iControl Remote Installation Manual V2

ICRIM-EN-April 2020

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HOW TO INSTALL ICONTROL REMOTE V2 TOWER BOX

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iControl Remote is a solution that monitors and controls the operation of the center pivot and which consists of the following components:

Components	Location	Operation
ICR2	PIVOT (last tower)	Electronic device that monitors and controls individual Center Pivot. It is installed inside the last tower box.
ICONTROL CLOUD	CLOUD	Cloud application which displays the pivot status on a web interface and enables it to be acted upon.
GATEWAY	FIELD (near the center pivots)	This is only necessary for the ICR2-Wireless controller. Electronic device acting as gateway between the different controllers (ICR2-W) lying within its range and the server iCONTROL REMOTE CLOUD.

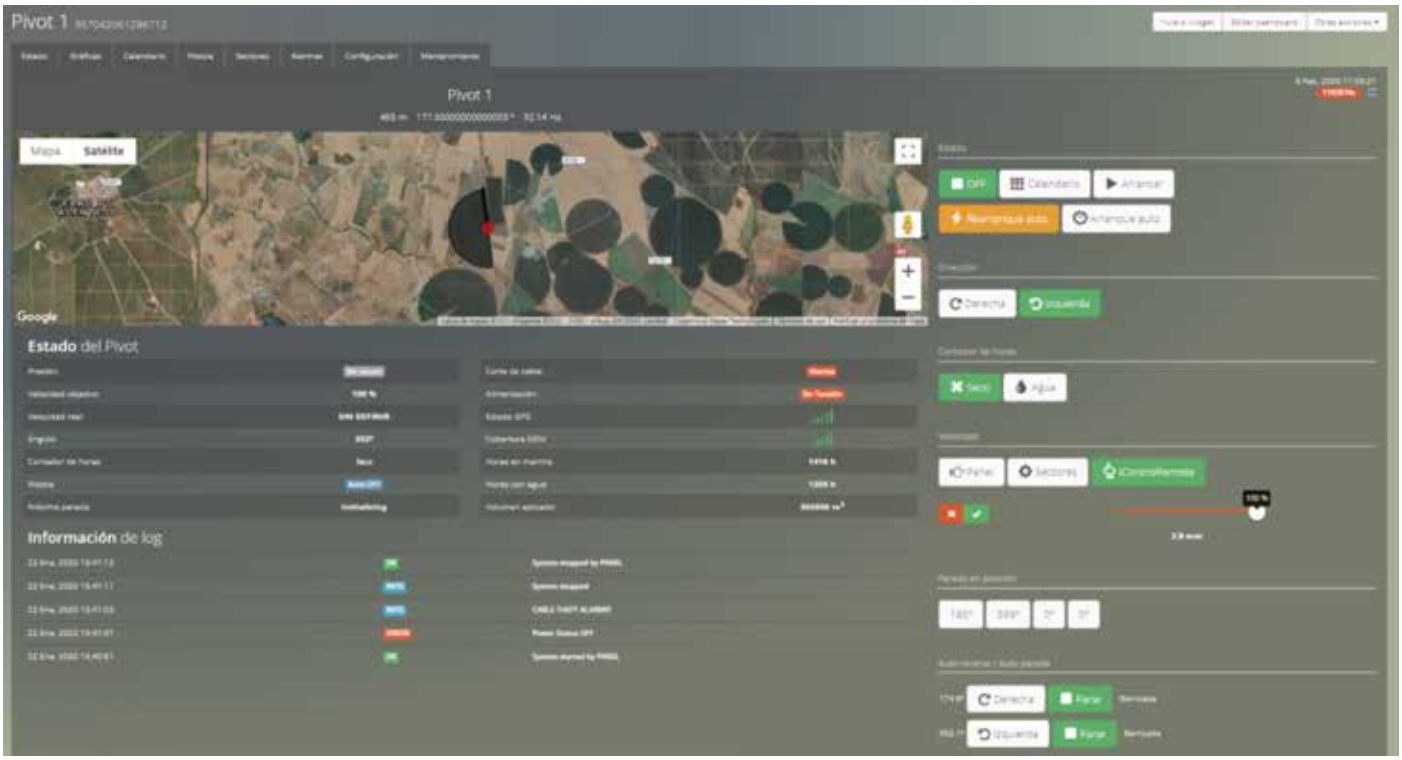
The iControl Remote v2 controller family bundles together different types of communications within a common electronic device. This manual is applicable to all iControl Remote v2 controllers.
The different existing models are summarized in the following table:

Family	Communications	Pivot panel type	Model	Reference Number
iControl Remote 2 (ICR2)	Wireless 868 MHz	Basic AutoReverse	ICR2-W868BAR	90017-WL8B
		Standard AutoReverse	ICR2-W868SAR	90017-WL8S
	Wireless 900 MHz	Basic AutoReverse	ICR2-W900BAR	90017-WL9B
		Standard AutoReverse	ICR2-W900SAR	90017-WL9S
	3G	Basic AutoReverse	ICR2-3GBAR	90017-3G-B
		Standard AutoReverse	ICR2-3GSAR	90017-3G-S
	4G	Basic AutoReverse	ICR2-4GBAR	90017-4G-B
		Standard AutoReverse	ICR2-4GSAR	90017-4G-S
Gateway	Wireless 868 MHz		AC Power Supply	ICRGWAY8
			Solar Power Supply	ICRGWAY8S
	Wireless 900 MHz		AC Power Supply	ICRGWAY9
			Solar Power Supply	ICRGWAY9S

