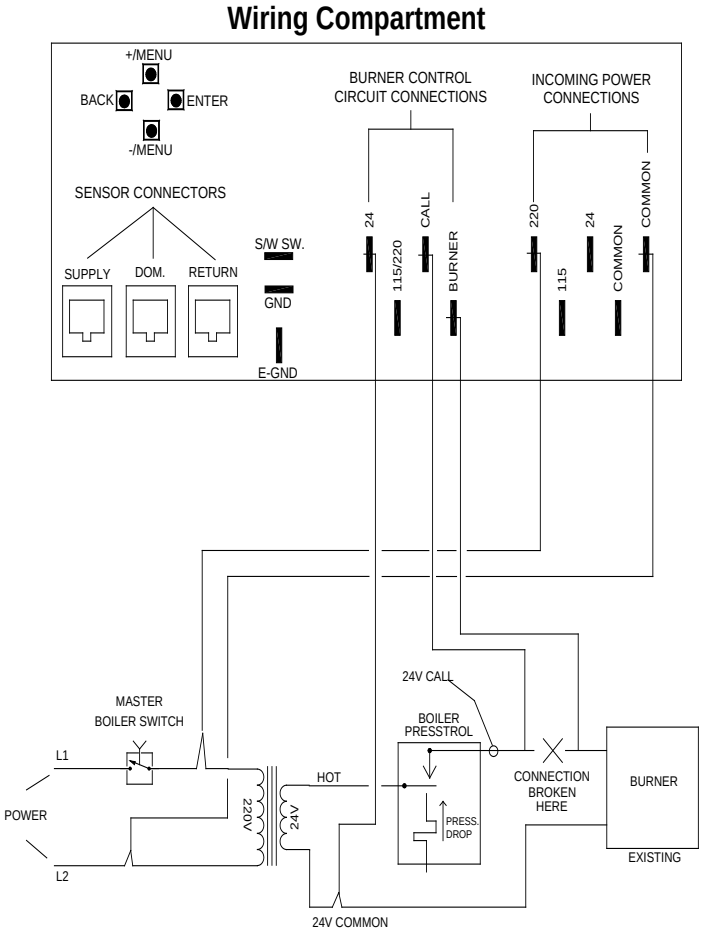


This concludes the necessary configuration and programming. If data is being sent to the cloud server, it should be confirmed that a message was received from the controller. This should happen shortly after the customer's network is joined. Subsequent data downloads, will be at a time determined by the Cloud Server.



TYPICAL 115 POWER & CONTROL -- BOILER BURNER CIRCUIT

Fig. 1A

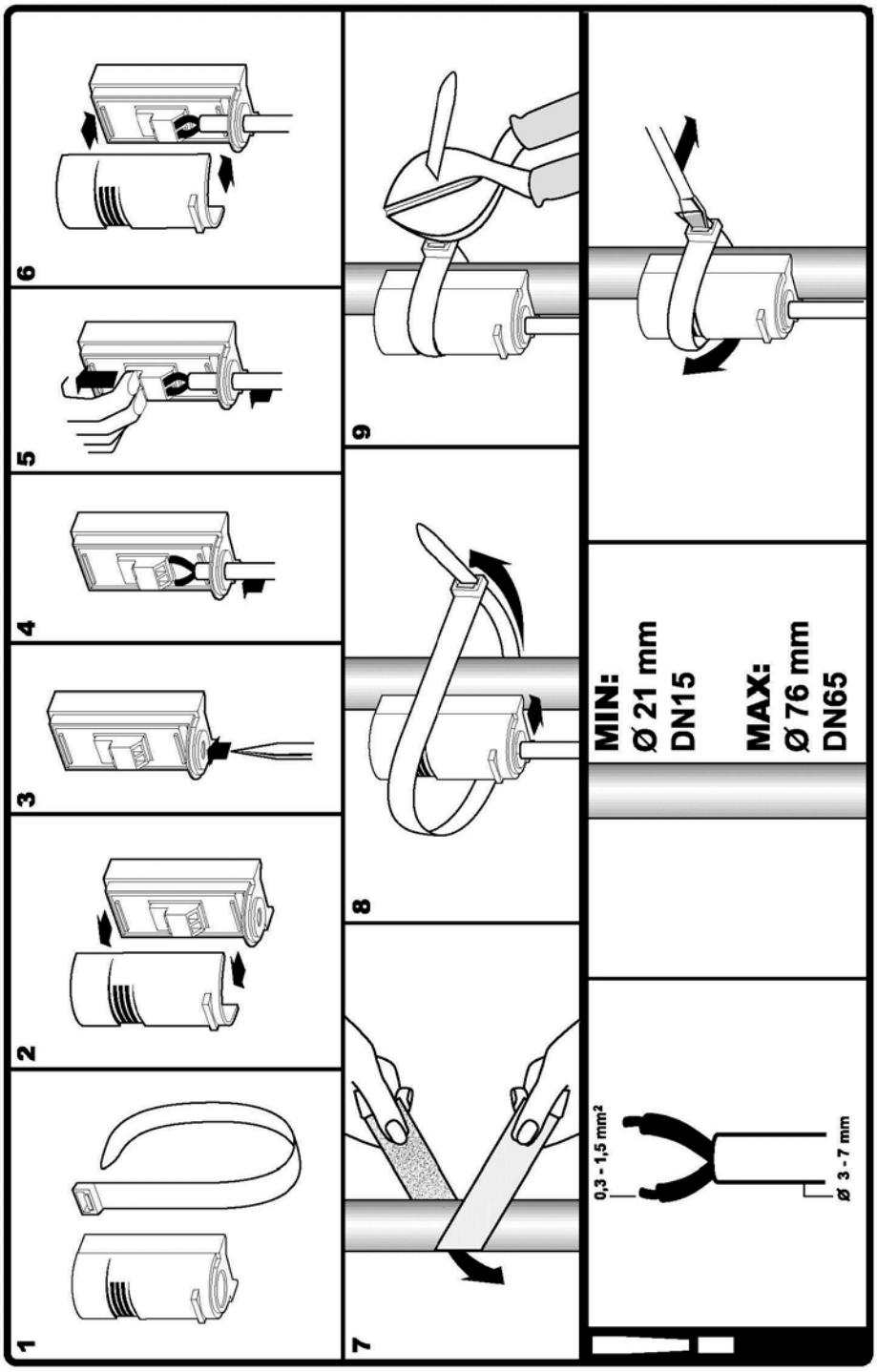


TYPICAL 220V POWER / 24V CONTROL -- BOILER BURNER CIRCUIT

Fig. 1B

<u>WIRING NOTE:</u> The IntelliCon unit has MULTI-VOLTAGE capability and has separate return connections for the Power and Control circuits. It is necessary that these wires are connected to the appropriate returns for the circuit or the unit will not function properly. For convenience, two (2) "Common" connections are provided in the "Power" connection area and are for connection to the control circuit common if it is from the same source as the power (see Fig. 1a). Fully insulated connectors must be used.

IMPROPER VOLTAGE SELECTION WILL DAMAGE THE UNIT and Void the Warranty.



PIPE SENSOR MOUNTING AND WIRING

Fig. 2