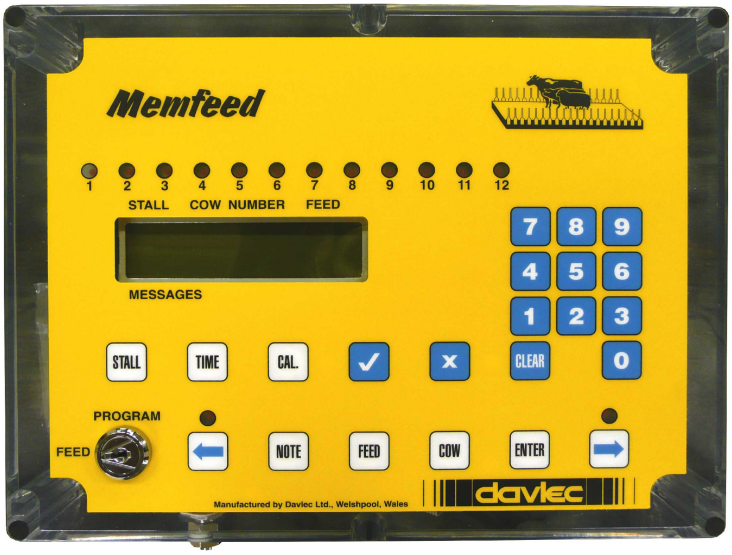
FEED CONTROLLERS

MEMFEED$_{v5}$



Installation & Operation Manual

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OVERVIEW

The Memfeed v5 is the next generation feeder control, capable of storing the feed requirements for up to 9999 cows. The programmed ration can be in the range 0 - 99 units. The unit will also store a message for each cow, selectable from a pre-defined list. This message is displayed to the operator whenever the cow number is selected.

1.0 MEMFEED KEYS

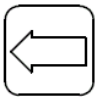
"Yes" Key used to accept commands or values.

"No" Key used to cancel commands or delete values.

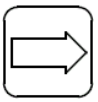
"COW" Key for total cows fed.

"FEED" Key for total feed dispensed in units.

"CAL" Key for entering calibration menu.



"LEFT ARROW" Key for selecting left side of parlour.



"RIGHT ARROW" Key for selecting right side of parlour.

"STALL" Key for skipping stalls.

"NOTE" Key for entering pre-defined messages for individual cows in programming mode.

"ENTER" Key for entering cow numbers during feeding or accepting commands or values.

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"CLEAR" Key for deleting values.

Number keys for selecting feed rations.

2.0 SETTINGS MENU

2.1 **To access the settings menu the operator must press and hold down the "Left Arrow" key and press the "Right Arrow" key once.**

Once in the settings menu, the user can scroll the different settings by pressing the left arrow key or the right arrow key.

2.2 **Parlour size** can be altered from 1 to 12 stalls per side. To change the current setting the user needs to press the "X" key to clear the current value and then enter the new parlour size using the numeric keypad.

2.3 **Auger feeders/Pulse feeders** can be toggled by the user by pressing the "X" key.

2.4 **Feed multiply** option allows the number of pulses per unit or motor run time to be extended by a factor of x1, x2 or x4. Useful on compressed air type feeders that have small fixed portion size.

2.5 **Feed Group Size** allows feeding in group sizes of 4,6 or 12 stalls. This greatly reduces the load on the feed dispenser transformer. To change the Feed Group Size press the "X" button.

2.6 **Pulse feeders On time** can be altered from 1 to 20 seconds. To change the current setting the user needs to press the "X" key to clear the current value and then enter a new value.

2.7 **Single shot** option can be enabled or disabled by pressing the "X" key to select either "YES" or "NO". This facility when activated encourages the first cow to stall 1 by dropping 1 unit of feed as the operator enters the cow numbers.

2.8 **Meal time** option will dispense a cows feed ration over a fixed period of time. For example if the Meal time is set to 5 minutes all cows rations regardless of feed amount will be spread over a 5 minute duration in 1 second drops. This feature only works for auger type feeders. If Meal time is set to zero the Memfeed will dispense as normal.

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2.9 **Quick Feed** option when set to ON will dispense a cows feed ration as soon as the operator has entered a cow number during milking.

2.10 **Erase cow memory.** Press the "YES" key followed by the "ENTER" key to erase all cow records.

To Exit the settings menu the operator must press and hold down the “Left Arrow” key and press the “Right Arrow” key once.