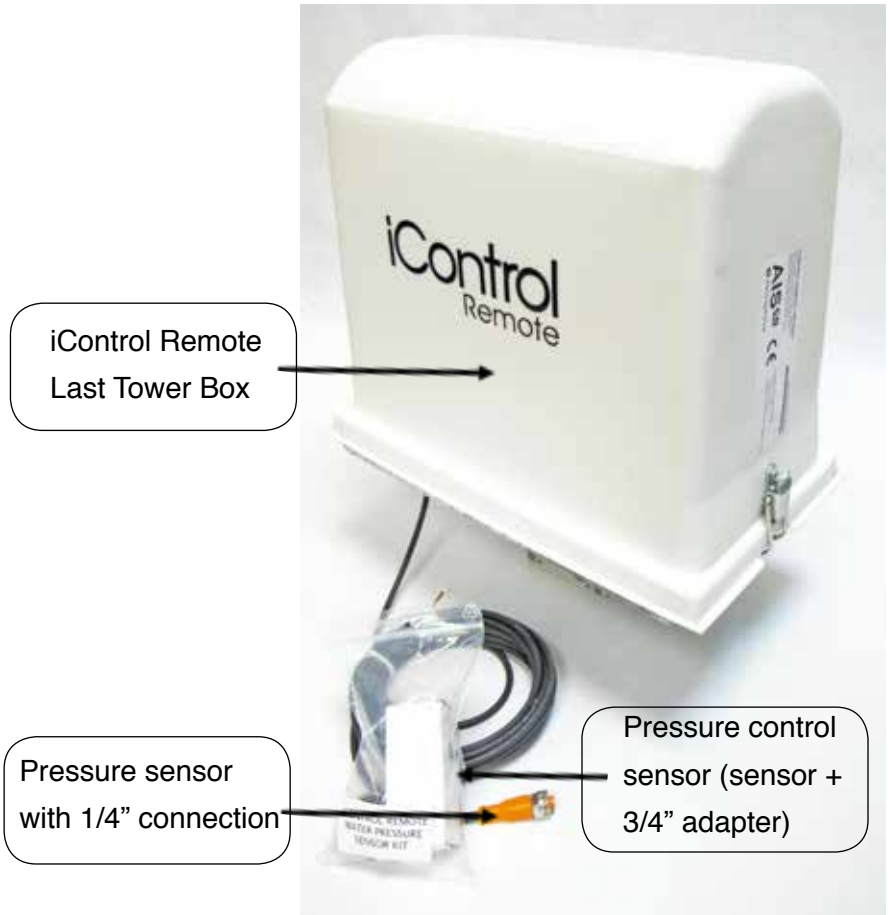
ICR2 CONTROLLER (all versions)

GATEWAY (only for ICR2-Wireless versions)

iCONTROL REMOTE CLOUD SERVICE



iCONTROL REMOTE TOWER BOX



There are two different types of iControl Remote controllers, depending on the pivot panel type. Before installing iControl Remote, it is important to identify the main panel installed in the center of the pivot and ensure that the controller selected is compatible with it.

- **PIVOT PANEL: BASIC AUTOREVERSE.**

  Controllers compatible: All BAR (Basic AutoReverse) models

  Reference numbers: 90017-WL8B, 90017-WL9B, 90017-3G-B, 90017-4G-B.

  The controller is prewired and programmed to change direction using a neutral pulse on the yellow/red wire.

- **PIVOT PANEL: STANDARD AUTOREVERSE.**

  Controllers compatible: Controllers compatible: All SAR (Standard AutoReverse) models

  90017-WL8BS 90017-WL9S, 90017-3G-S, 90017-4G-S.

  The controller is prewired and programmed to change direction using a 110V pulse on the direction wires (brown for forward and orange for reverse).

If an ICR2 is installed on an old system or one from another manufacturer, make sure the controller is compatible with the main pivot panel as stated in the following instructions:

For all iControl Remote Basic Autoreverse:

- Check whether the machine starts with a 110V pulse (3 seconds) on the return safety wire (yellow wire).
- Check whether the machine stops and remains stopped 5 seconds after opening the return safety circuit (disconnecting the yellow wire for 5 sec.).
- Check whether the machine changes direction with a neutral pulse on the autoreverse wire (yellow/red).
- Check that the neutral and earth wires are connected together inside the main panel.

For all iControl Remote Standard Autoreverse:

- Check whether the machine starts with a 110V pulse (3 seconds) on the direction wires (brown wire for forward and orange wire for reverse).
- Check whether the machine changes direction with a 110V pulse (3 seconds) on the direction wires (brown wire for forward and orange wire for reverse).
- Check whether the machine stops and remains stopped 5 seconds after opening the return safety circuit (disconnecting the yellow wire for 5 sec.).
- Check that the neutral and earth wires are connected together inside the main panel.

Note: The main panel of the pivot must be equipped with the autoreverse relays and it must be configured in autoreverse mode to be able to change direction.

Note: In machines from other manufacturers, the colour scheme might be different. It might also be necessary to install additional electronic components for the controller to be able to execute the start, stop and change direction functions properly.

After checking this functionality, you can install the iControl Remote. Should they not work properly, contact our technical service for assistance.

1. Disconnect the pivot power supply

2. Install the Last Tower Box with iControl Remote just as would be done with a standard last tower box, with the only differences being those now described (see the electrical diagrams provided)

   - **For pivots with the Basic Autoreverse panel type:**

   Connect the **PINK** wire of the span cable to Terminal 4 at the terminal block of the Last Tower Box. In step 7, the iControl Remote will be fed at 110V using the connection of the PINK wire to terminal T7 in the main panel.

   - **For pivots with the Standard Autoreverse panel type:**

   a) Connect the **YELLOW/RED** wire of the span cable to Terminal 4 in the terminal block of the Last Tower Box. In step 7, the iControl Remote will be fed at 110V using the connection of the YELLOW/RED wire to terminal T23 in the main panel.

   b) Connect the **PINK** wire of the span cable to Terminal 12 in the terminal block of the Last Tower Box for the iControl Remote to be able to control a pump/valve. In step 7, the PINK wire will be connected to Terminal T24 of the main panel.

