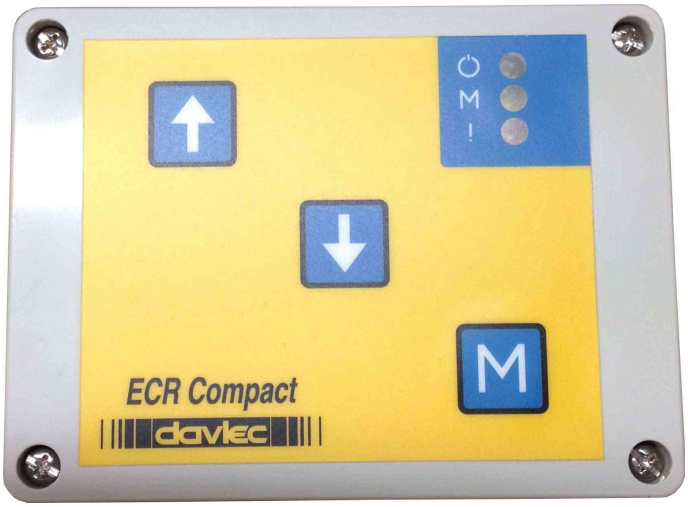
CLUSTER REMOVAL

ECR COMPACT



Installation & Operation Manual iss4

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Overview

The ECR Compact builds upon years of experience in manufacturing reliable and functional automatic cluster removers (ACR) for the OEM market. The main control unit provides the basic functionality of an ACR plus additional functions only found in more expensive ACR controls, these include pulsation control with stimulation, milk sweep, manual mode start-up for washing and low power mode.

Power Requirements

The power requirements for the ECR Compact are a regulated voltage source of between 12 volts and 24 volts D.C. Any voltages outside this range will result in either erratic operation or possible damage to the circuit board. When considering the size of transformer necessary to run the ECR Compact and connected solenoids please allow 0.2 Amps for the ECR circuit current and then the manufacturers current rating for the control solenoids and pulsation solenoids. Remember that only one control solenoid is operating at any time.

Operating The ECR Compact

Remove Clusters/Stop Milking

Drop Clusters/Start Milking

Toggle Manual Mode

Power Indicator

Manual Mode Indicator

Alarm Indicator

Milk Flow Sensor

The ECR Compact has been designed to be as versatile as possible therefore allowing the unit to be compatible with the vast number of different types of milk flow sensors available on the market today.

The unit is factory calibrated to work with the Interpuls or Vaccar type flow sensors, where the unit milk sense circuit is calibrated to 9000 Ohms (200ml\min). Other flow sensors may require adjustment of the milk flow sensor circuit.

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To recalibrate the milk flow sensor circuit a 10000 Ohm potentiometer set to 9000 Ohms must be connected to the milk flow sensor input on the unit. The 'milk sense' potentiometer on the unit must then be turned fully clockwise and then slowly anti-clockwise until the 'milk sense' LED just switches on. The unit is now re-calibrated.

Anti-clockwise direction = increase milk sensitivity.

Milk Flow Float

The ECR Compact can be set to work with certain milk flow floats that provide a closed contact through a reed switch when no milk is flowing.

To enable the unit to work with milk floats hold down the 'Manual' button during power up for more than 2 seconds. Observe that the manual LED will flash twice for float sensor operation. The unit will remain in this mode until the above procedure is repeated whereby the manual LED will flash once for normal milk probe operation.

Control Valve Outputs

The unit provides three control valve terminals indicated as N.O. (Normally Open), +C (Positive Common) and N.C. (Normally Closed). Typically the N.C. terminal will operate the cluster RAM and the N.O. will operate the milk shut off valve.

The N.C. terminal can be toggled on and off when the unit is not milking by pressing the 'stop' button for 3 seconds.

Pulsation Outputs

A pulsation control valve can be operated from the pulsation terminals on the unit indicated as Channel 1, +C (Positive Common) and Channel 2. The dip switches found on the rear of the unit configure the pulsation rate and ratio.

