Rexroth
Bosch Group

CS 106

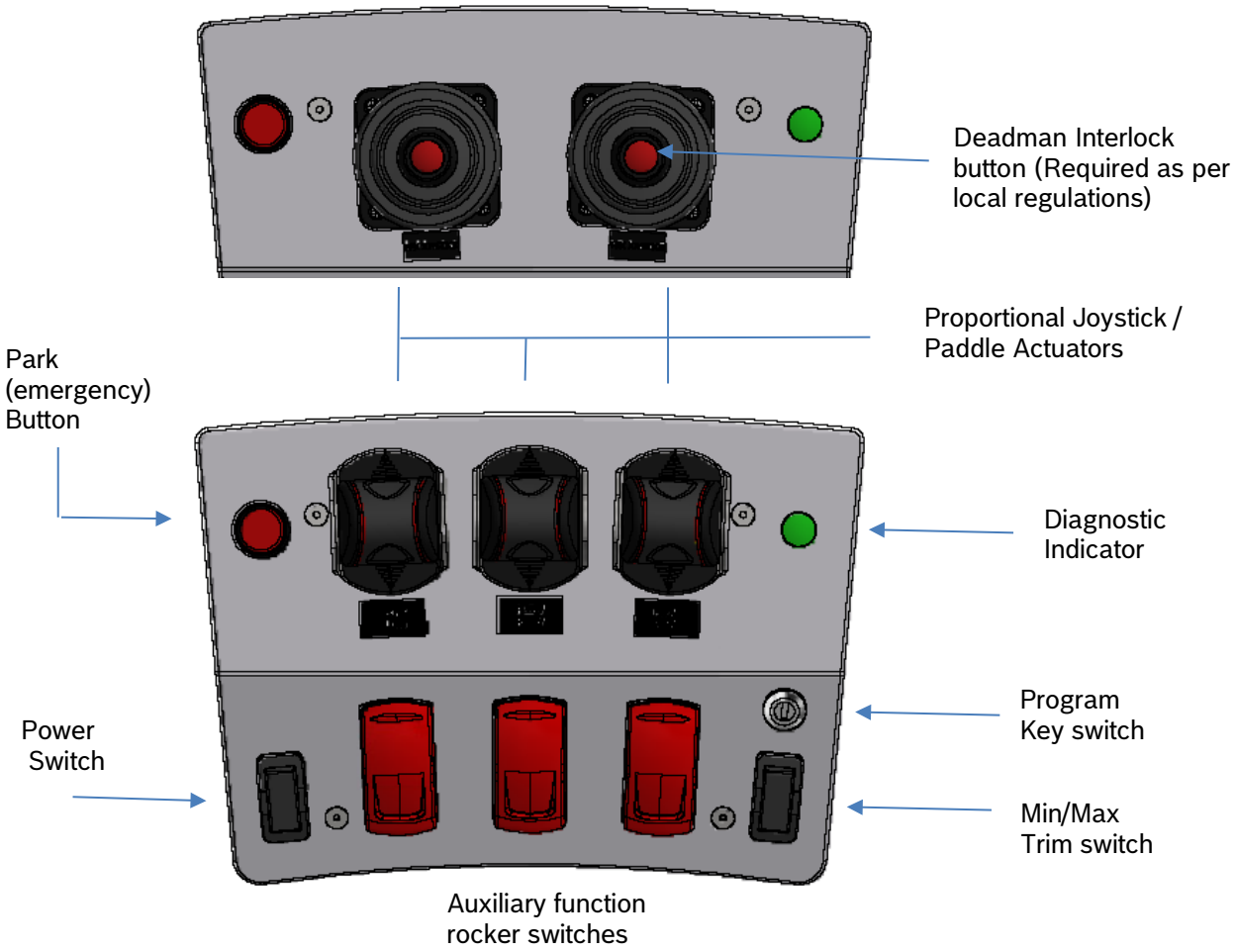
Proportional Paddle Joystick Controller

Setup Manual

Table of Contents

1 LAYOUT

The CS 106 is a customized proportional controller utilizing single axis paddles or 1 to 3 axis joysticks. All outputs can have minimum and maximum trim values to provide precise hydraulic control. Configurable Park set points allow multiple outputs to be activated at the same time to provide an emergency raise or convenient stow option. Shrouds and output interlocks are available to comply with safety standards. The controller has on-board diagnostics to indicate fault conditions and to localize the problem. Custom auxiliary rocker switches are also available.