   Note: For all the iControl Remote controllers of SAR (Standard AutoReverse) type, it is possible to control the End gun from the Pivot Panel using the pink line, but in this case the pump/valve control functionality will be lost. To be able to control the gun / Cannon from the pivot panel, the pink wire must be connected to Terminal no. 9 (instead of no. 12) in the terminal block of the Last Tower Box. In step 7, the pink line will be connected to Terminal T3 (instead of Terminal T24) in the main panel.

   - For iControl Remote to be able to control the **End Gun Solenoid**, this must be connected to Terminal 11 in the Last Tower Box.
   - Connect the light in the last tower to **A1** at the motor contactor

3. Install the water pressure sensor kit and connect it to the M12 connector of iControl Remote.
   Note: The sensor must be installed vertically above the span pipe to prevent freezing of water inside it during winter. Make sure the drains and in particular the last tower drain are open before the first frost hits.

4. (Optional) The iControl Remote controller can control a second End Gun or a fertigation pump. The installation requires opening the iControl Remote v2 cover and connecting a wire to the OUT20 output to feed at 110V the solenoid of the second End Gun or the fertigation equipment contactor. See the electrical diagram for more information.

   Note 1: It is recommended to check that there is a jumper between the OUT16 and OUT19 terminals of the ICR2.
   Note 2: In the case of fertigation control, it will be necessary to install an additional cable over the spans from the ICR2 to the main panel, passing through a free collector ring.

5. (Optional) The iControl Remote controller can read the temperature of a temperature probe which is supplied as an option. To do so, the iControl Remote 2 cover must be opened, and the lines of the temperature probe must be connected to the IN10 and IN11 inputs of the iControl Remote v2 controller.

6. Set the switch of the Last Tower Box to the ON position.

7. To provide a constant power supply to the iControl Remote controller, it is necessary to make some small changes in the main panel of the pivot.

- **For pivots with BASIC A/R panel:** The **PINK** wire should be connected to Terminal T7 instead of Terminal T3. From this moment, iControl Remote will have a supply voltage of 110 VAC.
- **For pivots with STANDARD A/R panel:**

a) The **YELLOW/RED** wire must be connected to Terminal T23. From this moment, iControl Remote will have a supply voltage of 110 VAC.

b) The **PINK** wire must be connected to Terminal T24 to enable the iControl Remote to control a pump/ valve, as indicated in step 2.

8. Connect the pivot energy supply.

9. Access the web address **https://icontrolremote.com .** You will be asked to enter a user name and password: use the last six digits of the iControl Remote serial number. For example, for the serial number 357042061393945, the default user name is: 393945 and the password is: 393945.

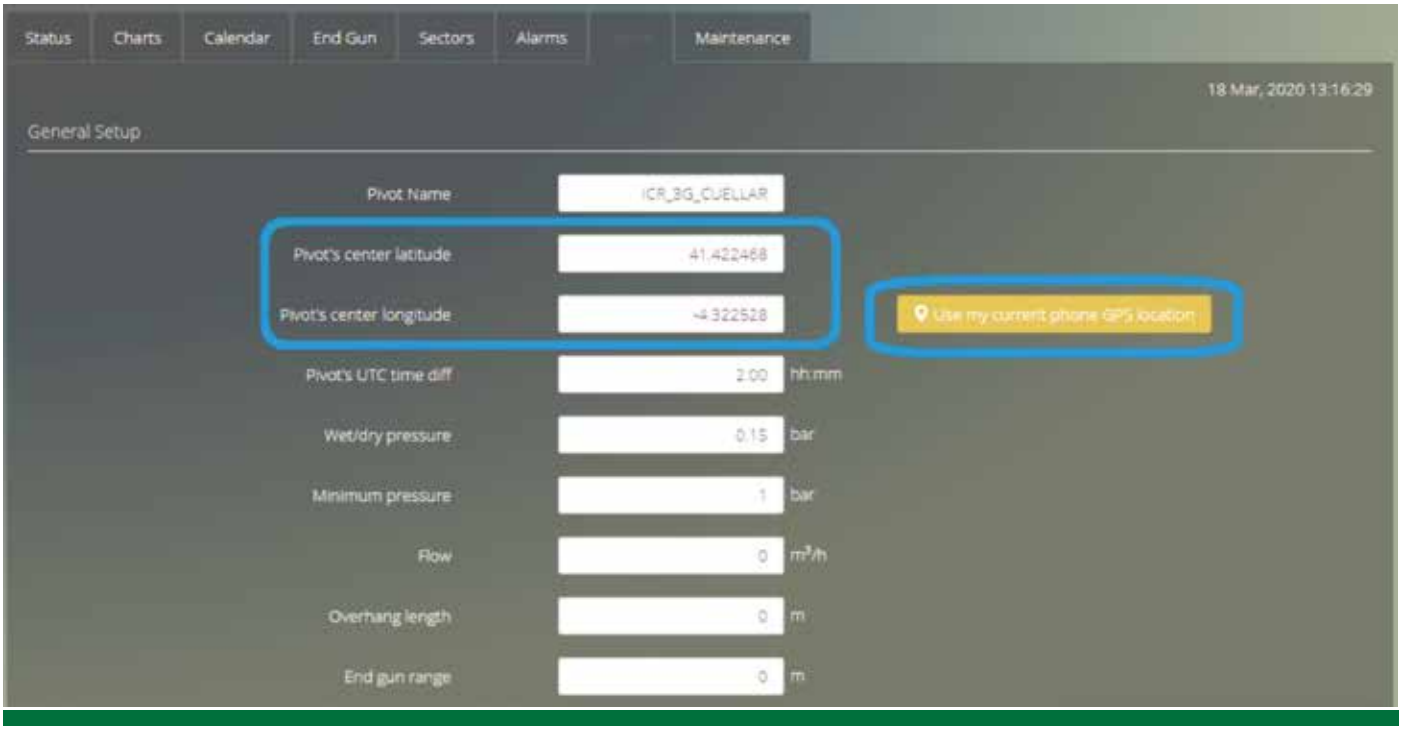
   Note: This login is provisional for the installer, and it will be canceled once the controller is assigned to its owner in the administration platform (iCAP). It is very important that once the installation is com plete, the equipment should be assigned to its owner in iCAP.

