



**Innovation In and  
Out of Parlour**

## **CR10 Milking Point Control Manual**

**Version - 1.0**

**Date - March 2017**



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## Manual Versions

Version 1.0 - March 2017.....First Version of Manual (Software v3.18)

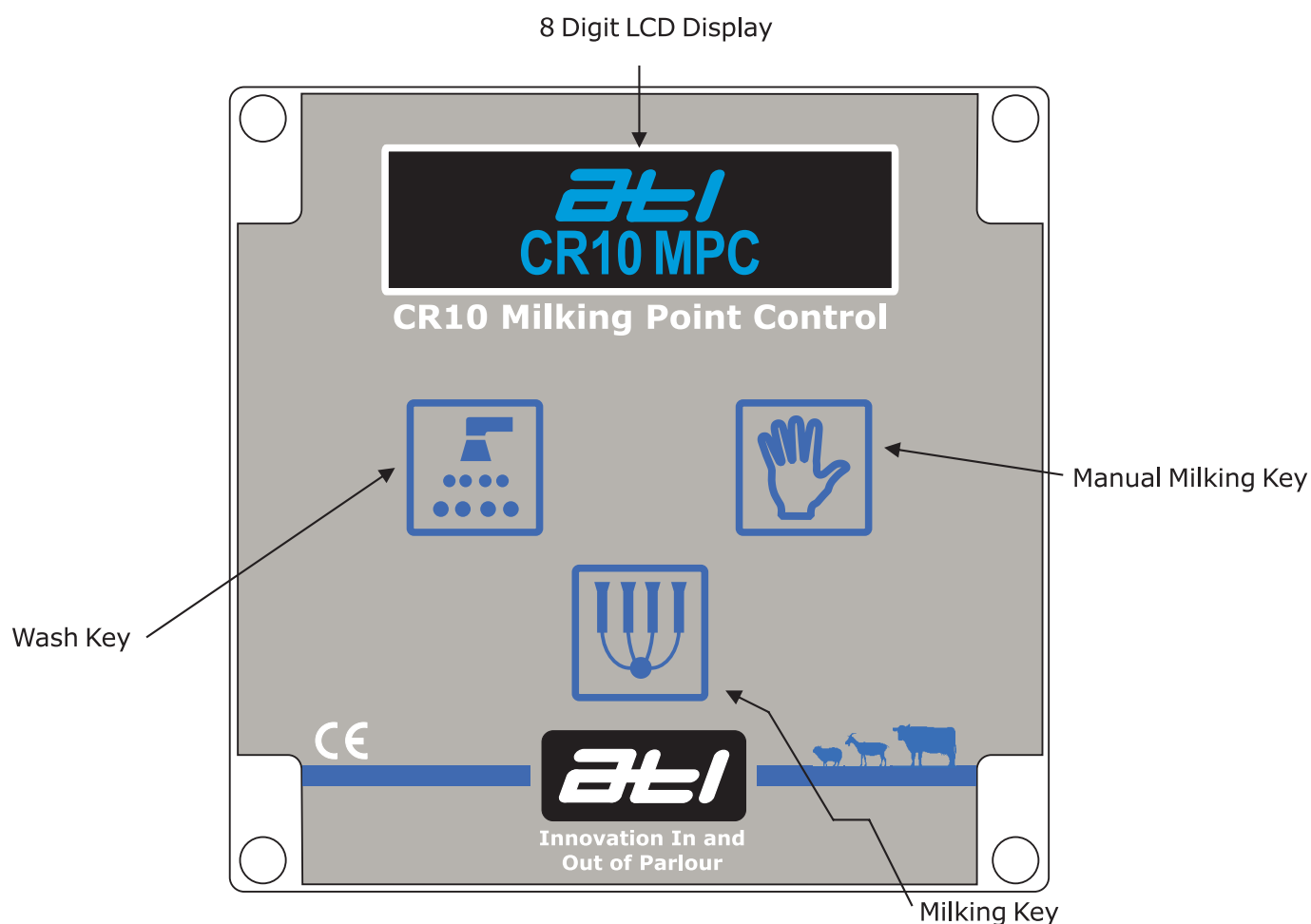
## About the ACR Control

The CR10 Milking Point Control is one of the most useful additions to a milking parlour, allowing the operator to save time when milking, by automatically removing the milking units from the animals when they have finished milking.

