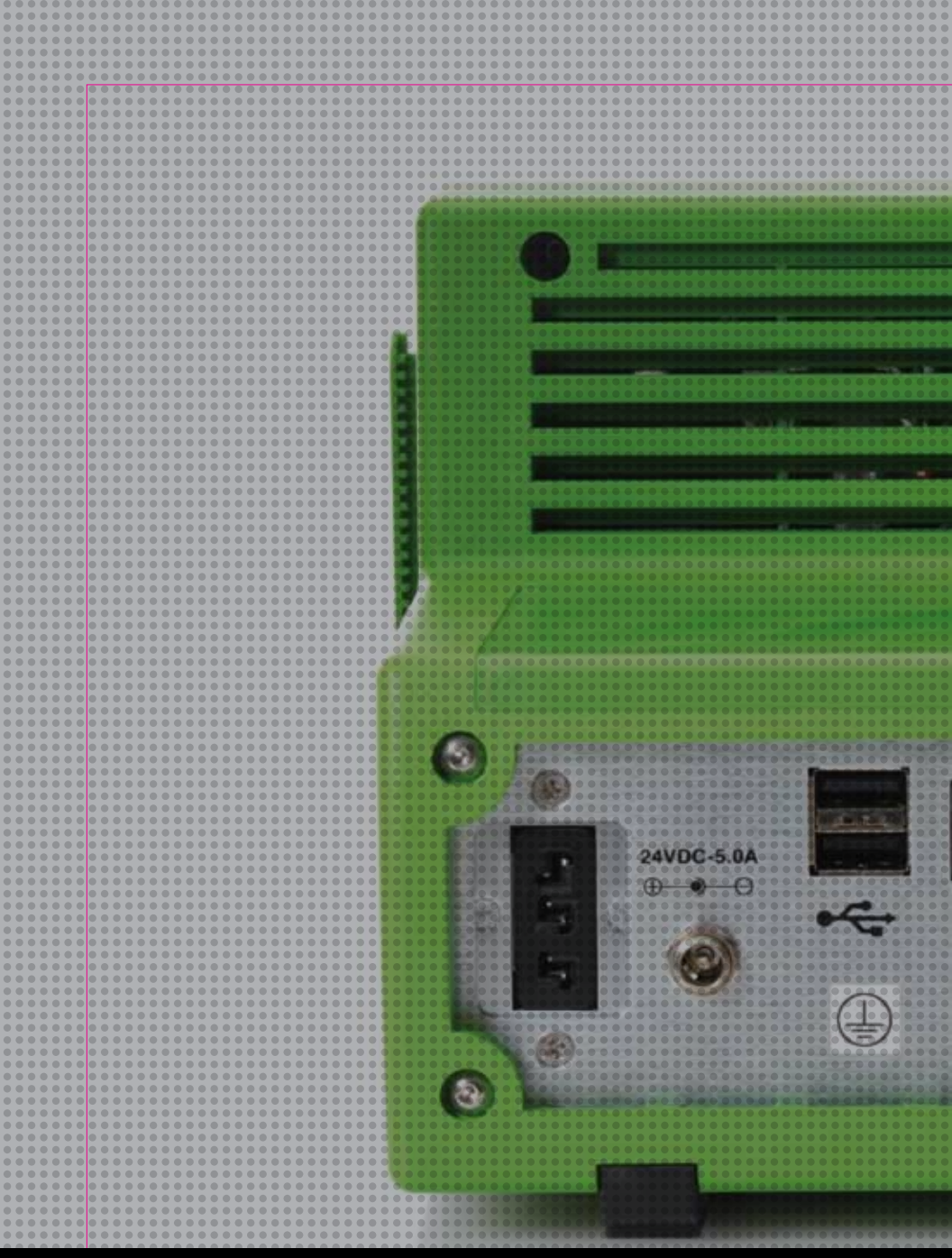

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INTEGRATOR MANUAL

Programmable Logic Controller Setup Guide

PLC

FISHMAN®
Dispensing Innovation™

Thank you for purchasing the SmartDispenser™

THE FUTURE OF FLUID DISPENSING.

This setup guide is designed to help Integrators setup the SmartDispenser™ system via programmable logic controller.