3.0 PROGRAM MODE - PROGRAMMING FEED AMOUNTS AND NOTES

3.1 To access program mode the user must turn the key to "PROGRAM", the unit will now display the following message:

“Program Mode”
“Batch Input Y/N”

The operator can either press the “X” key to program individual amounts of feed to cows or the “YES” key to program feed amounts to batches of cows.

3.2 In order to program the feed requirements for individual cows, the operator must first enter the cow number by pressing the correct keys on the numeric key pad in the required order. The operator must then enter the amount of feed that he requires this cow to receive. In some cases it will be quicker to program all the cows that are getting the same amount of feed first. In this case, when the Memfeed displays the message “Program Mode Batch Input Y/N”, the operator should press the “YES” key.

3.3 Batch Program mode

If batch programming is selected, then it is logical to program all the cows requiring one unit of feed first. To do this we simply select the first cow number to receive one unit of feed, for example cow number 14. To enter the cow number we press the following keys in the correct order as follows.

“1” “4”

The number 14 will then appear on the display under the words “Cow number”. If the operator has made an error in entering the cow number he can clear the display by pressing the “CLEAR” key.

When the cow number is correct, the operator can enter the feed quantity. For example, if the cow requires 1 unit of feed, press the following keys.

“FEED” “1”

The figure “1” will appear on the display below the word “feed”. Again if the

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operator has made an error, they can clear the display by pressing the “CLEAR” key and entering the correct number. When the cow number and feed are correct then the operator can transfer this information into the memory of the control unit by pressing the “ENTER” key. After the “ENTER” key has been pressed the cow number display will be cleared, but the number “1” will still appear on the feed display. The next cow can then be entered but this time after the cow numbers have been entered press the “ENTER” key to move on to the next cow.

When you require to change the feed amount press the “FEED” key and the number “1” in the feed display will disappear and zero will appear. Enter your required feed amount and press the “ENTER” key, the cursor will then return to the cow number position.

3.4 Program Individual Feed Amounts

The second method of programming is to individually program feed amounts for each cow and this can be done by pressing the ”X” key when the Memfeed displays “Program Mode Batch Input Y/N” when entering program mode.

To enter a cow the operator would follow a similar procedure as described above by entering a cow number by pressing the “COW” key followed by the cow number using the numerical keys. Then the operator should press the “FEED” key and enter the feed amount again using the numerical keypad. To store the cow in memory the operator needs to press the “ENTER” key. Once the operator has pressed the “ENTER” key the display will clear and the cursor will return to the cow number position.

3.5 Entering Cow Messages

When programming cow numbers it is also possible to attach a pre-defined message for any cow number. To attach a message for a cow the operator must first either program in a particular cow or recall a programmed cow by pressing the “COW” key and entering in the appropriate cow number. When the correct cow number is displayed press the “NOTE” key and enter any of the following codes followed by the “ENTER” key.

01 DUMP MILK	**02** DO NOT MILK	**03** DIVERT FOR A.I.
04 DIVERT FOR VET	**05** SLOW MILKER	**06** NERVOUS COW
07 INSPECT UDDER	**08** DRY OFF	**09** * NOTE A *
10 * NOTE B *	**11** * NOTE C *	**12** * NOTE D *
13 CHECK R/LEFT QTR	**14** CHECK F/LEFT QTR	**15** CHECK R/RIGHT QR
16 CHECK F/RIGHT QR	**17** TREAT R/LEFT QTR	**18** TREAT F/LEFT QTR
19 TREAT R/RIGHT QR	**20** TREAT F/RIGHT QR	

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The bottom half of the screen will display the message when you have pressed the "ENTER" key. To store the message along with the cow number press the "ENTER" key again, or to change the message press the "NOTE" button again.

If the operator wishes to erase a particular message attached to a cow, they must recall the cow by pressing the “COW” key followed by the cow number and then press the “NOTE” key followed by “00” and “ENTER”.

To end the programming session the operator simply needs to turn the key to "FEED" mode.

4.0 FEEDING

Assuming the Memfeed is not in the settings mode or program mode then the operator can initiate feeding by firstly selecting which side of the parlour to feed by pressing either the “left arrow” key or the “right arrow” key. The display will indicate which side is selected by the stall indicator “L01” or “R01”.

As the cows are entering the parlour the operator can key in the cow numbers by pressing the numbered keys on the numerical keypad. Once a cow number has been entered the user will then need to press the “ENTER” key. Once the “ENTER” key has been pressed the cursor will move back to the cow number position and the stall indicator will increment by one stall. The operator can now enter the next cow.

When the last cow number has been entered the Memfeed will display the following message “Start Feeding Y/N”. To start feeding the operator needs to press the “YES” key, otherwise the operator can press the “X” to cancel the whole process.