10. An interface similar to that shown on previous pages will appear, which includes a widget for the iCon trol Remote device that has just been installed.

11. **Congratulations!** You can now configure this pivot from its control panel and access the iControl Remote Cloud service remotely **https://icontrolremote.com.**

12. In the first place, the correct coordinates of the pivot point must be established. This can be done in the Setup tab by entering the coordinates directly, or else you can obtain them if using a mobile device by clicking the Use the GPS location button in your telephone.

13. For further information read the iControl Remote manual or contact the local assistance service. For security reasons, assigning an owner in iCAP is required as soon as possible to disable the 6-digit installer username.



If you have problems with the remote control of your pivot, there are certain points you can check before contacting your local support.

ALL MODELS

Does iControl Remote have a power supply? Recall that you need to make some changes in the wiring within the panel for electrical power to reach iControl Remote. You can check whether the equipment has a power supply by looking at the power supply status LED.

- GREEN: supply present
- OFF: no supply.

Is the software of your mobile, tablet or PC up to date? Very old versions could cause problems when accessing the iControl Remote cloud service.

WIRELESS MODELS: 90017-WL8B, 90017-WL8S, 90017-WL9B, 90017-WL9S

Is there radio coverage throughout the sweep area of the last tower box? Radio coverage in the entire area covered by iControl Remote 2 Wireless is necessary to be able to link the controller to the Gateway. **It is very important that there should exist a direct line of sight between the iControl Remote and the Gateway.**

Note: Exceptionally, an iControl Remote which does not have a direct line of sight with the Gateway can be installed, although using a second iControl Remote that does have a direct line of sight with the Gateway. This type of installation can cause slight delays in communications.

¿Can iControl Remote v2 communicate with the cloud service? To check this, you must open the cover of the tower box (it is not necessary to open the controller lid), and you will see a green LED at the bottom of the controller (close to the cable outlet).

- Steady: The radio is not linked to any node.
- Flashing (0.5s). The radio is linked to a node.

Can the Gateway communicate with the server? Review the Gateway installation manual.

3G/4G MODELS: 90017-3G-B, 90017-3G-S, 90017-4G-B, 90017-4G-S

Is there 3G/4G coverage throughout the sweep area of the last tower box? 3G/4G coverage in the entire area covered by iControl Remote is necessary to be able to link to the server at all times.

¿Does iControl Remote have communication with the cloud service? To check this, you must open the cover of the tower box (it is not necessary to open the controller lid), and you will see a green LED at the bottom of the controller (close to the cable outlet).

- Steady: There is no connection with the server.
- Flashing (0.5s). There is a connection with the server.

Are you still having problems? Open the controller lid carefully and check the status of the main indicators just as they are described below. It is important that the electronics should not get damp.
You can press the reset button and wait a few minutes to see whether the equipment successfully connects with the server. Take a photo and send it to your local assistance team, stating the serial number of the unit and describing all the details you consider of interest. Make sure to mention the behavior of the communications status LED (if it is flashing and how).

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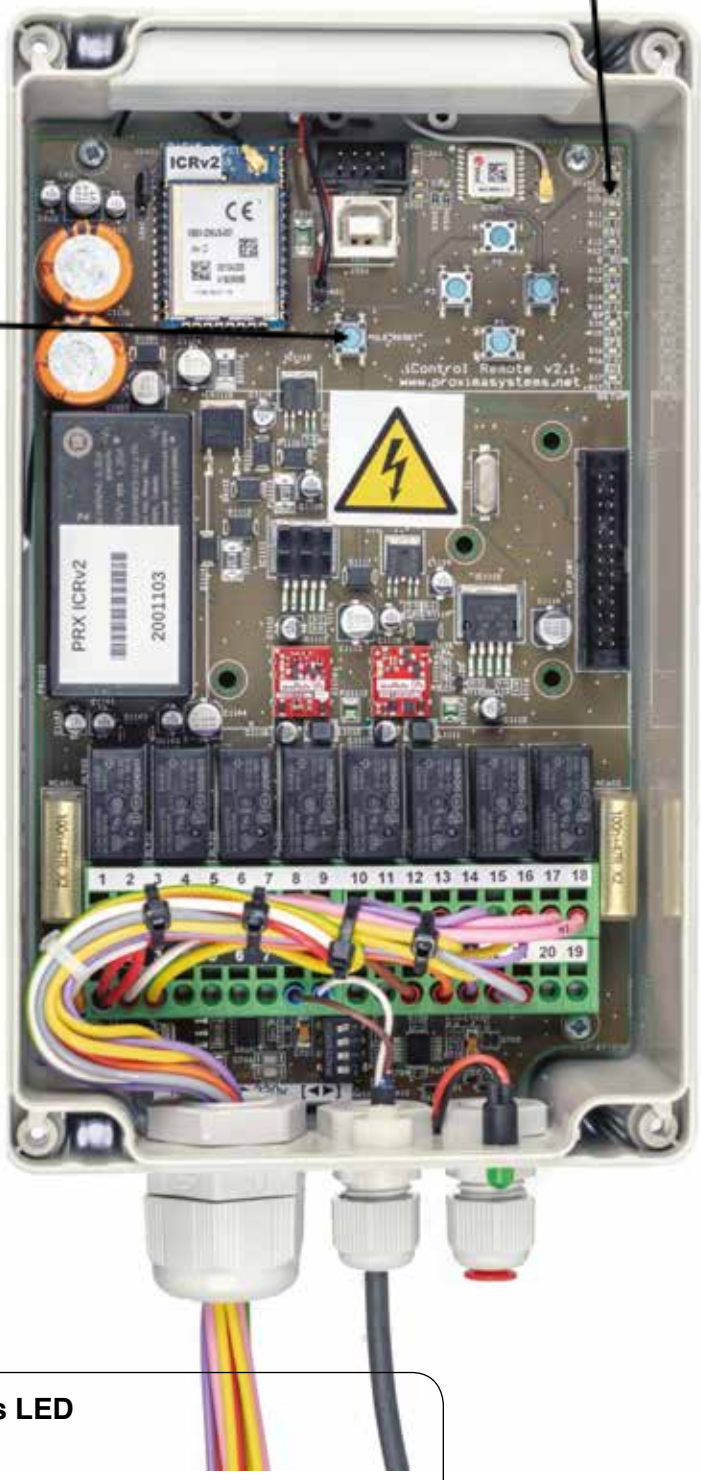
iControl Remote v2

POWER supply status LED
- GREEN: supply present
- OFF: no supply.

