

Safety

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Safety

250mV AC maximum on field wiring terminals.

24 VDC maximum on internal card surfaces.

1. Installation

1.1 B:Services

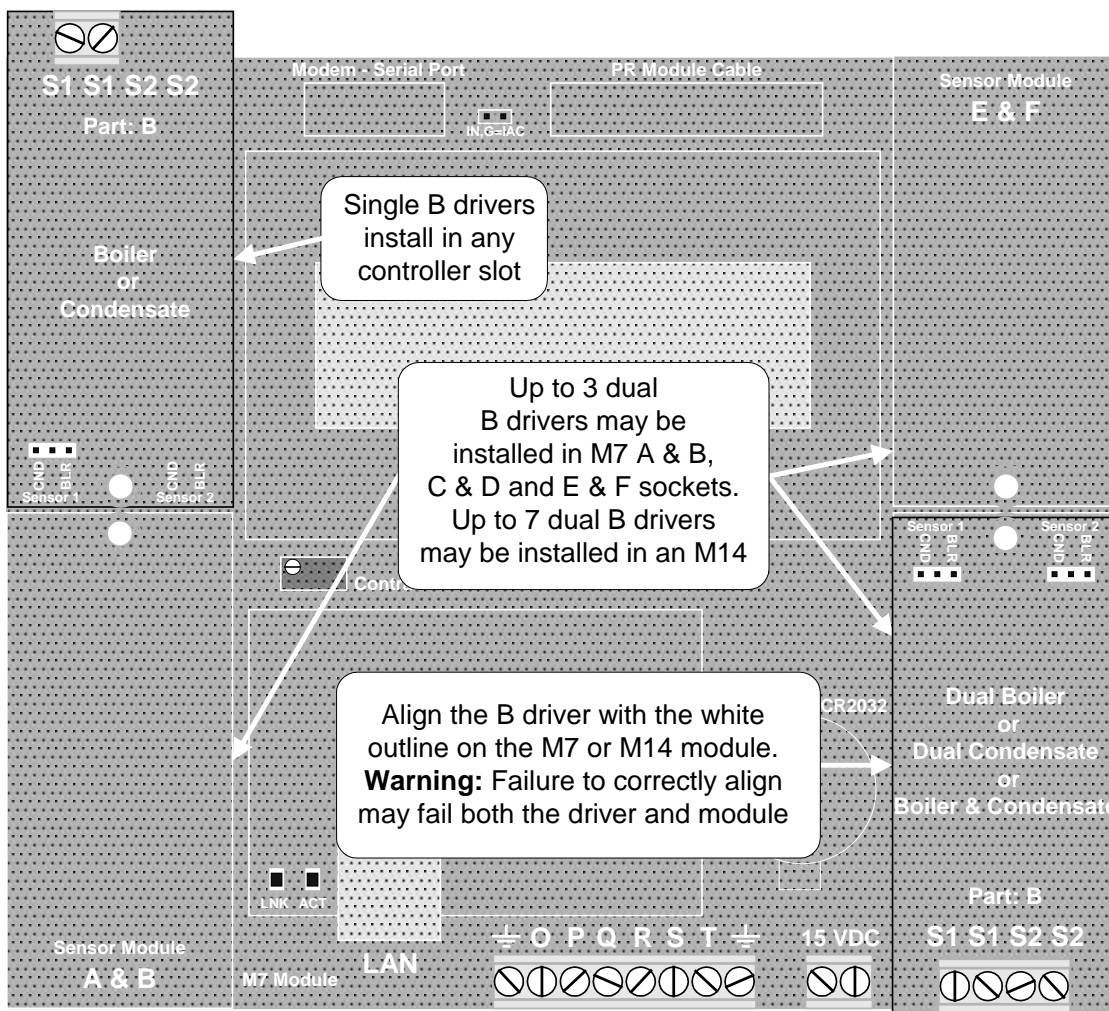
The B driver measures one or two conductivities.

Each sensor drive may be jumper configured for boiler or condensate conductivity measurement.

Up to three dual and one single 'B' drivers may be installed in an M7 controller and up to seven dual 'B' drivers in an M14 controller.