If you are unsure of any step or have questions about integration, contact your Fishman distributor, or call us at one of the numbers below.

US & Canada: 800-433-2115

United Kingdom: 1905 456008

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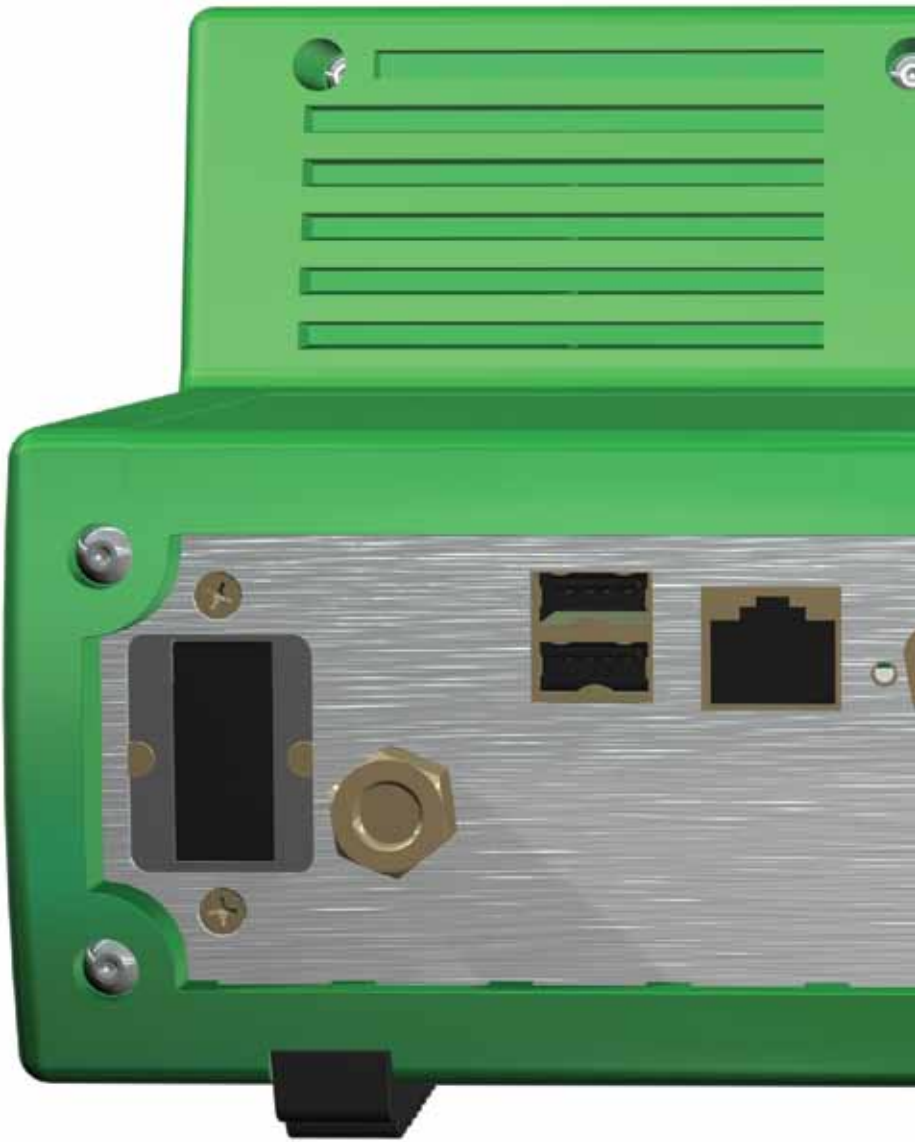
Worldwide: 1-508-435-2115