Potentiometer Controls

Final Delay - Adjusts delay between end of milking and cluster removal. Can be adjusted from 0 to 50 Seconds. Middle position = 25 Seconds. Turn clockwise to increase delay.

Initial Delay - Adjusts pre-delay. Can be adjusted from 0 to 4 minutes. Middle position = 2 minutes. Turn clockwise to increase delay.

Milk Sense - Calibrate milk probes. Pre-set to 9K Ohms. Red LED next to potentiometer will light when unit detects milk. Alarm light on front of lid will flash when there is no milk flow. Turn anti-clockwise to decrease sensitivity.

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Dip Switches

1 – Power up in Manual mode.
2 – Stimulation switch. Switch ON for 90 pulses per minute for 20 seconds.
3 – Pulsation rate switch. Switch ON for + 10 pulses per minute.
4 – Pulsation rate switch. Switch ON for + 20 pulses per minute.
5 – Pulsation rate switch. Switch ON for + 40 pulses per minute.
6 – Pulsation ratio switch. Switch ON for 55:45 ratio.
7 – Pulsation ratio switch. Switch ON for 60:40 ratio.
8 – Pulsation ratio switch. Switch ON for 65:35 ratio.
If switches **6, 7 & 8** are all off the Pulsation ratio defaults to 70:30.
If bit switches 3, 4 and 5 are all OFF the pulsation will default to 50 pulses per minute.

Example Dip Switch Setup

If you require 60 pulses per minute at a ratio of 60:40 then the following bit switches should be on:

1	2	3	4	5	6	7	8
OFF	OFF	ON	OFF	OFF	OFF	ON	OFF

Milk Sweep

The milk sweep feature operates after the ECR has detected no milk and removed the clusters. After a further 10 second delay the shut off valve will open for 3 seconds to collect any remaining milk left in the line.

To enable milk sweep hold down the 'Start' button during power up and the alarm LED will flash twice for milk sweep ON or flash once for milk sweep OFF.

Low Power Mode

Unit will go into low power mode if not operated for 30 minutes. Press the 'Manual' button and then the 'Stop' to raise clusters.

To enable low power hold down the 'Stop' button during power up for more than 2 seconds and observe the power LED will flash twice for low power mode ON or flash once for low power OFF.

Take-Off Transition Delay

The delay between the shut-off valve closing and the clusters being retracted at the end of a milking can be adjusted between 0 to 8 seconds. To adjust this delay do the following sequence,

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1) Power down unit.
2) Switch all the dip switches to 'OFF' position.
3) Press and hold the 'Stop' and 'Start' buttons while powering up the unit.
   All three lights on the front of the lid will be illuminated to show that you are in the correct mode.
4) Set a single dip switch to the 'ON' position with the number of seconds you would like the transition delay to be. e.g. Set dip switch 2 'ON' to give a two second delay. Note that you can only have one dip switch set at any time. If you require no delay leave all dip switches in their 'OFF' position.
5) Press the 'Manual' button to exit the mode and save new settings.

Washing

Automatic washing can be accomplished in two ways with the ECR Compact:

Method 1 - Set dip switch 1 to the ON position on each ECR Compact unit and have the automatic washer control the ECR Compact transformer. Switching the ECR Compact units off and then on again will put them into manual mode. The manual mode will automatically time out and stop after 60 minutes.

Method 2 - Connect each ECR Compact remote start input to a N.O. contact only output on the automatic washer control. If the ECR Compact remote start input receives a closed contact for more than 5 seconds then the unit will automatically go into manual mode until the contact is released.