Once the operator has pressed the “YES” key to initiate feeding the Memfeed will start feeding the side selected. The operator at any time can cancel the feeding process by pressing the "X" key.

When feeding has finished the Memfeed will automatically change over to the opposite side of the parlour.

4.1 When the operator comes to feed the last side of cows, it is very unlikely that there will be exactly enough cows to fill the side. To skip any empty stalls the operator can press the “STALL” key until the “Start feed” message is displayed.

4.2 Cow Totalizer

Pressing the “Cow” key will result in the display showing the total number of cows fed since the counter was last reset. The bottom line of the display shows the message “Press X to clear”. If the operator wishes to leave the counter at its

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current value then they should press the one of the arrow keys. If the operator wishes to reset the counter then they should press the “X” key.

4.3 Feed Totalizer

In the same way, pressing the "Feed" key will indicate the total number of portions of feed dispensed since the counter was last reset. Again the operator has the option to leave the counter at its current value or to reset it to zero either by pressing the "X" or any of the arrow keys.

5.0 INSTALLATION

5.1 The Memfeed is normally installed on the bridge arm at the cow entry end of the parlour. In certain circumstances, the customer may have special requirements regarding the position of the unit.

Memfeed enclosure has an IP67 seal rating and regarded as waterproof . The water resistance of this enclosure is however, only as good as the arrangements that are made to connect conduit or compression glands to it. **It is strongly recommended that the adapters should be fitted on the underside of the enclosure to eliminate the possibility of water entering and damaging the electronics.**

5.2 Feed Dispenser Wiring

The Memfeed relay card can accommodate most types of feeders at various voltages e.g., D.C. and A.C. The relay card has a “Feeder power” connection stud (M5) for one phase of the feeder power supply.

Normally with a 12 volt D.C. system the negative connections on all the feeders are linked together and directly connected to the feeder power supply**. The positive on the feeder power supply is connected directly to the “feeder power” stud on the relay card. The positive connection on each feeder is then connected to each corresponding output connector on the relay card.

With positive ground system all the positives from each feeder are linked together and the feeder power supply negative is connected to the “feeder power” stud on the relay card. All the negative connections from the feeders are connected to the corresponding outputs on the relay card.

On an A.C. system, one phase would be linked on each feeder and the other phase switched on the relay card.

It is recommended that each feed dispenser is fused accordingly to the manufacturers specifications. Normally each feeder will be fused in-line between the relay card of the Memfeed and the connection on the feeder. It is also recommended that D.C. feeders are suppressed using a diode.

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5.3 Before switching on the power supply, the installing engineer should ensure that the polarity of the power cable is correct.

** Feeder transformer not included with Memfeed. Contact Davlec Ltd for further information on suitable power supplies.

6.0 AUGER FEEDER CALIBRATION

To calibrate feeders press the “CAL” key. If the controller does not respond to the “CAL” key check that auger feeders have been selected in the settings menu (page 4).

The display should now have “Please confirm calibration? Y/N”. Press the “YES” key to proceed or the “X” key to cancel the operation.

The next screen will show “Seconds per portion 00” . To delete the previous value press the “X” key until the display shows only zero’s. Enter the new value in seconds of how long it takes for the feed dispenser to dispense 1 unit of feed. Press the “YES” key to save the value.

The next screen will show “Portion Size 000 grams”. To delete the previous value press the “X” key until the display shows only zero’s. Enter the new value in grams for 1 portion of feed. Press the “YES” key to save the value.

The next screen will show “Drop calibration portions Yes/No”. By pressing the "YES" key the Memfeed will drop 5 portions to each stall on the left side of the parlour. Pressing the "X" key will skip any feed being dropped and continue with entering new stall weights.

If for example the operator has entered 500 grams for the portion size then ideally each stall should have 2500 grams of feed dispensed, but realistically there will be differences between each stall. The Memfeed can accommodate feeder variations up to +/- 20%, that is to say for example that if the feed amount weighed was 2000 grams instead of the expected 2500 grams the Memfeed will compensate this error and run the feeder for an extra length of time until 2500 grams has been dispensed. Alternatively if the feeder dispensed 3000 grams instead of the expected 2500 grams then the Memfeed will run the feeder for less time.
If all feeders universally dispense more or less feed above the +/- 20% margin then the run time per portion needs to be altered accordingly.

When all the left side weights have been entered the Memfeed will ask again "Drop calibration portions Yes/No". Press the “YES” key and the right side will dispense 5 portions of feed. Weigh each feed amount and enter it into the Memfeed. Once the last weight has been entered the Memfeed will resume normal feed mode.

