CALAN · PRECISION FEEDING SYSTEMS

Calan Broadbent Feeding System

Operations & Maintenance Manual

Measure individual animal feed intake in group housing. This manual covers System C installation, channel assignment, fence height, routine maintenance, key management, parts, and electrical specification for the Calan Broadbent Feeding System.

SECTION 1

System Overview

The standard for ruminant nutrition research

The Calan Broadbent Feeding System measures individual animal feed intake for nutrition research and residual feed intake (RFI) studies. Anchored by the Calan Door, it has been the standard for ruminant nutrition research for 50 years, used with cattle, sheep, and goats.

USE

Individual feed intake & RFI research

ANIMALS

Cattle, sheep, and goats

ACCESS CONTROL
Key-activated door lock (solenoid)

POWER (EACH DOOR)
24 V AC

TRANSFORMER
120 V or 240 V in, 24 V AC out

CIRCUIT BOARDS
Super ID A, B, and C

How it works

- Each animal is assigned a channel-numbered Key. Presenting the Key at its assigned door energizes the solenoid and retracts the locking bolt, opening only that door.
- Super ID circuit boards read the Key. Two LEDs aid setup and troubleshooting: a red LED confirms power to the board, and a green LED illuminates when an animal's Key is within range.
- System C (Super ID “C”) boards are field-programmable, so a single blank C board can replace a failed board of any channel number.
- The system runs on 24 V AC. A supplied transformer steps 120 V or 240 V input down to 24 V AC output, and every door draws from that transformer.
- System C boards and keys are compatible with legacy System A and System B boards and keys, even within the same pen.

NOTE **KEYS VS. BOARDS**

For a Key to open a Door, it must match the channel number assigned to the circuit board. Circuit boards are reprogrammable; Keys are not.

SECTION 2

System C Installation

Installing a System C (Super ID) circuit board in an existing Calan Door

Follow these steps to install a System C board (Super ID circuit board) in an existing Calan Door.

1. Remove the fuse from the existing junction box of the door that will receive the board. Remove the old circuit board and disconnect the four (4) wires.
2. Snip the two female connectors off the ends of the existing black power-cord wires and strip about 3/8" of insulation from the two leads.
3. Identify the green power receptacle on the left end of the circuit board (a two-piece unit). Using a very small screwdriver, insert the stripped wires into terminals 1 and 3. Do not use the middle terminal. Either wire may go into terminal 1 or 3. Rotate the board so the populated (component) side faces the animal side of the door cavity.
4. Plug the solenoid terminal lead into the quick-disconnect terminals on the new board. Install the board into the door cavity with the electronic components facing away from you, toward the animal. Reinstall the 3 A fuse in the junction box.
5. Re-energize the circuit board. The red LED will flash.
6. Fit new Super ID Keys (orange). Replace old yellow keys with new orange keys on any animal assigned to a door that now contains a System C board.

NOTE **READING THE LEDS**

Two LEDs on the feed-alley side of the board aid troubleshooting. The red LED confirms the board is electrified, acting as a voltmeter that confirms power is reaching the board. The green LED illuminates only when an animal's Key is within range, which is helpful when training animals.

NOTE **MIXING OLD AND NEW**

System C boards and keys may be mixed with System A or System B boards and keys, even within the same pen. The new system will not interfere with the old. This completes installation of the boards and keys.