## Features

- Simple numeric display of the milking time;
- 3 Normal milking modes (ACR, Manual and Timed);
- Automatic idle after a user selectable period of inactivity;
- User programable wash time;
- User selectable ACR pull off resistance and time;
- Simple bright display and warning lights;

## Front Cover



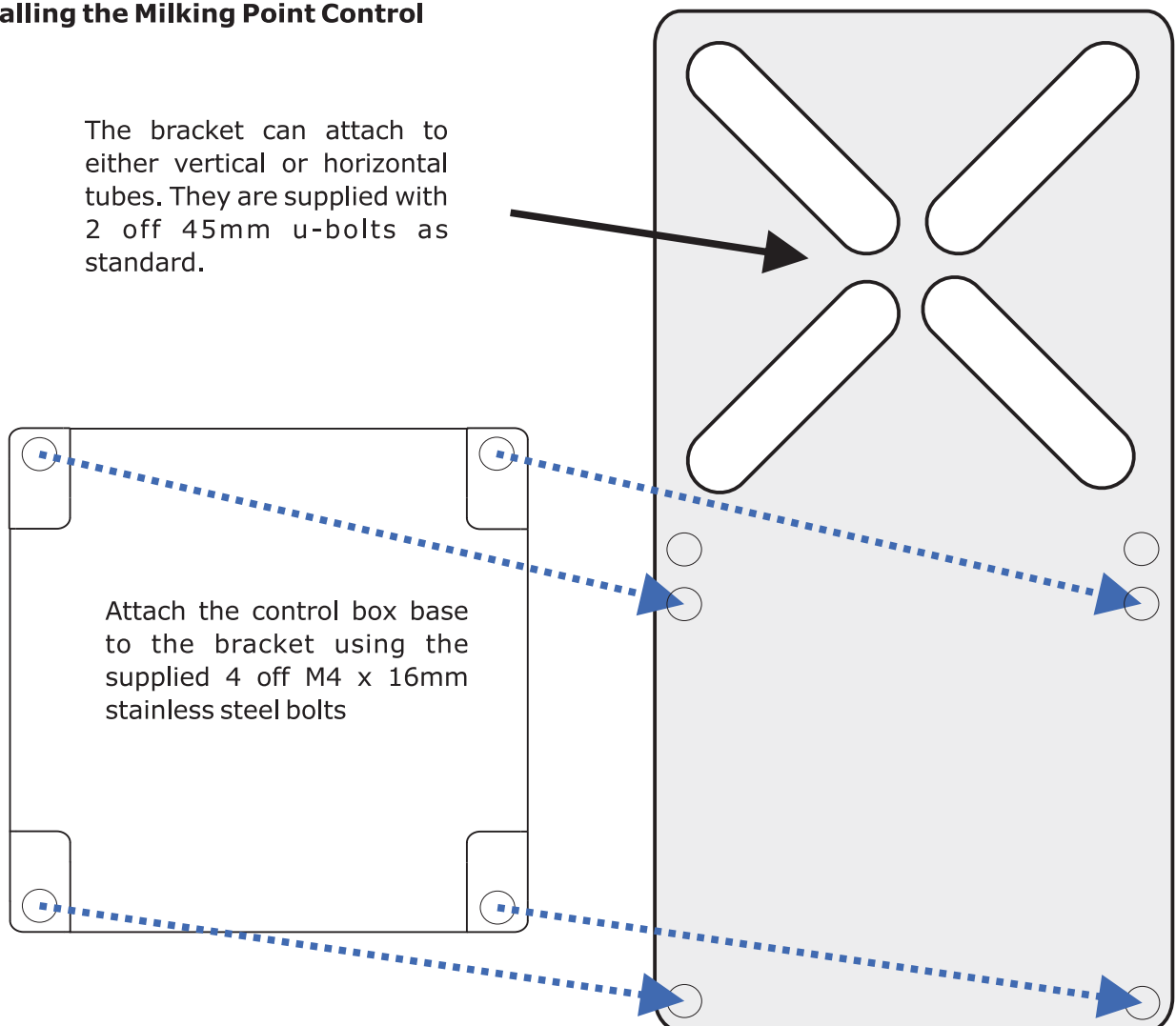
## Installing the Sensor



The ACR sensor should be installed so that it is aligned correctly. The vertical alignment should match the picture shown above. If the sensor is not installed in this alignment, it will not function correctly.

