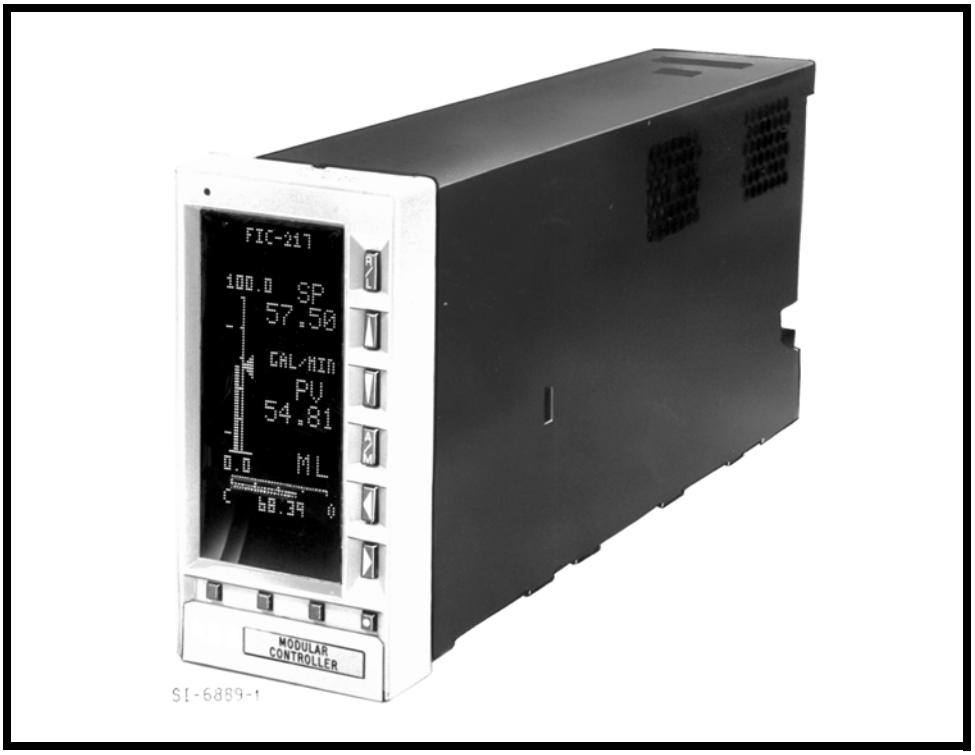
ADDENDUM

Micro-DCI™ Single Loop Controller
53SL5100A
Rev. 1 Firmware



PN24585
Rev. 1

NOTE:
The purpose of this addendum is to supplement and provide additional information applicable to the Micro-DCI™ 53SL5100A Single Loop Controller Instruction Bulletin (PN24469).

MicroMod AUTOMATION

MicroMod Automation, Inc.

The Company

MicroMod Automation is dedicated to improving customer efficiency by providing the most cost-effective, application-specific process solutions available. We are a highly responsive, application-focused company with years of expertise in control systems design and implementation.
We are committed to teamwork, high quality manufacturing, advanced technology and unrivaled service and support.
The quality, accuracy and performance of the Company's products result from over 100 years experience, combined with a continuous program of innovative design and development to incorporate the latest technology.

Use of Instructions

∆ Warning. An instruction that draws attention to the risk of injury or death.

✎Note. Clarification of an instruction or additional information.

Caution. an instruction that draws attention to the risk of the product, process, or surroundings.

i Information. Further reference for more detailed information or technical details.

Although Warning hazards are related to personal injury, and Caution hazards are associated with equipment or property damage, it must be understood that operation of damaged equipment could, under certain operational conditions, result in degraded process system performance leading to personal injury or death. Therefore, comply fully with all Warning and Caution notices.

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Health and Safety

To ensure that our products are safe and without risk to health, the following points must be noted.
The relevant sections of these instructions must be read carefully before proceeding.

1. Warning Labels on containers and packages must be observed.
2. Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given or injury or death could result.
3. Normal safety procedures must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
4. Chemicals must be stored away from heat, protected from temperature extremes and powders kept dry. Normal safe handling procedures must be used.
5. When disposing of chemicals, ensure that no two chemicals are mixed.

Safety advice concerning the use of the equipment described in this manual may be obtained from the Company address on the back cover, together with servicing and spares information.

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1.0 APPLICABLE DOCUMENTATION

This addenda publication contains additional information applicable to the Micro-DCI™ *53SL5100A Instruction Bulletin, SIngle Loop Controller*.

1.1 SCOPE OF CHANGES

Contact Closure Output 1 (CCO-1) functionality is added to the 53SL5100A Single Loop Controller as a result of Revision 1 to the firmware EPROM. CCO-1 operates with Control Strategies 1, 3 and 4 of the Single Loop Controller. These Control Strategies are respectively the Single Loop (PID) Controller, Ratio (PID) Controller and Automatic/Manual Station.

Also, as a result of Revision 1 to the firmware EPROM, there are Process Alarm selectable assignments now available for Contact Closure Output 0 (CCO-0). (The newly added CCO-1 does not have selectable Process Alarm assignments, but is dedicated only to Process Alarm 2 [PA2].)

2.0 CONTACT CLOSURE OUTPUT 1 (CCO-1) SPECIFICATIONS

CCO-1 is a solid state device that can be configured as a normally open or normally closed switch. It has a maximum voltage rating of 30 V dc and a maximum current rating of 50 mA.