1.2 Driver Card Installation

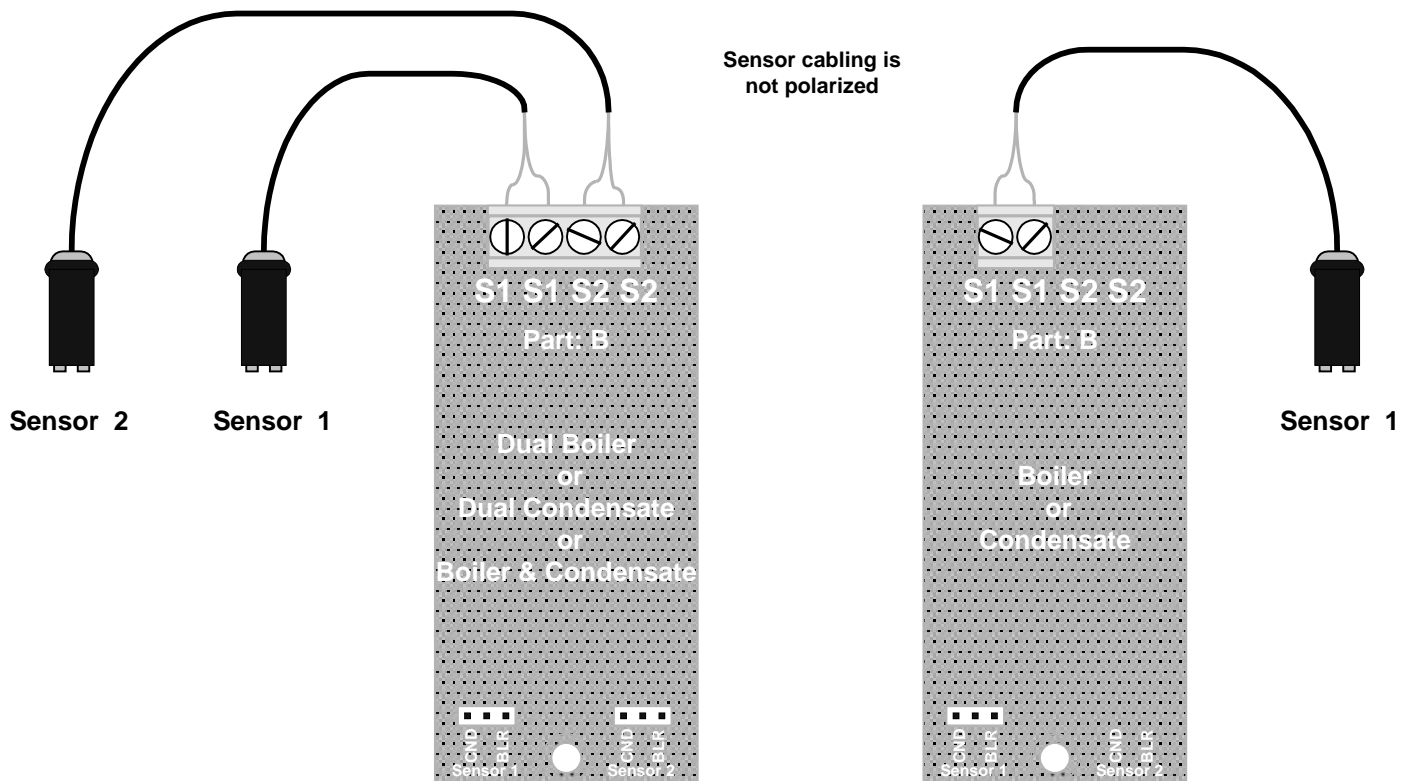
1. Enable both of the analog inputs at the driver socket location.
2. Turn OFF the controller AC power
3. The single and dual B drivers may be installed in any of the seven M14 controller slots and in any of the M7 slots. The M7 'G' slot is limited to single B drivers..
4. Turn ON the controller after installing the B Driver and the controller will auto-configure, displaying one or both conductivities on the LCD display and browser.



1.3 Sensor Types

Aquatrac type A261000 boiler-condensate sensors

1.4 Sensor Wiring



Conductivity sensor cabling may be extended up to 200ft / 60m, using single pair AWG22 / 0.25 mm², cable spliced to the sensor cable using wire nuts or crimped connectors located in an electrical fitting or enclosure.

Do not install sensor cabling in the same conduit as any AC power cabling, particularly cabling used to power steam rated solenoids and/or motorized boiler blowdown valves.

Conductivity sensor cabling may share a common conduit with other conductivity & fail-to-sample sensors, water meter and contact set cabling.