Reset button



Communications status LED

ICR2-Wireless
- Steady: The radio is not linked to any node.
- Flashing (0.5s). The radio is linked to a node.

ICR2-3G/4G
- Steady: There is no connection with the server.
- Flashing (0.5s): There is a connection with the server.

STANDARD AUTOREVERSE (90017-WL8BS, 90017-WL9S, 90017-3G-S, 90017-4G-S)

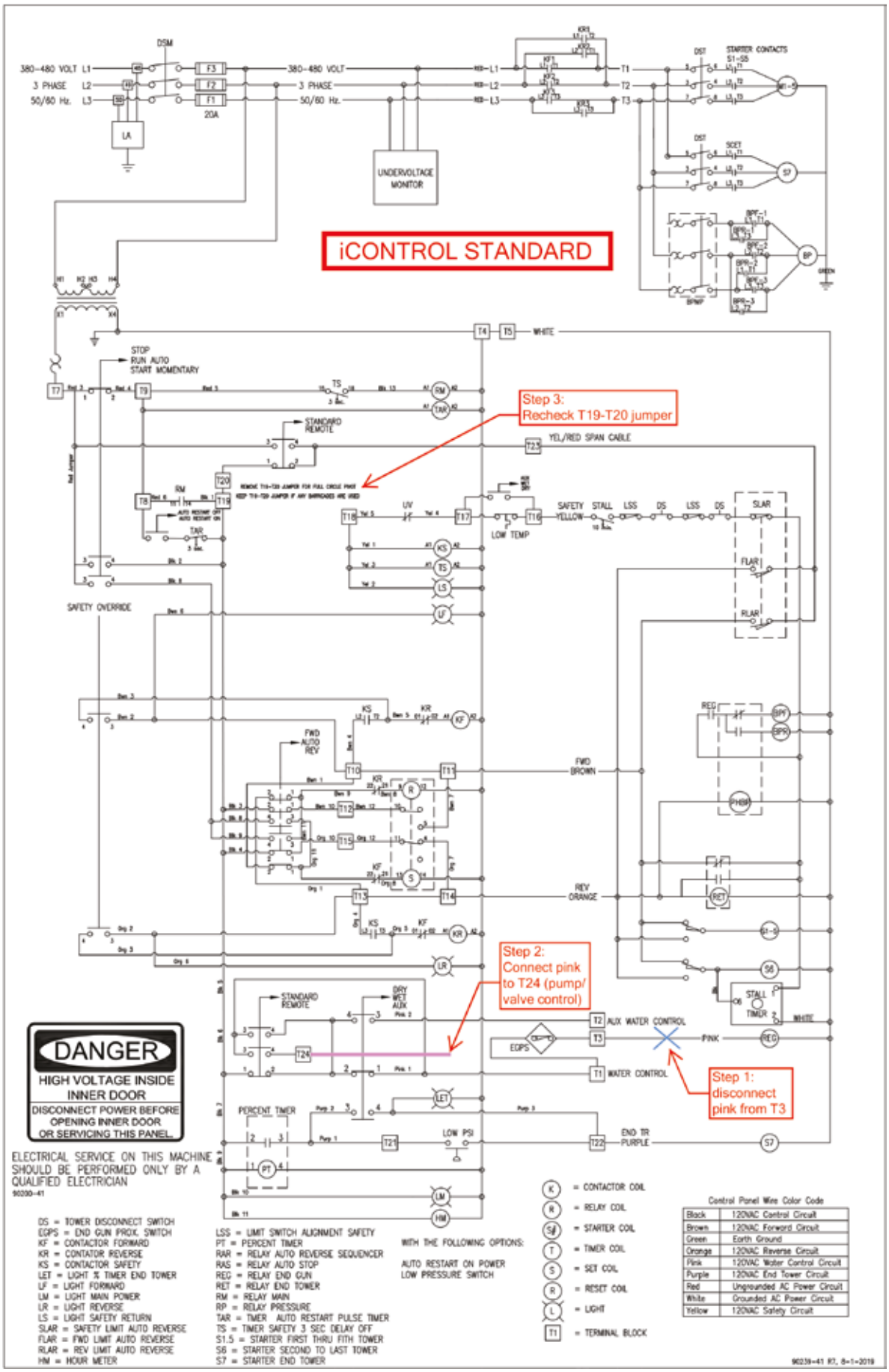
- Wiring of iControl Remote v2 to a Standard AR panel
  Changes to be made in the Standard AR panel to be able to feed the iControl Remote v2
- iControl Remote v2 to End Tower Connections: STANDARD AUTOREVERSE wiring

Note: These diagrams are applicable to the Standard Autoreverse panel of Western and Pierce.