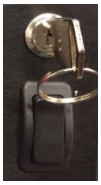
2 PANEL CONTROLS

Power switch – Powers up the proportional electronics (Aux switches are powered separately)

Paddle / Joystick – Sends a precision signal to the valve drivers to allow proportional feathering.

Park button – Can be configured to activate multiple functions simultaneously when the switch is momentarily pushed

Diagnostic Indicator – Visually indicates programming and fault conditions through a series of diagnostic flashes. An internal buzzer is also included to communicate status and faults.



Program Key Switch – Sets the unit into program mode.

Min / Max Trim Switch – used in program mode to set the minimum and maximum operational range of Paddle / Joystick Function.

3 PROGRAM MODE

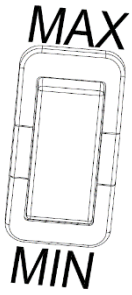
Program mode is used to set min and max trim values for Paddle / Joystick functions and to set Park / Emergency function. Paddles / Joystick functions will have full range of hydraulic output and Deadman button is not required while in program mode.

To enter Program mode:

1. Insert program key.
2. Turn the program key ¼ turn clockwise.
3. The diagnostic indicator will turn green and there will be an audible beep.

4 SETTING TRIM VALUES

Each Paddle / Joystick function direction can be set to have a custom minimum and maximum trim settings in program mode. To set the minimum and maximum trim value for each direction:



1. Move the Paddle / Joystick in the desired direction to the preferred minimum hydraulic output.
2. While holding the position press the lower portion of the trim switch (MIN) to set the minimum value.
3. Move the Paddle / Joystick in the desired direction to the preferred maximum hydraulic output.
4. While holding the position press the upper portion of the trim switch (MAX) to set the maximum value.
5. Repeat steps 1 to 4 for all Paddle / Joystick function directions as required.

Minimum trim values cannot be set above maximum trim values. If the minimum trim value is set higher than the maximum trim value, there will be an audible beep and the diagnostic indicator will flash red together three times, repeating until the minimum is set lower than the maximum. Trim Values will not be saved until the error is corrected.

Setting Trim Values to Default

In program mode, hold the upper portion of the trim switch until three audible beeps are heard (to warn that trim values will be set to defaults), followed by one long beep to indicate trim values have been set to default. Trim values will be set to default minimum (800mA) and maximum (1800mA) trim values.

5 SETTING PARK / EMERGENCY VALUES

Each Paddle / Joystick function can have one direction set to activate when the Park button is pushed. A maximum hydraulic output value can be set for each desired direction. To set the Park:

1. Move the Paddle / Joystick in the desired direction to the preferred maximum hydraulic park output value.
2. While holding the position press the park button to set the maximum park value.
3. Repeat for any other desired park directions

CLEARING PARK / EMERGENCY VALUES

In program mode with all Paddle / Joystick functions at neutral positions, hold park button until three audible beeps are heard (to warn that park values will be cleared), followed by one long beep to indicate all park values have been cleared.

6 DIAGNOSTIC FAULT MESSAGES

By default, diagnostic messages are disabled (Diagnostic messages were always enabled on firmware version 13 and below). Diagnostic messages are enabled after you have entered program mode. Diagnostic messages will remain enabled until the CS-106 is rebooted. Diagnostic fault messages provide visual feedback on the programming and fault conditions by a series of flashes of the diagnostic indicator. The buzzer will indicate the start of an error message sequence.

Power Fault: In the event of a power fault when the controllers supply voltage is below 10v the controller will indicate with:

One Beep following by 3 red flashes.

Channel Fault: Channel Faults are indicated by two sets of red flashes separate by one green flash. The **first set of flashes** will define the channel that is affected:

1 Flash Channel #1 Output on 1A and 1B
2 Flashes Channel #2 Output on 2A and 2B
3 Flashes Channel #3 Output on 3A and 3B
4 Flashes Channel #4 Output on 4A and 4B
5 Flashes Channel #5 Output on 5A and 5B
6 Flashes Channel #6 Output on 6A and 6B
7 Flashes Channel #7 Output on 7A and 7B

The **second set of red flashes** after the green flash indicate:

1 Flash Paddle / Joystick actuator input out of range or non-neutral.
2 Flashes PWM fault. Coil / cable open/disconnected or short

Trim Switch Fault: If the Trim switch is defective and faulted in the min or max position, it will be indicated by:

8 red flashes 1 green flash then 1 red flash

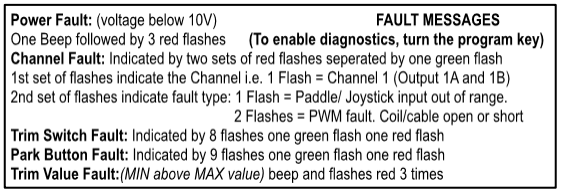
Park Button Fault: If the Park Button is defective and faulted in the on position, it will be indicated by:

9 fast flashes 1 green flash then 1 red flash

Trim Values Fault: If minimum value is set above maximum value, it will be indicated by:

Beep and Flash Red together 3 Times

Fault Messages Reference Label: All CS-106 include a Fault Messages reference label on the back of the console for quick field diagnostics.



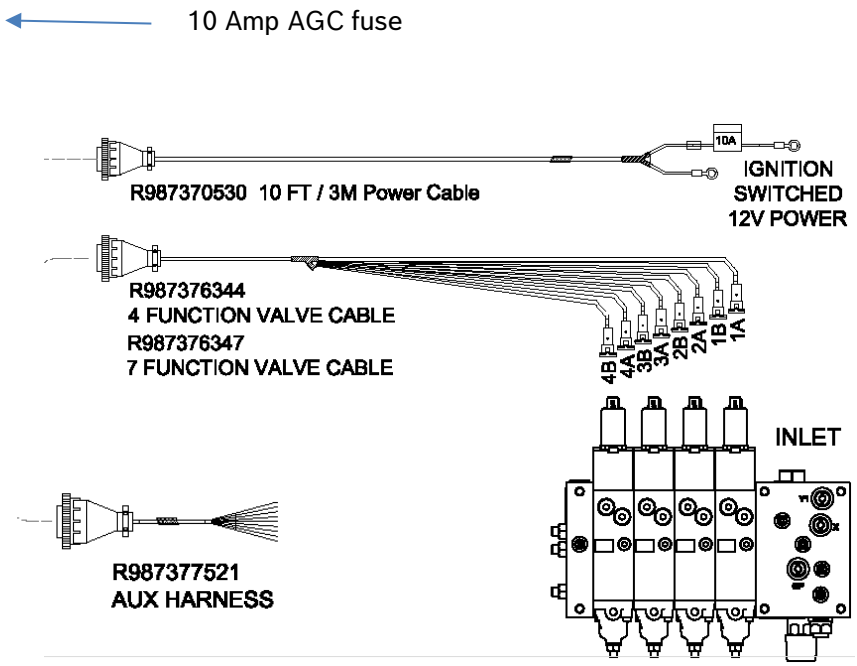
SILENCING THE BUZZER

The buzzer can be disabled in operation mode, with only the diagnostic indicator to alert faults.

Disable the buzzer: While in operation mode hold the lower portion of the trim switch until three audible beeps are heard (to warn that the buzzer will be disabled), followed by one long beep to indicate the buzzer is disabled.

Enable the buzzer: While in operation mode hold the upper portion of the trim switch until three audible beeps are heard (to warn that buzzer will be enabled), followed by one long beep to indicate the buzzer is enabled.

7 CABLE CONNECTIONS

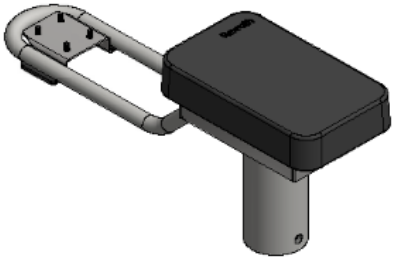


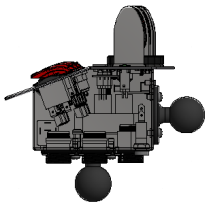
Refer to the Order Specific Documentation for custom functionality of each console.

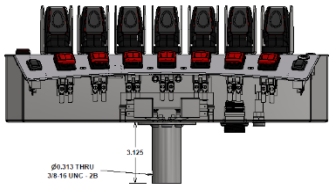
8 MOUNTING OPTIONS

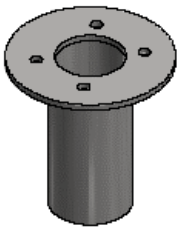
The three available mounting options are:

1 - RAM ball
2 - Pedestal tube
3 – Armrest









4x 10-32 bolts from the bottom fasten the armrest