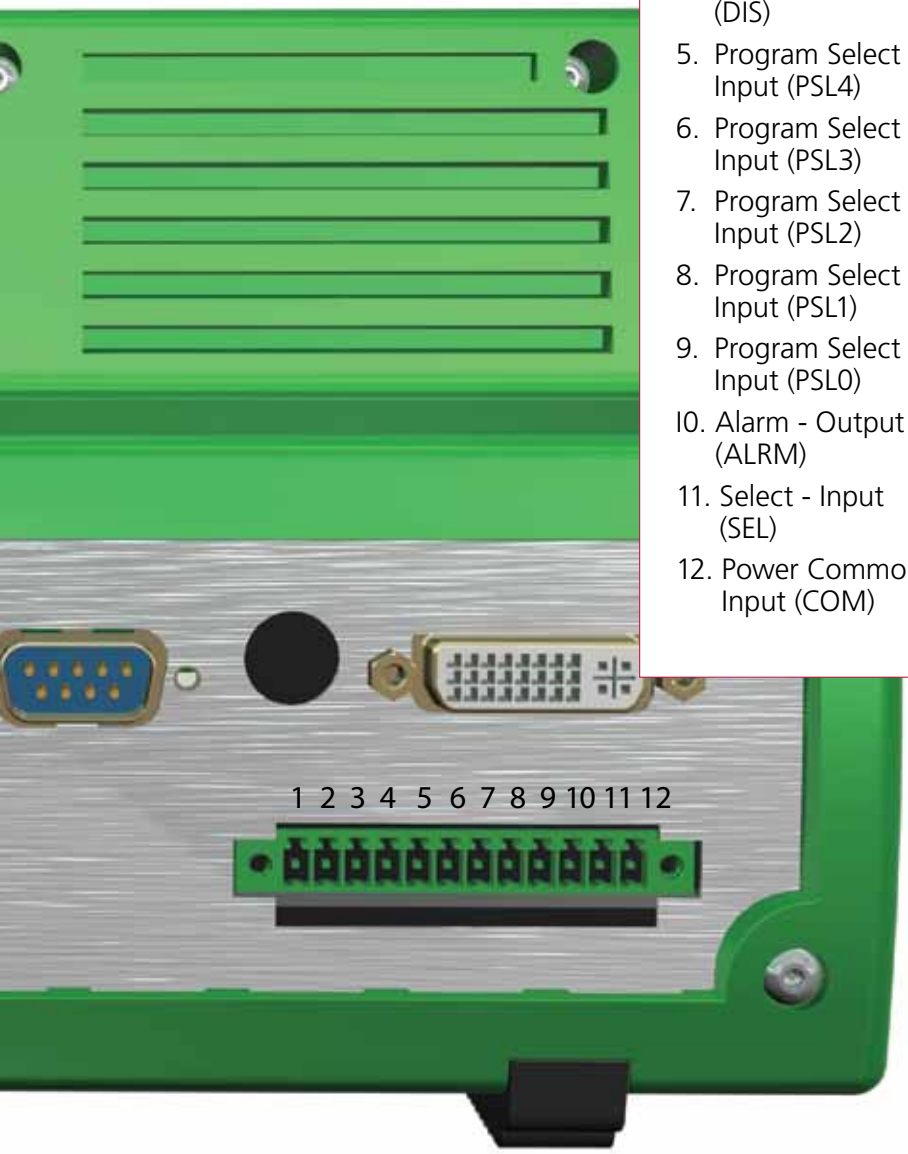
SmartDispenser™

Table of Contents

1.0 12 Pin I/O Terminal

1.1 **The SmartDispenser™ is equipped with a twelve pin, I/O terminal connector which is located on the back of the unit.**





Twelve Pin Key

1. Power - Input (PWR)
2. Empty - Output (EMPY)
3. Ready - Input (RDY)
4. Dispense - Input (DIS)
5. Program Select 4 - Input (PSL4)
6. Program Select 3 - Input (PSL3)
7. Program Select 2 - Input (PSL2)
8. Program Select 1 - Input (PSL1)
9. Program Select 0 - Input (PSL0)
10. Alarm - Output (ALRM)
11. Select - Input (SEL)
12. Power Common - Input (COM)

2.0 SmartDispenser™ I/O Pin Descriptions

2.1 I/O Terminal Connector

All SmartDispenser™ inputs and outputs are active LOW. In this section, I/O pin numbers and there descriptions.