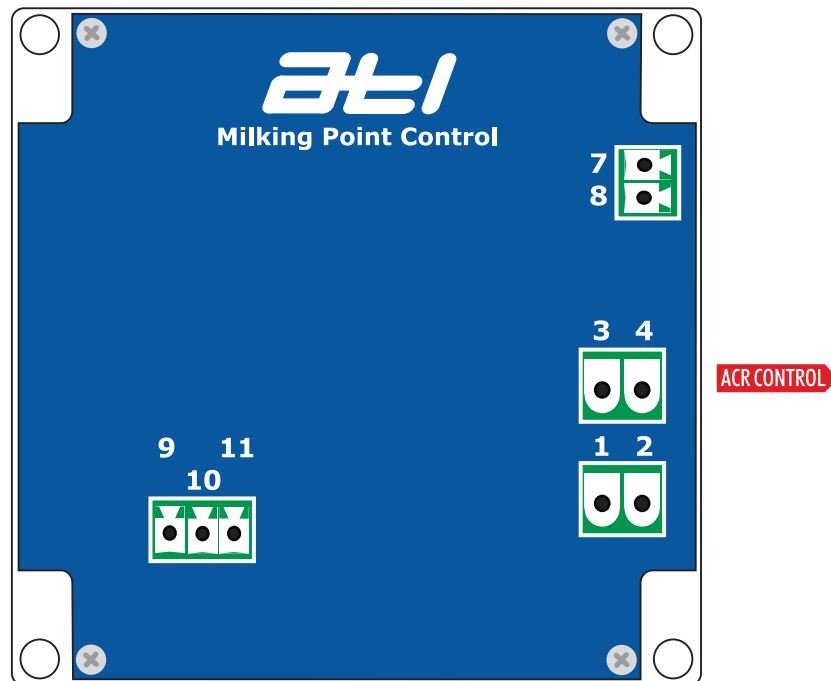
## Installing the Milking Point Control

The bracket can attach to either vertical or horizontal tubes. They are supplied with 2 off 45mm u-bolts as standard.



## Milking Point Control Wiring Connections

The milking point control wiring connections are shown in the diagram and corresponding table below. The control comes with one 4 port gland. The 4 port gland can take a maximum cable OD of 6.5mm.



Number	Connects To	Cable Specification
1	Power In +12vDC	Minimum 1.0mm <sup>2</sup> 2 core 10A cable
2	Power In -12vDC	Minimum 1.0mm <sup>2</sup> 2 core 10A cable
3	Power Out +12vDC	Minimum 1.0mm <sup>2</sup> 2 core 10A cable
4	Power Out -12vDC	Minimum 1.0mm <sup>2</sup> 2 core 10A cable
7	ACR Sensor +	Factory Fitted to ACR Sensor
8	ACR Sensor -	Factory Fitted to ACR Sensor
9	ACR Solenoid -12vDC	Factory Fitted to Control Valve
10	ACR & Shut Off Valve Solenoid +12vDC	Factory Fitted to Control Valve
11	Shut Off Valve Solenoid -12vDC	Factory Fitted to Control Valve

**IMPORTANT** - DO NOT INSTALL TWO CABLES THROUGH 1 CABLE HOLE IN THE 4 PORT GLAND. THIS WILL INVALID THE WARRANTY.

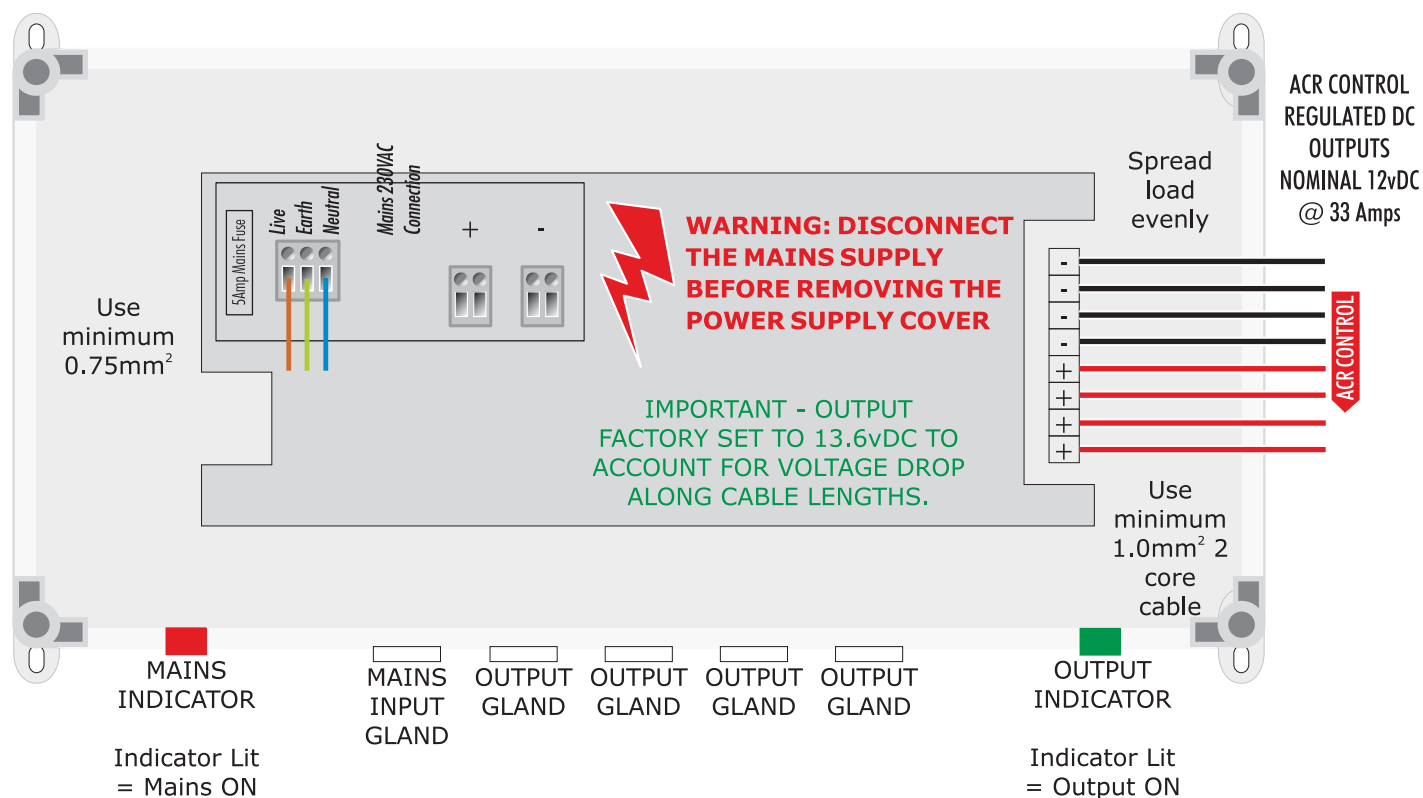
**IMPORTANT** - THE POWER OUT CONNECTIONS SHOULD NOT BE USED UNLESS ABSOLUTELY NECESSARY AS IF THERE IS A FAULT WITH ONE CONTROL AND IT HAS TO BE REMOVED FROM THE PARLOUR, THE REMAINING CONTROLS CANNOT GET POWER AND THEREFORE WILL NOT FUNCTION.