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7.0 ROUTINE MAINTENANCE AND SERVICE

The Memfeed is housed in a strong, splash proof enclosure. It must be noted however, that this enclosure is not suitable for washing with a high pressure hose. Any cleaning required should be done using luke warm soapy water and a soft cloth. Direct blows to the front of the unit should be avoided and sharp objects should not be allowed to come into contact with the splash proof membrane.

8.0 MANUAL FEED BUTTONS

A push button batch feed for the left and right sides is located on the underside of the Memfeed control enclosure. Pressing the push button will energise the feeders for the duration that you press the button for. The toggle switch allows the operator to change feeding sides. Please note that the toggle switch must be in the "LEFT" position during normal use of the Memfeed.

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9.0 PRODUCT SPECIFICATION

Product Name	Memfeed v5					
Product Family	Feed Controllers					
Enclosure						
IP Rating	67					
Material	ABS					
Dimensions	W	230mm	L	298mm	D	110mm
Electrical						
Supply Voltage	12/24 volt D.C.					
Maximum Peak Voltage	28 volts D.C.					
Frequency	N/A					
Maximum Current Load	1.5 Amps					
Protection	3 Amp 20mm Fuse (Relay PCB)					
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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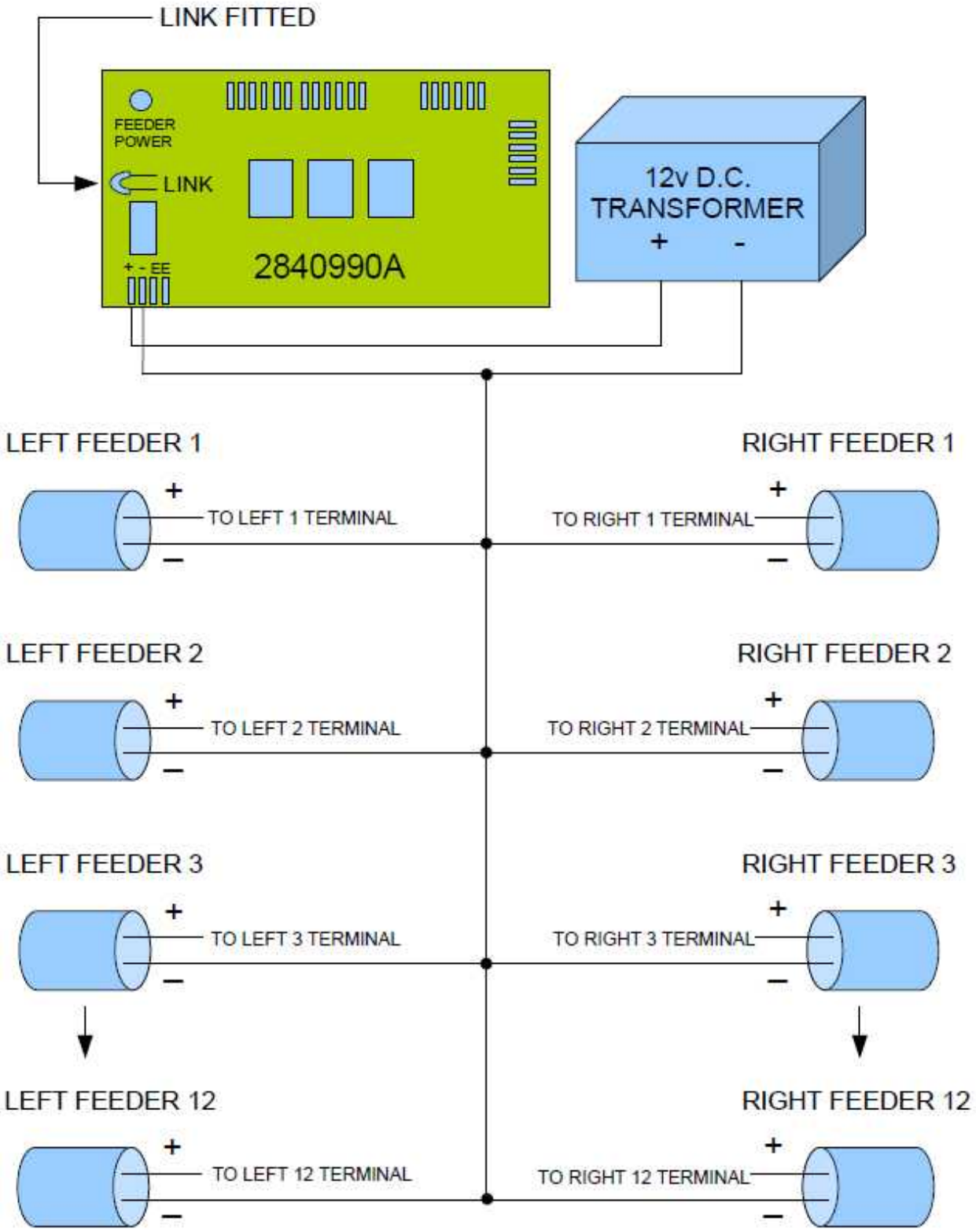
SINGLE TRANSFORMER WIRING