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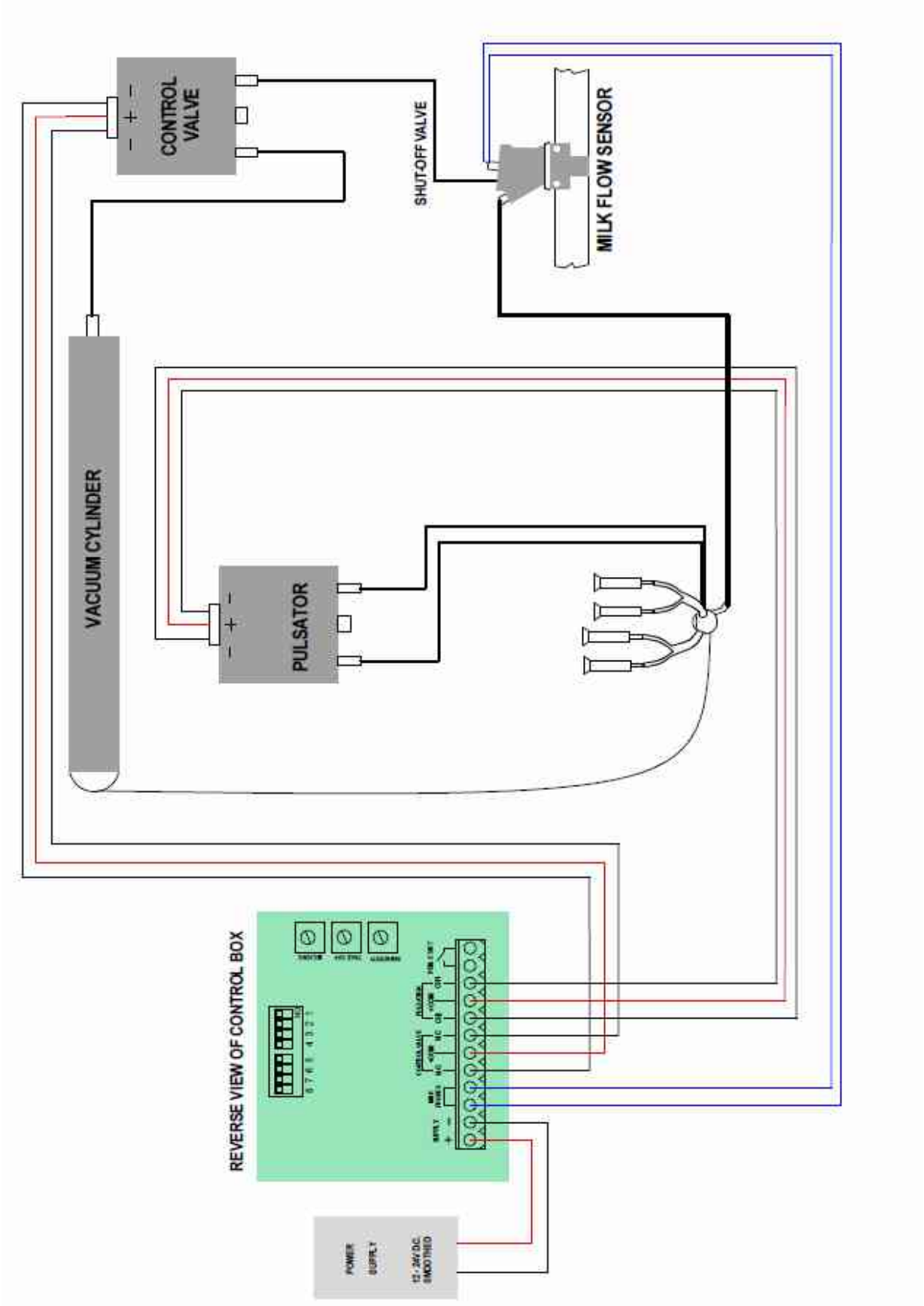

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SPECIFICATION

Product Name	ECR Compact					
Product Family	ECR Compact					
Enclosure						
IP Rating	66					
Material	ABS					
Dimensions	W	90mm	L	118.5mm	D	80mm
Electrical						
Supply Voltage	12 - 24 volts D.C.					
Maximum Peak Voltage	26 volts D.C. Smoothed					
Frequency	N/A					
Maximum Current Load	3.5 Amps					
Protection	5 Amp thermal protection per output					
Environmental Conditions						
Temperature	0 to 45°C					
Humidity	5 to 95%					
Location	Indoor use only					
Approvals						
EMC Conformity to: EN 61000-6-1:2007, EN 61000-6-3:2007, EN 55022:2006						

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