## 12vDC 396 Watt Power Supply Wiring Connections

- Mains Voltage: 100-240volt AC
- Output Voltage: Nominal 13.6volt DC
- Mains Fuse: 5 Amp
- Automatic Over Current Protection
- Maximum Number Of Milking Point Controls With ATL Control Valves: 60

NB - Maximum number of ACR controls will depend upon ACR control valve solenoid specifications - if unsure please contact ATL.

- Ensure the loading on each power supply is as even as possible.
- Recommended ACR Solenoid Spec: 12 v o l t DC Continuous Operation Normally Closed with power rating up to 3 watts.
- Recommend system is powered on all of the time to prevent condensation build up on electronic components.



ACR CONTROL

Connect to ACR controls.

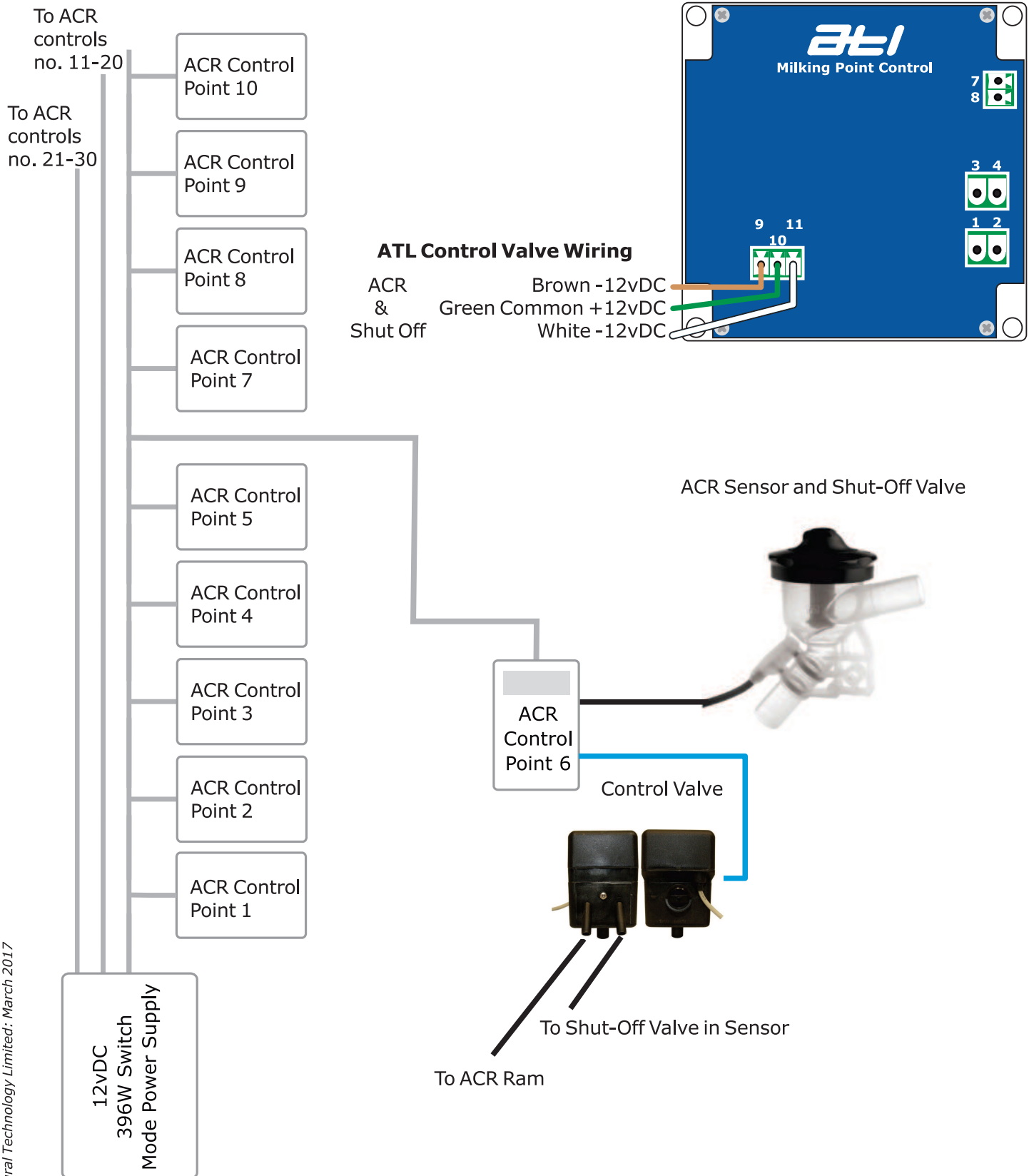
Output Specification: Nominal 12vDC @ 33 Amps