BASIC AUTOREVERSE (90017-WL8B, 90017-WL9B, 90017-3G-B, 90017-4G-B)

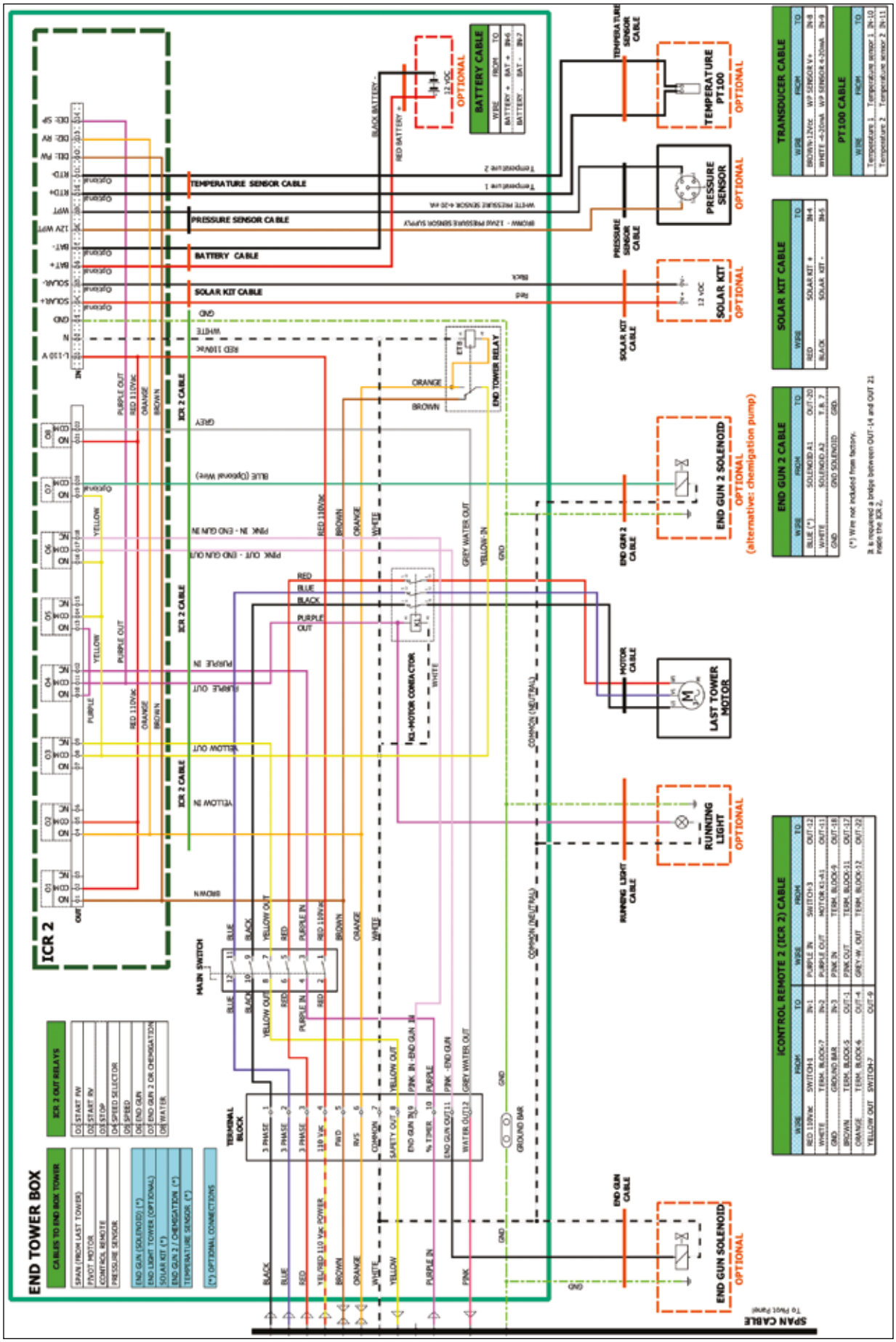
- Wiring of iControl Remote v2 to a Basic AR panel Changes to be made in the Basic AR panel to be able to feed the iControl Remote v2.
- iControl Remote v2 to End Tower Connections: BASIC AUTOREVERSE box wiring

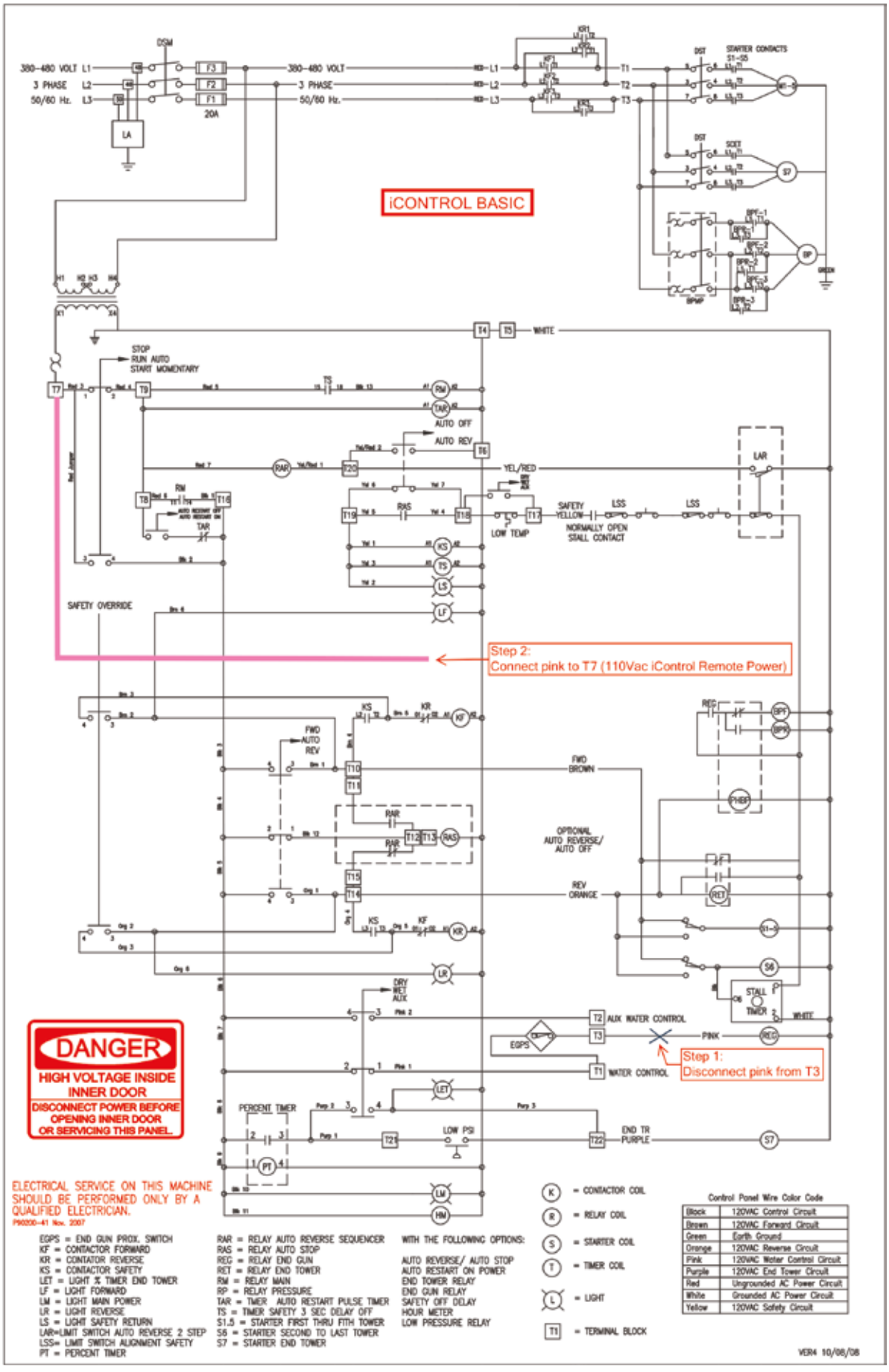
Note: These diagrams are applicable to the Basic Autoreverse panel of Western and Pierce.