SECTION 3

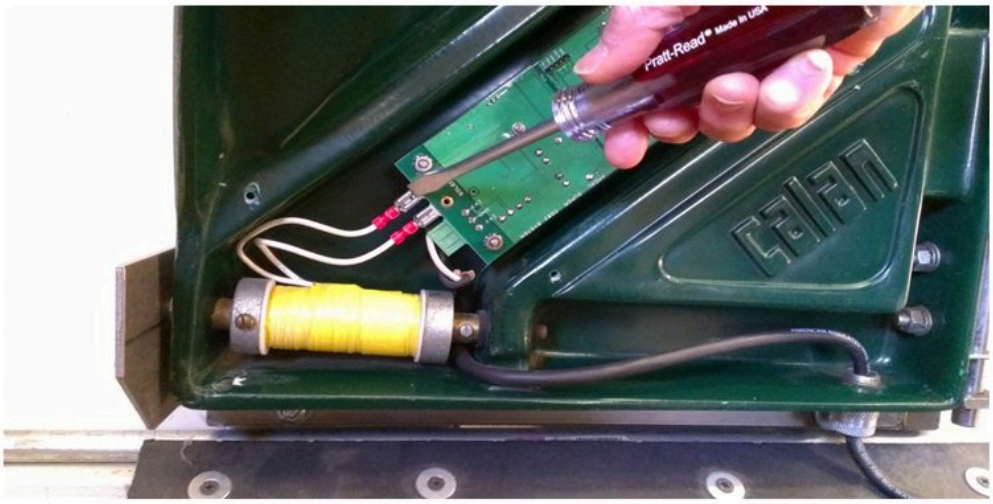
Assignment of Channel Numbers

Field-programming a System C board

System C (Super ID “C”) boards are field-programmable. Keep a small supply of blank C boards on hand: a blank C board can replace a failed board of any channel number and be trained to your existing orange Key. Replacing an A or B board also requires replacing the animal Key.

To train a blank C board or reassign a channel number

1. With your left hand, hold the orange Key with the correct channel number against the face of the Calan Door on the animal side.
2. With your right hand, hold a strong magnet against the back side of the door. A bolus magnet used for hardware-disease prevention works well. The white cover plate may stay in place.
3. When the red blinking light on the board turns solid, remove the magnet and the Key at the same time.
4. Return the orange Key to the face of the door. The solenoid should retract the locking bolt.
5. Repeat a couple of times, without the magnet, to confirm the channel number is assigned to the board and matches the orange Key.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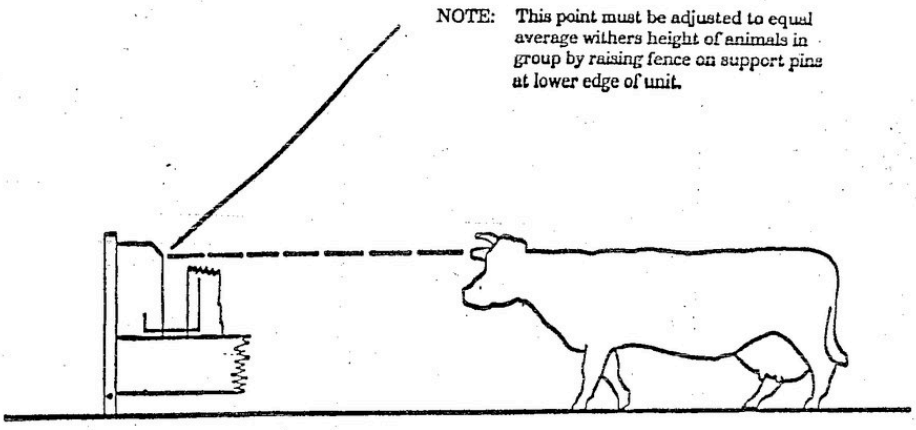
calan

SECTION 4

Fence Working Height

Setting the door fence to the group

Set the working height of the Calan Door fence to the average withers height of the animals in the group. Adjust by raising the fence on the support pins at the lower edge of the unit.



FENCE UNIT WORKING HEIGHT

SECTION 5

Routine Maintenance

Keeping Calan Doors operating reliably

- Lubricate the hinge shaft bearing points periodically.
- Check solenoid bolt action periodically for buildup of feed or molasses. If buildup occurs, loosen the bolt retention screw (in the hole in the white back panel) to release the bolt for cleaning.
- In extremely cold conditions the solenoid bolt can pick up moisture and freeze. A little kerosene or a few drops of silicone spray can help.
- If a component must be replaced, the manufacturer requests that faulty components be returned.