**IMPORTANT** - Use different cable for each block of 10 ACR controls to provide for current requirements of system. This is based upon using CV20 control valve with nominal 3 watts per solenoid coil. If using existing control valve, please check wattage and reduce numbers accordingly.

A 24vDC power supply can also be used Please make sure all solenoids are 24vDC.



## System Wiring Overview



## Setting up the Milking Point Control

Before it can be used, the milking point control system must be setup. This is outlined in the following pages:

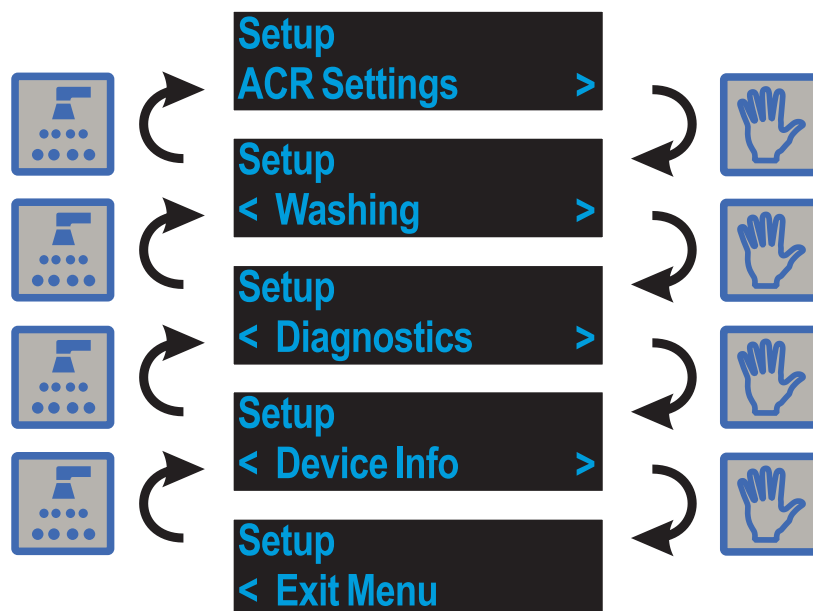
### Accessing the Settings

Press and hold the Wash and Milk keys together first and then press the Manual key, whilst holding the Wash and Milk keys.



### The Setup Menu

The setup menu is divided into sections, each section deals with a specific part of the control. The sections can be stepped through using the Wash and Manual keys, and accessed using the Milk key.



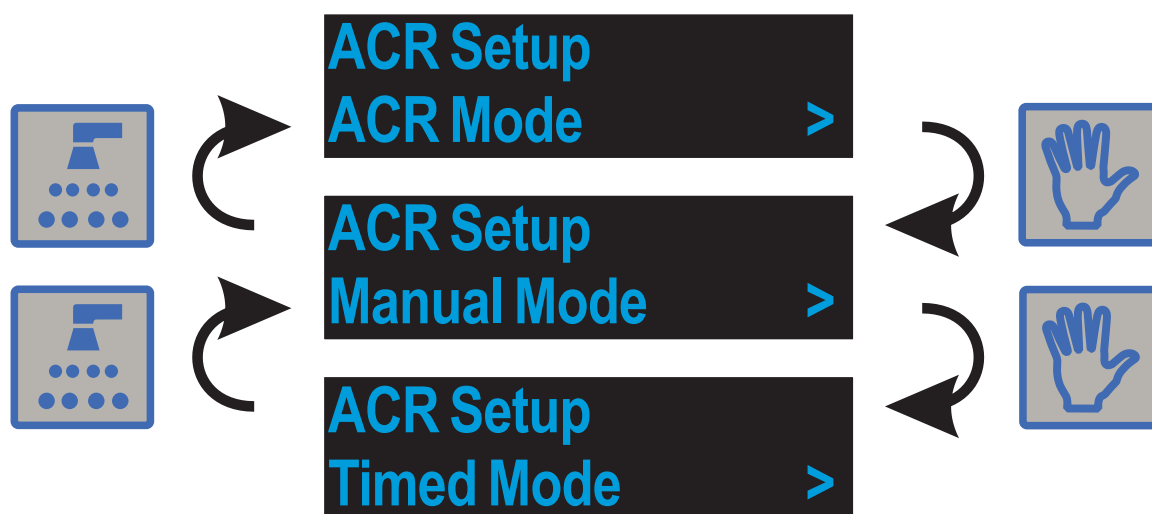
Pressing the Milk key when on a menu item will allow the user to edit the menu items in that item.