I/O Description Table

SIGNAL	PIN #	DIR	DESCRIPTION
Power (PWR)	1	SD Input	User supplied 5-24VDC Power
Common (COM)	12	SD Input	User supplied 5-24VDC Common
Select (SEL)	11	SD Input	The SELECT signal is used to strobe in a control value present on the PROG SELECT bus. This signal must be a 2 to 50 mS wide pulse. A SELECT operation will result in the READY signal being temporarily inactive while the command is processed by the SmartDispenser™.
Prog Select Bits 0-4			The PROG SELECT bus (5 bits wide) is used to enter control parameters into the SmartDispenser™. The value represented by this control word is latched upon assertion of the SELECT strobe. The control word is defined as follows: 0x00: PROG PC2 – Selects program sequence in PC2 Mode 0x01..0x08: Selects Saved Prog 1 to Prog 8 in Traditional Mode0x09..0x1E: Reserved
PLS0	9	SD Input	
PLS1	8	SD Input	
PLS2	7	SD Input	
PLS3	6	SD Input	
PLS4	5	SD Input	

I/O Description Table (Continued)

SIGNAL	PIN #	DIR	DESCRIPTION
Prog Select Bits 0-4			The PROG SELECT bus (5 bits wide) is used to enter control parameters into the SmartDispenser™. The value represented by this control word is latched upon assertion of the SELECT strobe. The control word is defined as follows: 0x00: PROG PC2 – Selects program sequence in PC2 Mode 0x01..0x08: Selects Saved Prog 1 to Prog 8 in Traditional Mode0x09..0x1E: Reserved
PLS0	9	SD Input	
PLS1	8	SD Input	
PLS2	7	SD Input	
PLS3	6	SD Input	
PLS3	5	SD Input	
Dispense (DIS)	4	SD Input	The DISPENSE signal is used to initiate a dispense cycle. The SmartDispenser™ must be in the proper mode in order for this signal to be initiated. (For example, no dispense will be performed if the dispenser is empty or READY is not asserted.) A DISPENSE will result in READY signal going inactive while the dispense is taking place. An EMPTY signal will be returned from the SmartDispenser™ when a dispense operation is completed and there is not sufficient fluid available for the next dispense operation.

I/O Description Table (Continued)

SIGNAL	PIN #	DIR	DESCRIPTION
Ready (RDY)	3	SD Input	The READY signal is an indicator from the SmartDispenser™. It indicates that the SD is READY to accept a command. During system initialization, the READY signal is inactive. When the system is ready to accept commands such as selecting a program or dispensing, READY is active. Following a SELECT command, the READY signal will be temporarily inactive while the command is processed by the SmartDispenser™. Following a DISPENSE command, the READY line will be inactive during the entire dispense cycle.

I/O Description Table (Continued)

SIGNAL	PIN #	DIR	DESCRIPTION
Alarm (ALRM)	10	ISD Output	The ALARM signal is an indication of an alarm condition which requires attention. For example, when operating with a scale, the ALARM would indicate that the scale did not read a value within the expected range. The system will not respond to SELECT or DISPENSE signals when in the ALARM state. The output is active as long as the condition persists.
Empty (EMPY)	2	ISD Output	The EMPTY signal is an indication from the SmartDispenser™ that the dispenser syringe does not have enough material left to perform another of the programmed operations. When this signal occurs following a DISPENSE, the preceding DISPENSE operation has completed. The system will not respond to SELECT or DISPENSE signals when in the EMPTY state. This output is active as long as the condition persists.

3.0 I/O Electrical Description

3.1 **Electrically, the SmartDispenser™ is capable of supporting a PLC with I/O operating at 5 to 24VDC.**

3.2 **When the PLC power is applied across the POWER and COMMON inputs and the SELECT input is LOW, the SmartDispenser™ enters PLC mode.**

When in PLC mode, some of the screen features will be locked out. The user will have access to Manual functions to allow for priming the unit.