CAUTION **MIND THE BOLT SPRING**

A small spring is located in the solenoid bolt shaft and is easily lost when the bolt is removed for cleaning.

To remove a circuit board

1. Switch power off at the power supply unit, or loosen the fuse in the junction box. Remove the white cover on the back of the unit.
2. With a screwdriver, tap the wires off the terminals. Do not pull or twist them off (see Figure 4.H).
3. Remove the nuts at the corners of the board with a 1/4" nut driver and lift the board out.
4. When reinstalling, connect the wires correctly: supply wires to the terminals marked “supply” (any order), solenoid wires to the terminals marked “solenoid” (any order).

5. Place the defective board in the packing container and return it promptly. The replacement board arrives in a suitable container for your use.

SECTION 6

Key Management

Spare-key procedures and Key Insert replacement

This section covers replacing a damaged or lost Calan Key and pairing it to the circuit board. Revised April 15, 2026.

NOTE **BEFORE YOU START**

For a Key to open a Door, it must match the channel number assigned to the board. Circuit boards are reprogrammable; Keys are not. You will need a spare animal Key from inventory (typically labeled D1 to D6) and a magnet. Any magnet will do.

Reprogramming a circuit board using a spare Key

1. Locate your spare Key.
2. Locate the red flashing light on the circuit board.
3. If your magnet is strong enough, you do not need to remove the white cover plate.
4. Introduce the spare Key on the animal side of the Calan Door.
5. The green LED comes on solid, indicating the board is reading the Key.
6. Introduce a magnet to the reed switch on the feed-alley side of the door. The reed switch is a 1/2" long, black, narrow component near the center of the board. The green light goes out and the red light turns solid.
7. Remove both the magnet and the Key. Within a few seconds the red light resumes blinking.
8. Test by applying the spare Key to the animal side of the door. A click and a retracting solenoid bolt confirm success.
9. Attach the spare Key to the appropriate animal.

10. Contact American Calan to order a replacement Key with the proper channel pre-configured (see Support & Contact).
11. When the replacement Key arrives, repeat steps 2 to 8 to reprogram the board back to the original Key, attach it to the animal, and return the spare Key to inventory.

Replacing a Key Insert

A Key Insert is the component inside the animal Key shell. If the shell is in good condition but the insert is faulty, replace the insert.

1. Follow the spare-Key procedure above to maintain the animal's assignment while servicing the faulty Key.
2. When contacting American Calan, request a Key Insert replacement and include the channel numbers needed.
3. When the replacement arrives, unscrew the two screws in the Key shell.
4. Remove the faulty insert and fit the new Key Insert. Reconnect the two shell halves. The Key is ready to return to service.
5. Return your spare Key to inventory.

Maintaining spare Key and insert stock

> **NOTE** **SPARES ARE TEMPORARY**
>
> Spare Keys are a temporary solution only. They are not intended for permanent animal assignments.

Recommended spare stock levels:

CALAN DOORS IN OPERATION	SPARE KEYS TO STOCK
48 or fewer	**2 to 4**
More than 48	**4 to 6**

Ordering replacement Keys or inserts

To order a replacement Key or Key Insert, contact American Calan directly. Have the channel number and your facility name available when you call or email (see Support &

Contact).

SECTION 7

Parts List

Calan Door and solenoid components

The exploded views (Figures 4I, 4J, 4K) identify Calan Door and solenoid components. Use the reference number or code number when ordering; contact American Calan with the code number and your facility name.