## The ACR Settings Menu

The ACR settings menu contains the settings for how the control will function as an ACR. There are a number of settings, each listed in the following pages;

### The ACR Mode Setting

The ACR Mode setting controls how the milking point control will function when milking an animal. There are three modes available, these are; ACR, Manual and Timed. Pressing the Manual key will step through the available configurations, pressing the Wash key will step back. Pressing the Milk key will save the setting and move onto the next setting.



Pressing the Milk key will save the current setting and move onto the next menu item.

If the milking mode selected is ACR, the ACR hold off setting will be shown next.

If the milking mode selected is Manual, the vacuum delay setting will be shown next.

If the milking mode selected is Timed, the milking time setting will be shown next.

## The ACR Hold Off Delay Setting (Visible only when the Milking Mode is ACR)

The ACR hold off setting lets the user specify the length of time before the ACR becomes active after the start of milking. The range is from 10 seconds to 240 seconds. The factory default is 120 seconds.

**ACR Setup**  
**Hold Off: 120 Sec**

Press the Manual key to increase the time



Hold the Manual key to increase in 10s

Press the Wash key to decrease the time



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The kick off delay setting is now displayed.

## The Kick Off Delay Setting (Visible only when the Milking Mode is ACR)

The kick off delay setting lets the user specify the length of time after the ACR hold off delay has passed, that if an ACR take off occurs, the control will give a kick off alert. The range is from 30 seconds to 999 seconds.

The factory default is 180 seconds.

**ACR Setup**  
**Kick Delay: 180 Sec**

Press the Manual key to increase the time



Hold the Manual key to increase in 10s

Press the Wash key to decrease the time



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The ACR pull off resistance setting is now displayed.

## The ACR Pull Off Timer Setting (Visible only when the Milking Mode is ACR)

The ACR pull off timer setting lets the user specify the length of time the resistance must be above the ACR pull off resistance setting before the ACR is activated. The range is from 1 second to 30 seconds.

The factory default is 6 seconds.

**ACR Setup**  
**Pull Off: 6 Sec**

Press the Manual key to increase the time



Hold the Manual key to increase in 10s

Press the Wash key to decrease the time



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The ACR pull off resistance function is now displayed.

## The ACR Pull Off Resistance Setting (Visible only when the Milking Mode is ACR)

The ACR pull off resistance setting lets the user specify the maximum resistance that the milk is allowed to be before the ACR pull off timer is activated. If the resistance goes above the value and then falls back below, the ACR pull off timer is reset. The range is from 25 ohms to 999 ohms. The factory default is 650 ohms.

**ACR Setup**  
**Resistance: 650R**

Press the Manual key to increase the value



Hold the Manual key to increase in 10s

Press the Wash key to decrease the value



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The vacuum delay function is now displayed.

## The Milking Time Setting **(Visible only when the Milking Mode is Timed)**

The milking time setting lets the user specify the length of time the animal will be milking for in timed mode. The range is 10 seconds to 900 seconds. The factory default is 180 seconds.

**ACR Setup**  
**Time: 180 Sec**

Press the Manual key to increase the time



Hold the Manual key to increase in 10s

Press the Wash key to decrease the time



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The vacuum delay setting is now displayed.

## The Vacuum Delay Setting

The vacuum delay setting allows the user to set a delay between the operation of the shut-off valve closing to shut off the vacuum and the ACR ram operating. It should be set to a value that ensures that as the shut-off valve operates at the end of milking, the vacuum delays to a point where the cluster is just about to fall before the ACR ram operates. The range is from 1 second to 10 seconds. The factory default is 3 seconds.

### ACR Setup Vac Delay: 3 Sec

Press the Manual key to increase the time



Hold the Manual key to increase in 10s

Press the Wash key to decrease the time



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The purge function is now displayed.

## The Purge Setting

The purge setting is a YES / NO setting. When the ACR ram operates, setting the purge to YES makes the shut-off valve momentarily open to purge any milk residues into the milk line. The factory default is YES.

### ACR Setup Purge Enable: Yes

Press the Manual key to enable the setting.



Press the Wash key to disable the setting.



When the correct setting is selected, press the Milk key to store the data.



If the purge setting is enabled, the purge hold off function is now displayed, otherwise, the ACR settings main menu is displayed.

## The Purge Hold Off Setting **(Visible only when the Purge is Yes)**

It allows a delay to be set between the ACR operating and the purge activating. It is for installations with flushing systems. The range is from 1 seconds to 60 seconds. The factory default is 1 second.