2. Configuration - Operation

2.1 Range Selection

Boiler Blowdown:

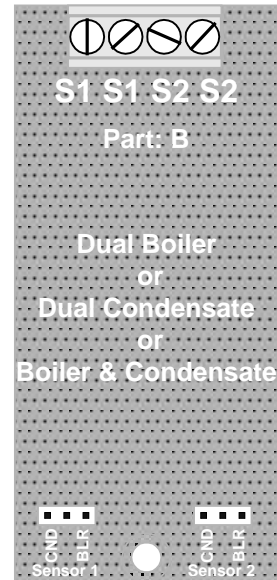
The default range for the B driver is **BLR**. Installing a jumper on the **BLR** pins does not change the default range. Use this range for conductivities from 200uS to 10,000uS.

Condensate – Low Conductivity:

Jumper the **CND** pins for conductivities in the 1 to 200uS range.

Changing Ranges:

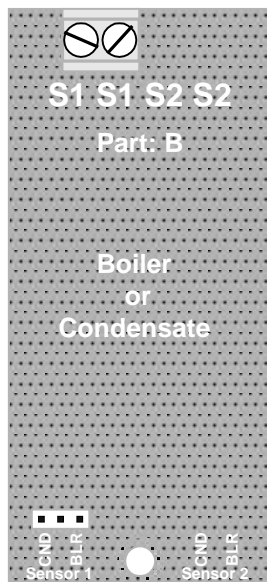
Turn controller OFF before changing ranges
 Controllers check range on power up, loading default Offset and Gain on range change.



Dual Boiler
No Jumpers

Dual Condensate
2 Jumpers

Boiler & Condensate
1 Jumper



Boiler
No Jumper

Condensate
Jumper

2.2Diagnostics

Parameter	LCD Display	Browser	Value : Use
Sensor Location		OK	E: Installation slot. LCD displays slot letter on screen.
Input Card Type	OK	OK	Boiler Conductivity: verifies driver card type
Current State	OK	OK	Operational / Alarmed:
Displayed Value	OK	OK	3148 uS: Current measured conductivity, displays user set units, 'uS' default. Displayed with user set resolution Note: If the sensor is used for Captured Sample control of a blowdown valve, this value and all log values update at the end of the Measure period.
Period Maximum		OK	3214 uS: Data from current log interval. Used to assess controls.
Period Minimum		OK	3091 uS:
Period Average		OK	3162 uS:
Sample Size		OK	231: Samples in Period Max. Min. & Average
Current Period		OK	19 minutes: Elapsed time in current log period
Log Period		OK	60 minutes: User set log period 5 to 1440 minutes
Compensation	OK	OK	None:
Measured Level	OK	OK	1062.3 mV: Raw sensor level in mV, before Gain & Offset after ID Level correction. Displayed in real time for sensors used for Captured Sample controls.
Gain Multiplier	OK	OK	2.142: Calibration adjusts Gain. Displayed Value = Measured Level x Gain Multiplier + Offset Adjust
Default Gain	OK	OK	2.0000: Factory default Gain. Gain selected by Input Card ID
Offset Adjust	OK	OK	0.0000: Offset. May be user adjusted.
Default Offset	OK	OK	-15.0000: Factory default Offset. Offset selected by Input Card ID
Input Card ID	OK	OK	51 mV: Drive level at BLR , boiler range. Design level = 50mV. 206 mV: Drive level at CND , condensate range. Design level = 208mV.

Range	Default Gain	Calibration Gain Span	Default Offset
BLR	2.0	10 to 0.5	-15
CND	8.0	12 to 3	-90

Calibration: A calculated gain outside of the Calibration Gain Span requires a user selected Override to complete calibration. The wide span allows for the range of temperatures at the sensor.

Driver Verification Test:

Connect 1K ohm resistor to 'S1' & 'S1' or 'S2' & 'S2'.

BLR Range, Measured Level = 129mV +/-5mV. **CND** Range, Measured Level = 520mV +/-10mV

3. Specifications

Range / Function		Drive
BLR Boiler 100 – 10,000uS	Resolution: 1uS Accuracy: +/-25uS	50mV AC
CND Condensate 1 - 200uS	Resolution: 1uS Accuracy: +/-2uS	208mV AC

Notes:

1. Accuracy stated after sensor calibration.
2. Exclude errors due to extending sensor cabling.