FIT SUPPRESSION DIODES TO EACH FEEDER

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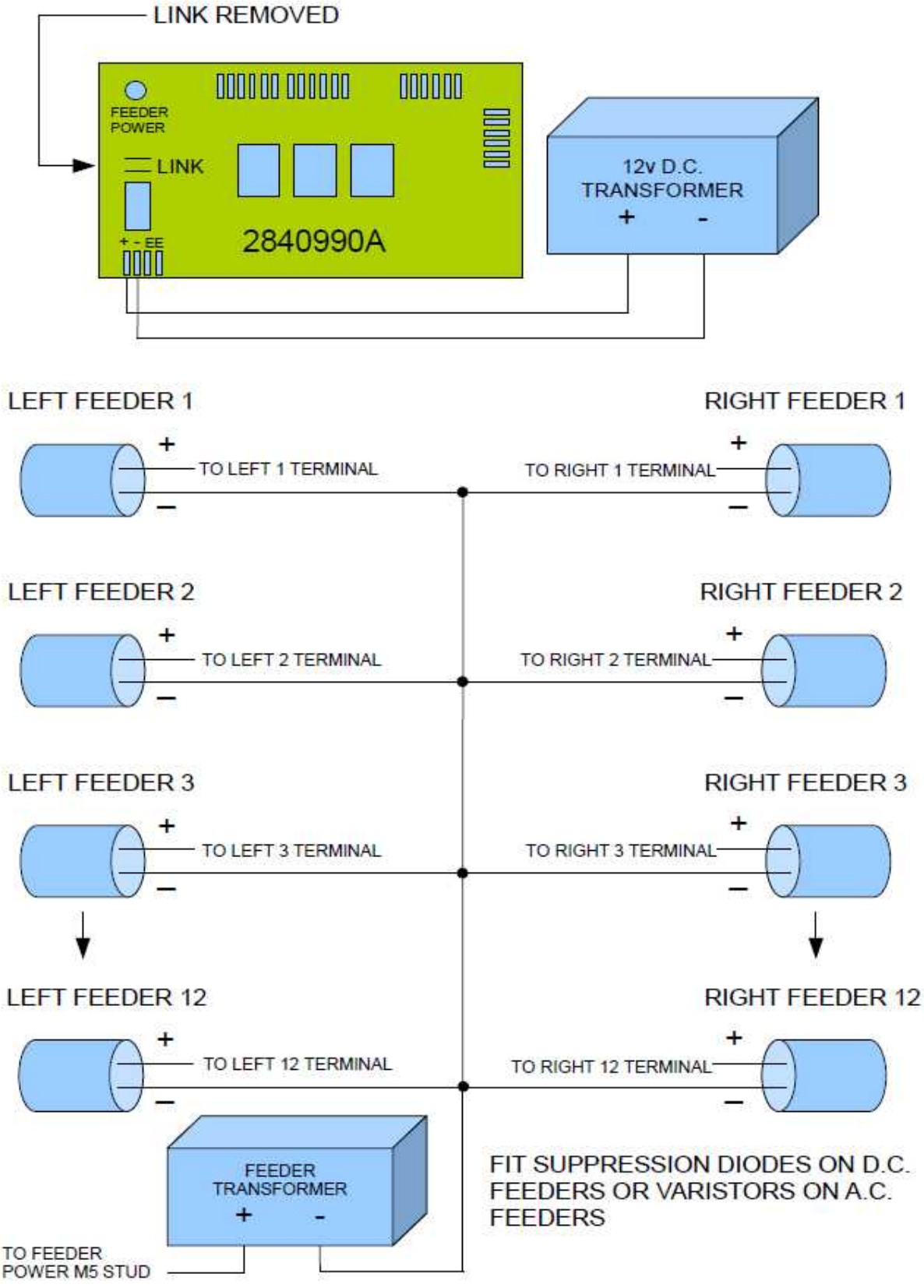
DUAL TRANSFORMER WIRING



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