**ACR Setup Purge  
Hold Off: 1 Sec**

Press the Manual key to increase the time



Hold the Manual key to increase in 10s

Press the Wash key to decrease the time



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



The ACR settings main menu is now displayed.



## The Wash Settings Menu

The Wash settings menu contains the settings for the wash function on the control. There are 3 settings, each listed in the following pages;

### The Automatic Idle Time Setting

The automatic idle time setting controls how long the milking point control will hold outputs on after no input is received from the user, this allows the system to turn off unwanted outputs when the parlour is not running, thus saving energy. The range is 5 to 360 minutes. The factory default is 15 minutes.

**Wash Setup**  
**Idle Delay: 15 Min**

Press the Manual key to increase the value



Hold the Manual key to increase in 10s

Press the Wash key to decrease the value



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.  
The wash time menu is now displayed.



### The Wash Time Setting

The wash time setting controls how long the milking point control will run its wash routine for before switching to idle. The range is 1 to 720 minutes. The factory default is 30 minutes.

**Wash Setup**  
**Time: 30 Min**

Press the Manual key to increase the value



Hold the Manual key to increase in 10s

Press the Wash key to decrease the value



Hold the Wash key to decrease in 10s

When the correct setting is selected, press the Milk key to store the data.



## The Start In Wash Setting

The start in wash setting is a YES / NO setting, this setting enables or disables the control to start in wash when the control first power's up, this allows automatic plant washers to wash the system automatically without the need to an input, the user is then able to take the system out of wash to milk. The factory default is NO.

**Wash Setup**  
**Start in Wash: No**

Press the Manual key to enable the setting.



Press the Wash key to diable the setting.

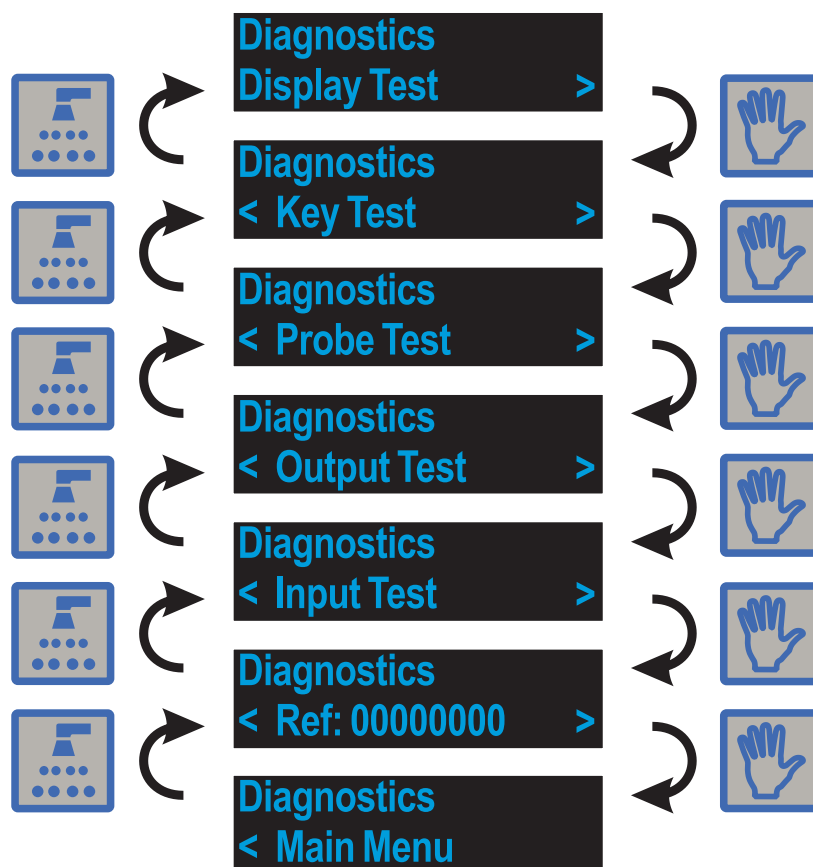


When the correct setting is selected, press the Milk key to store the data.  
The wash main menu item is now displayed.



## The Diagnostics Menu

The diagnostics menu allows the user to diagnose issues with the control, there are 7 menu items;



Pressing the Milk key when on a menu item will allow the user to edit the menu items in that item.

### The Display Test Diagnostics Menu Item

The Display Test will turn on all pixels on the display, pressing the Milk key will return to the diagnostics menu.

### The Key Test Diagnostics Menu Item

The Key Test menu item allows the testing of the keys, it will show the name of the key which has been pressed, pressing the Milk key will return to the diagnostics menu.

**Key Test**  
**Key: Wash**

NB - The manual key is labelled ACR.

### The Probe Test Diagnostics Menu Item

The Probe Test menu item will show the current value in milli-siemens of the probe, this allows the user to check the probe input is working correctly.