iCONTROL STANDARD
Step 3:
Recheck T19-T20 jumper
Step 2:
Connect pink
to T24 (pump/
valve control)
Step 1:
disconnect
pink from T3
DANGER
HIGH VOLTAGE INSIDE
INNER DOOR
DISCONNECT POWER BEFORE
OPENING INNER DOOR
OR SERVICING THIS PANEL.
ELECTRICAL SERVICE ON THIS MACHINE
SHOULD BE PERFORMED ONLY BY A
QUALIFIED ELECTRICIAN
380-480 VOLT L1
3 PHASE L2
50/60 Hz. L3
UNDERVOLTAGE MONITOR
STARTER CONTACTS
STOP
RUN AUTO
START MOMENTARY
STANDARD REMOTE
YEL/RED SPAN CABLE
SAFETY OVERRIDE
LOW TEMP
FWD BROWN
REV ORANGE
AUX WATER CONTROL
WATER CONTROL
PINK
END TR PURPLE
PERCENT TIMER
LOW PSI
STALL TIMER
WHITE
DS = TOWER DISCONNECT SWITCH
EGPS = END GUN PROX. SWITCH
KF = CONTACTOR FORWARD
KR = CONTATOR REVERSE
KS = CONTACTOR SAFETY
LET = LIGHT % TIMER END TOWER
LF = LIGHT FORWARD
LM = LIGHT MAIN POWER
LR = LIGHT REVERSE
LS = LIGHT SAFETY RETURN
SLAR = SAFETY LIMIT AUTO REVERSE
FLAR = FWD LIMIT AUTO REVERSE
RLAR = REV LIMIT AUTO REVERSE
HM = HOUR METER
LSS = LIMIT SWITCH ALIGNMENT SAFETY
PT = PERCENT TIMER
RAR = RELAY AUTO REVERSE SEQUENCER
RAS = RELAY AUTO STOP
REG = RELAY END GUN
RET = RELAY END TOWER
RM = RELAY MAIN
RP = RELAY PRESSURE
TAR = TIMER AUTO RESTART PULSE TIMER
TS = TIMER SAFETY 3 SEC DELAY OFF
S1-5 = STARTER FIRST THRU FITH TOWER
S6 = STARTER SECOND TO LAST TOWER
S7 = STARTER END TOWER
WITH THE FOLLOWING OPTIONS:
AUTO RESTART ON POWER
LOW PRESSURE SWITCH
K = CONTACTOR COIL
R = RELAY COIL
S = STARTER COIL
T = TIMER COIL
S = SET COIL
R = RESET COIL
L = LIGHT
T1 = TERMINAL BLOCK
Control Panel Wire Color Code
Black 120VAC Control Circuit
Brown 120VAC Forward Circuit
Green Earth Ground
Orange 120VAC Reverse Circuit
Pink 120VAC Water Control Circuit
Purple 120VAC End Tower Circuit
Red Ungrounded AC Power Circuit
White Grounded AC Power Circuit
Yellow 120VAC Safety Circuit