2.1 CONTACT CLOSURE OUTPUT 1 (CCO-1) WIRING CONNECTIONS

Connection to CCO-1 is made at pin 18 of TB1. CCO-1 is referenced to power common (pins 11, 14 and 17 of TB1 are power common pins). When CCO-1 is connected to an inductive load, an external arc suppression network is required for contact protection.

2.2 CONTACT CLOSURE OUTPUT 1 (CCO-1) DATAPOINT MODULE

Datapoint assignments that control CCO-1 operation are described in Table 1 as follows:

Table 1. Contact Closure Output Module 1 (CCO-1)

Title	Symbol	CCO0 Datapoint	Default	Attribute
Purpose: This module allows the action of CCO-1 to be reversed (normally a closed contact = 1, but can be changed to = 0).				
Contact Output (Display Only)	CCO1	L025	0	If CCO-1 = 0 and OINV = 0, then it is open. If CCO-1 = 0 and OINV = 1 then it is closed. If CCO-1 = 1 and OINV = 0 then it is closed. If CCO-1 = 1 and OINV = 1 then it is open.
Contact Output Invert	OINV1	L289	0	As shown above, it reverses the action of CCO-1 datapoint.
Tag Name	COTAG1	A281	CCO1	It is an assignable 10 character name for the contact control output.

3.0 PROCESS ALARMS 1 AND 2 (PA1 AND PA2)

As with CCO-0, the purpose of CCO-1 is to convert a logic level to a hardware contact condition. The logic levels applicable to CCO-0 are now selectable from Process Alarm 1 (PA1) alone, or either Process Alarm 1 or 2 (PA1 or PA2). The logic level applicable to CCO-1 is PA2 only. The Process Alarms are configured with an index value from 0 to 6 that is loaded into the Control Alarm Mode datapoint B335 of the Controller Module (CON-0). The definitions for PA1 and PA2 therefore vary, depending on the index value of B335.

Descriptions of the PA index values, as well as examples of true conditions, are provided in Table 4-4, Controller Module (CON-0) of *Instruction Bulletin 53SL5100A, Single Loop Controller*.

3.1 CCO-0 ALARM SELECT DATAPOINT L084

CCO-0 Alarm Select datapoint L084 determines which Process Alarms affect the state of CCO-0. If L084 is ***0***, then when PA1 **or** PA2 is active (***1***), CCO-0 is active (***1***). If L084 is ***1***, then when PA1 is active (***1***), CCO-0 is active (***1***); PA2 has no effect. Table 2 is provided to illustrate the effect of L084 on CCO-0 output given the states of PA1 and PA2. In Table 2, 1 = active state and 0 = inactive state.

When L084 = 0:

At Line item 1, *Neither* PA1 nor PA2 = 1; therefore, CCO-0 (L024) = 0.
At Line item 2, PA2 = 1; therefore, CCO-0 (L024) = 1.
At Line item 3, PA1 = 1; therefore, CCO-0 (L024) = 1.
At Line item 4, Either PA1 or PA2 would cause CCO-0 (L024) to equal 1.

When L084 = 1:

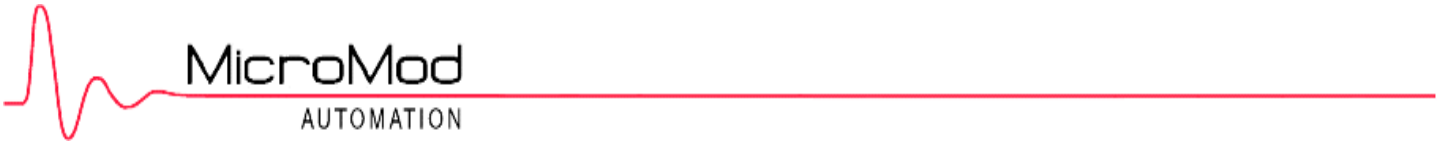
At Line item 1, PA1 = 0 and PA2 has no effect; therefore, CCO-0 (L024) = 0.
At Line item 2, PA1 = 0 and PA2 has no effect; therefore, CCO-0 (L024) = 0.
At Line item 3, PA1 = 1 and PA2 has no effect; therefore, CCO-0 (L024) = 1.
At Line item 4, PA1 = 1 and PA2 has no effect; therefore, CCO-0 (L024) = 1.

In Table 2, CCO-1 always has the same state as PA2, because L084 has no effect on CCO-1. (CCO-1 is always dedicated to PA2.)

Table 2. Process Alarm Selections

Line Item	When L084 = 0 (PA1 or PA2 Affects CCO-0)				When L084 = 1 (Only PA1 Affects CCO-0)			
	PA1 (L110)	PA2 (L111)	CCO-0 (L024)	CCO-1 (L025)	PA1 (L110)	PA2 (L111)	CCO-0 (L024)	CCO-1 (L025)
1	0	0	0	0	0	0	0	0
2	0	1	1	1	0	1	0	1
3	1	0	1	0	1	0	1	0
4	1	1	1	1	1	1	1	1

✎ **Note** The output of CCO-0 can be inverted as determined by the setting of the Contact Output Invert 0 (OINV0) datapoint L288. The affect of this datapoint on CCO-0 output is described in Table 4-7, Contact Output Module (CCO) of *Instruction Bulletin 53SL5100A, Single Loop Controller*.



MicroMod Automation, Inc.
75 Town Centre Drive
Rochester, NY USA 14623
Tel. 585-321-9200
Fax 585-321-9291
www.micromodautomation.com