**Probe Test**  
**Value: 0.11mS**

Press the Milk key to return to the diagnostics menu.



### The Output Test Diagnostics Menu Item

The output test menu item allows the user to turn on and off all outputs on the control for testing.

**ACR** >  
**State: Off**

Press the Manual key to step to the next output.



Press the Wash key to step to the previous output.



Press the Milk key to toggle the output.



To exit the output test routine, scroll to the end using the Manual key and press the Milk key when on the Main Menu item.

### The Input Test Diagnostics Menu Item

The Input Test menu item shows the state of the inputs on the control. The CR10 has no inputs

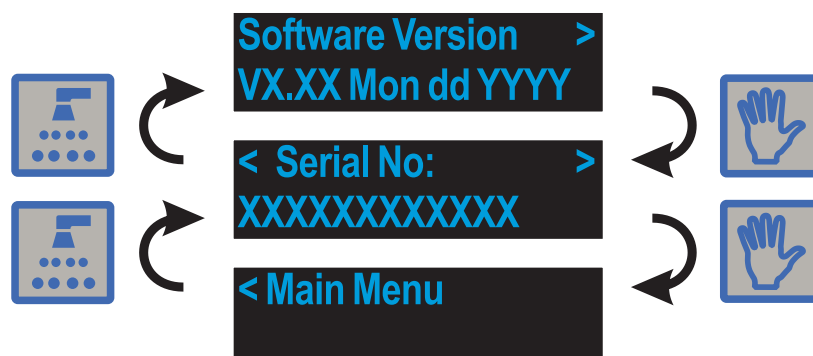
**Input Test**  
**No Inputs to test**

Press the Milk key to return to the diagnostics menu.



## The Device Info Menu

The device info menu allows the user to view information about the software in the control;



The software version menu item, will show the version of the software as well as the build date.

The serial number will show the serial number of this control.

Press the Milk key



when < Main Menu displayed to exit.

## Using the ACR Control

The ACR control has 3 main milking modes - these are:

1. Automatic ACR removal;
2. Manual ACR removal;
3. Timed Milking;

Automatic ACR removal allows the user to start the milking process and the ACR control completes it (i.e. the ACR ram removes the clusters from the animal and the milking is finished without user intervention).

Manual ACR removal allows the user to control the whole milking process from cluster attachment to removal.

Timed Milking allows the user to milk an animal for a specific time, then have the ACR remove the clusters from the animal.

## The Milking Procedure (When in Automatic ACR mode with conductivity enabled)

- Press the milking key to start milking in automatic mode;
- The LCD display will cycle between the milking mode and the milking time;
- The milking will continue until the ACR removes the cluster automatically;
- If the animal is a slow milker or the cluster is removed early, press the manual key. The ACR control will then continue in manual mode until the user manually finishes the milking.

## The Washing Procedure

- If the clusters are raised, press the manual key on all milking points to lower them, and then place them into the jetters.
- Press the Wash key to put the ACR control into wash mode. Carry this out on all milking points.



- The LCD display will show WASH, the elapsed wash time and the remaining wash time;
- The milking point control will remain in wash mode for the user set wash time period;
- At any point, the user can press the wash button to cancel the washing process;
- At the end of wash mode, the control will idle with all outputs off;
- We recommend that the parlour is cleaned by the circulation of milk stone remover at prevention strength on a weekly basis.





### Monthly Routine Maintenance

- Visually inspect the ACR control boxes for damage. Any damage will admit water causing the premature failure of the electronics and should be fixed as soon as possible;
- Inspect the vacuum lines from the control valve for contamination. Any contamination could indicate the ACR sensor diaphragm has failed;
- Check the ACR sensor is clean and there is no milk stone build up on the steel rings in the ACR sensor.

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### Six Monthly Routine Maintenance

- In addition to the above monthly checks, check the ACR ram and make sure it operates smoothly.

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### Yearly Routine Maintenance

- In addition to the above monthly and six monthly checks, we recommend replacement of the ACR sensor diaphragm.
- Thoroughly inspect the control valve, making sure it is clean and operates correctly. Service as required.

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### Parlour Wash Down

- The ACR control enclosure is IP65 rated. However, no indirect or direct pressure washing should be used to wash the ACR control unit, as this will cause the seals to fail and water to ingress and damage the electronic components. Please note that water damage is not covered under warranty.



### Additional Items Required to Install ACR System

- 8mm ID PVC signal pipe (10mm OD nipple) to connect from control valve to ACR sensor / shut-off valve and from control valve to ACR ram. Length required installation dependent.
- 19mm milk tube for connection to the ACR sensor. The ACR sensor has 21mm OD inlet and outlets.
- Fixings to fix the ACR sensor to the parlour frame.
- Milk line inlets suitable for 19mm milk tube, if not already available.
- Conduit, mounting and cable for wiring to bringing power to the ACR controls.
- If using an existing ACR ram and solenoid, the solenoid must be either 12vDC or 24vDC, with the power supply supplying the correct voltage.