Electric Schematics

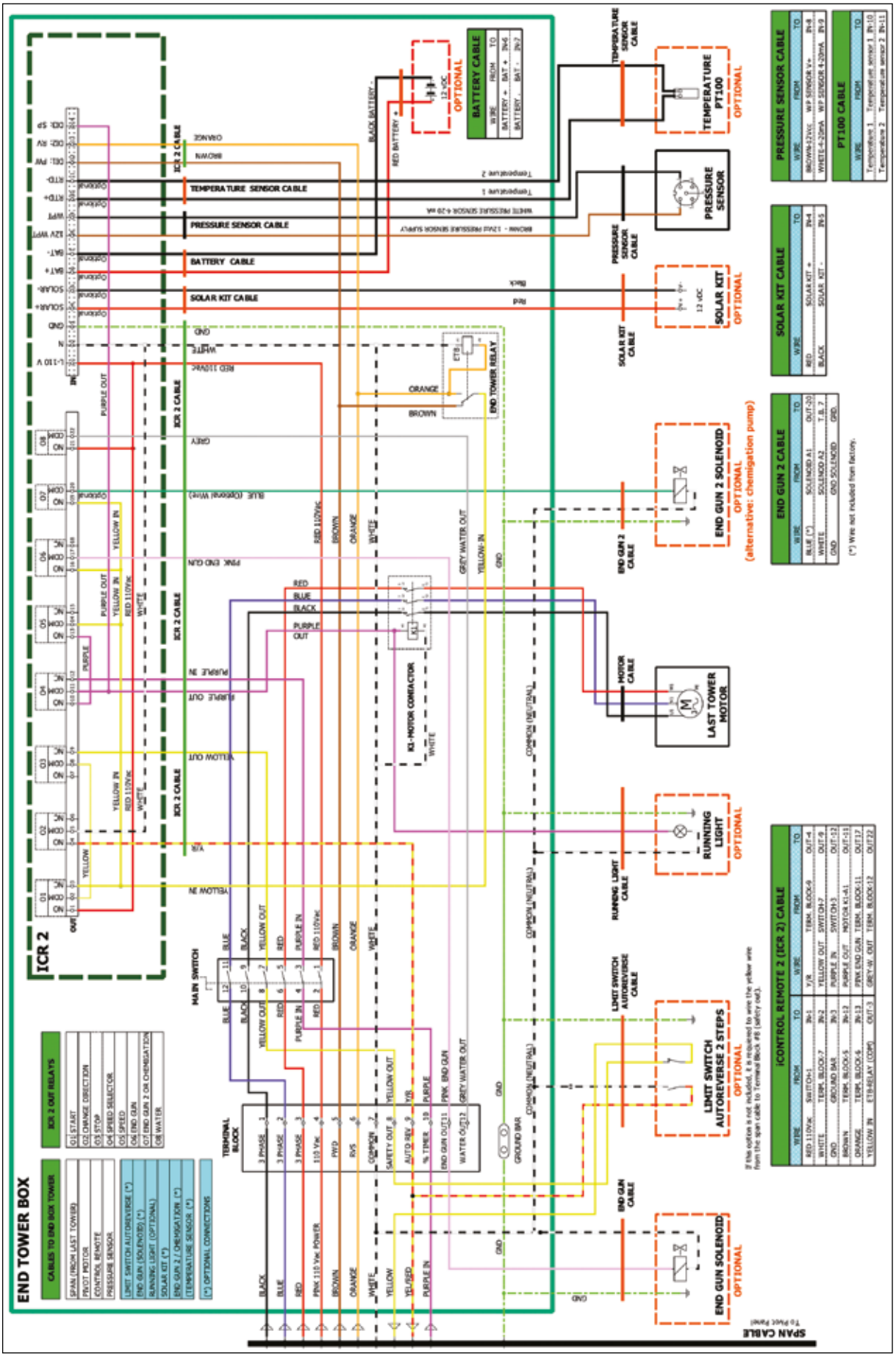
iControlRemote V2 StandardAR Wiring




iCONTROL BASIC
380-480 VOLT L1
3 PHASE L2
50/60 Hz. L3
20A
STARTER CONTACTS
STOP
RUN AUTO
START MOMENTARY
AUTO OFF
AUTO REV
YEL/RED
LOW TEMP
SAFETY
YELLOW
NORMALLY OPEN
STALL CONTACT
LSS
LAR
SAFETY OVERRIDE
Step 2:
Connect pink to T7 (110Vac iControl Remote Power)
FWD
BROWN
OPTIONAL
AUTO REVERSE/
AUTO OFF
REV
ORANGE
DRY
WET
AUX
AUX WATER CONTROL
WHITE
PINK
WATER CONTROL
Step 1:
Disconnect pink from T3
EGPS
PERCENT TIMER
LOW PSI
END TR
PURPLE
DANGER
HIGH VOLTAGE INSIDE
INNER DOOR
DISCONNECT POWER BEFORE
OPENING INNER DOOR
OR SERVICING THIS PANEL.
ELECTRICAL SERVICE ON THIS MACHINE
SHOULD BE PERFORMED ONLY BY A
QUALIFIED ELECTRICIAN.
EGPS = END GUN PROX. SWITCH
KF = CONTACTOR FORWARD
KR = CONTATOR REVERSE
KS = CONTACTOR SAFETY
LET = LIGHT % TIMER END TOWER
LF = LIGHT FORWARD
LM = LIGHT MAIN POWER
LR = LIGHT REVERSE
LS = LIGHT SAFETY RETURN
LAR=LIMIT SWITCH AUTO REVERSE 2 STEP
LSS= LIMIT SWITCH ALIGNMENT SAFETY
PT = PERCENT TIMER
RAR = RELAY AUTO REVERSE SEQUENCER
RAS = RELAY AUTO STOP
REG = RELAY END GUN
RET = RELAY END TOWER
RM = RELAY MAIN
RP = RELAY PRESSURE
TAR = TIMER AUTO RESTART PULSE TIMER
TS = TIMER SAFETY 3 SEC DELAY OFF
S1..5 = STARTER FIRST THRU FITH TOWER
S6 = STARTER SECOND TO LAST TOWER
S7 = STARTER END TOWER
WITH THE FOLLOWING OPTIONS:
AUTO REVERSE/ AUTO STOP
AUTO RESTART ON POWER
END TOWER RELAY
END GUN RELAY
SAFETY OFF DELAY
HOUR METER
LOW PRESSURE RELAY
= CONTACTOR COIL
= RELAY COIL
= STARTER COIL
= TIMER COIL
= LIGHT
= TERMINAL BLOCK
Control Panel Wire Color Code
Black 120VAC Control Circuit
Brown 120VAC Forward Circuit
Green Earth Ground
Orange 120VAC Reverse Circuit
Pink 120VAC Water Control Circuit
Purple 120VAC End Tower Circuit
Red Ungrounded AC Power Circuit
White Grounded AC Power Circuit
Yellow 120VAC Safety Circuit
VER4 10/08/08

Electric Schematics

iControlRemote V2 BasicAR Wiring



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Remote

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