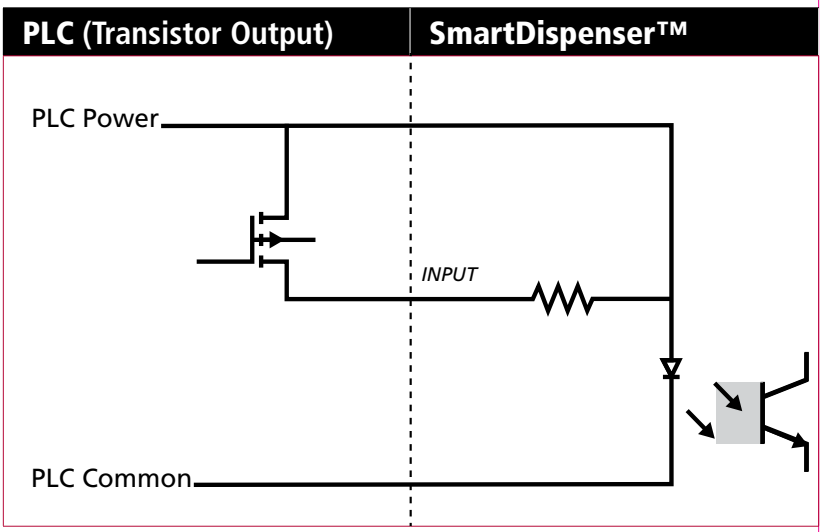
3.3 Inputs

3.3.1 The PLC inputs to the SmartDispenser™ are semiconductor opto-isolators, rated at 5-24V input. They are used as follows:

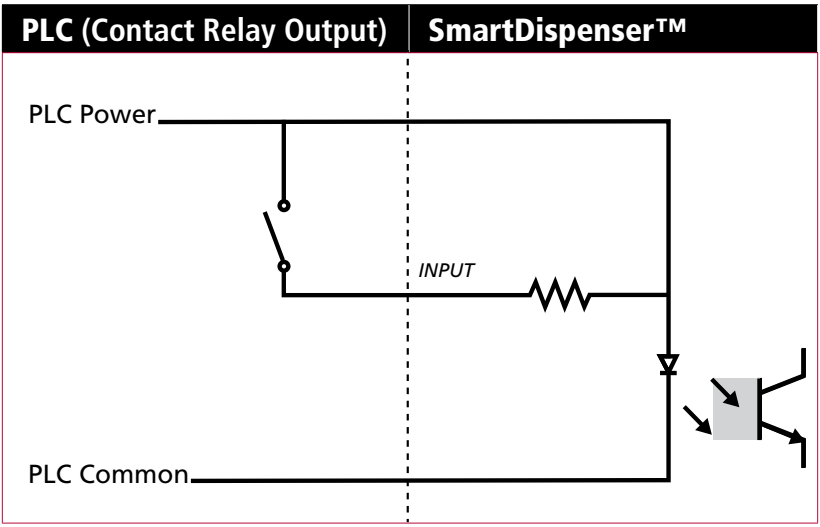
3.3.1.1 ACTIVATE INPUT = LOW (OPEN)

3.3.1.2 DEACTIVATE INPUT = HIGH (CLOSED APPLY 5-24VDC)

3.3.2 For PLCs that utilize transistor-based outputs, the suggested configuration is as follows:



3.3.3 For PLCs that operate with isolated contact relays, the suggested configuration is as follows:



3.4 Outputs

3.4.1 The outputs are transistor driven contacts pulled up to the PLC voltage (5-24VDC) and switched to ground (PLC Common.) An output is considered active when it is switched LOW (equal to PLC Common).

4.0 SmartDispenser™ PLC Integration

4.1 The SmartDispenser™ is capable of storing and remotely selecting any pre defined program. To select a predefined program (program 1-31)

4.1.1 Wait for SmartDispenser™ READY signal to be LOW.

4.1.2 Set PLC program select bits to binary value of program desired. (Note: SD inputs are active LOW)

4.1.3 Pulse SELECT input from HIGH to LOW to HIGH. The LOW state must exist for a duration of 2-50 milliseconds.

4.1.4 Confirm that command is received. The SmartDispenser™ READY signal will transition to HIGH state and then back to LOW state.

4.2 **Triggering a Dispense Cycle**

4.2.1 Wait for SmartDispenser™ READY signal to be LOW.

4.2.2 ALARM and EMPTY signals will be at a HIGH state.

4.2.3 Turn PLC dispense trigger to LOW.

4.2.4 Wait for SmartDispenser™ READY to reach HIGH state.

4.2.5 Turn PLC dispense trigger to HIGH.

4.2.6 Wait for SmartDispenser™ READY signal to return to LOW state before next trigger.

SmartDispenser™

Meets applicable CE requirements.

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