REF	PART	FIG.	CODE NO.
1	Cable Assembly	4H	02037
2	Cadmium Key	4G	04022
3	Catch Plate	4K	02034
4	Catch Plate Bolts and Nuts (Set of 2)	4K	02039
5	Circuit Board	4H	04006
6	Cotter Pin (Spring Bushing)	4J	01015
7	Cotter Pin (Hinge Shaft)	4J	01020
8	Cover Plate with Screws	4K	02033
9	Cover Plate Screws (Set of 4)	4H	01033
10	Door Shell	4J	03007
11	Frame and Hinge Assembly	4J	04121
12	3 Amp Fuse (Package of 6: 2-AGC 3A & 4-GMA 3A)	4F	01023
13	Hinge (Set of 2)	4J	04122
14	Hinge Bolts (Set of 4)	4J	04123
15	Hinge Shaft	4J	04124
16	Hinge Shaft Washer	4J	04125
17	Hinge Spring	4J	03076

REF	PART	FIG.	CODE NO.
18	Hinge Spring Adjuster	4J	03077
19	Junction Box (Dust-Proof) with Fuse Assembly	4F	04025
20	Mounting Bolt & Nut (Set of 3)	Not shown	01016
21	Nylon Poly Cord	4G	04029
22	Nylon Poly Lock	4G	04030
23	Power Supply Unit	4F	04023
24	Quick Tie	4G	04024
25	Rubber Door Stopper	4K	01017
26	Solenoid Assembly (solenoid, bolt, spring, mounting screw, retention screw, rear pole inner, rear pole retention screw, washer set)	4I	04002
27	Solenoid Bolt	4I	03001
28	Solenoid Bolt Retention Screw	4I	03010
29	Solenoid Mounting Screw	4I	03013
30	Solenoid Rear Pole Inner	4I	03012
31	Solenoid Rear Pole Retention Screw	4I	03014
32	Solenoid Spring	4I	03015
33	Solenoid Washer Set	4I	03016
34	Spacer (Set of 4)	4H	02032
35	Split Ring	4G	04028
36	Tuned Key (Channel 1, 2, etc.)	4G	01022

SECTION 8

Electrical Specification

System wiring and power requirements

The diagram below shows the Calan Broadbent Feeding System electrical layout, including the transformer, junction boxes, and door wiring.

CAUTION **POWER REQUIREMENTS**

The system runs on 24 V AC. The supplied transformer steps 120 V or 240 V input down to 24 V AC output and conditions power for all doors. Each junction box has a 3 A fuse.

SECTION 9

Conditions of Warranty

- American Calan Inc. warranties equipment for a period of one year from the date of delivery or from the date of commissioning if applicable.
- The Calan Broadbent Feeding System requires a reasonably steady supply on 24 volt AC. The transformer supplied at the time of installation is responsible for preconditioning the electricity for all Calan Broadbent Doors. In addition, each junction box is fitted with a 3 amp fuse to provide further protection of the system. The transformers must be supplied with a maximum of 240 volts of 50/60 cycle electricity. The minimum voltage for successful performance is 200 volts. Failure to maintain current supplies within the above parameters will void warranty.
- Faulty equipment should be returned to our factory or to our agent for repair or replacement at the discretion of American Calan.
- Shipping cost of replacement parts reported within 10 days of receipt of equipment will be paid by American Calan. Shipping cost for replacement parts reported after this period are to be paid by the customer.
- Labor costs for the installation of replacement parts are to be paid by the customer.
- The equipment warranty is valid if instructions for installation and use of the equipment have been adhered to. Failure to observe instructions may result in the invalidation of the warranty at the discretion of the manufacturer.
- Equipment is sold for purchaser use only. Resale of such equipment will invalidate the warranty, except in cases where an authorized agent is reselling new equipment to final user.

NOTE **EDITOR'S NOTE**

Current Calan transformers accept 120 V or 240 V input and output 24 V AC. The warranty text above is reproduced as originally written.

SECTION 10

Support & Contact

How to reach us

For parts, replacement Keys or inserts, service, or questions about your Calan Broadbent Feeding System, contact American Calan.

American Calan, Inc.

454 Jenness Pond Rd, Northwood, NH 03261

(603) 942-7711

office@americancalan.com

www.americancalan.com

Support: www.americancalan.com/services

NOTE **BEFORE YOU CALL**

Have your channel number(s) and facility name ready when ordering Keys or inserts.