



PLC on a Chip Patent 7,299,099

Technical Data for *PLC on a Chip* Module Hardware Models

PLCMOD-M2-1280XX
PLCMOD-M2-256XXX
PLCMOD-M2-512XXX

TECHNICAL DATA SHEET



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SECTION 1

OVERVIEW



Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 1 - 2

Table of Contents

SECTION 1 - OVERVIEW

Table of Contents	1 - 2
Revision History	1 - 3
Definitions	1 - 4
About this Data Sheet	1 - 5
PLCMOD-M2-1280XX Features	1 - 6
PLCMOD-M2-256XXX Features	1 - 7
PLCMOD-M2-512XXX Features	1 - 8

SECTION 2 - SIGNAL DESCRIPTIONS

P1 Pin Function Summary	2 - 2
P2 Pin Function Summary	2 - 4
Detailed Signal Descriptions	2 - 7

SECTION 3 - ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings	3 - 2
Normal Operating Conditions	3 - 2
Power Dissipation /Thermal Characteristics	3 - 3

SECTION 4 - PACKAGE INFORMATION

PLC on a Chip Module Pin Out Orientation	4-2
PLC on a Chip Module Dimensions	4-3
P1 & P2 PCB Layout Details	4-4

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 1 - 3

Revision History

<u>Revision</u>	<u>Release Date</u>	<u>Description of Changes</u>
Rev. A	07/14/2004	Initial Release of Data Sheet.
Rev. B		<ol style="list-style-type: none"> 1. Corrected Errors. 2. Reorganized Datasheet & Separated Circuit Designs into separate document.
Rev. C	8/9/2005	<ol style="list-style-type: none"> 1. Corrected Errors 2. Updated Specifications 3. Updated PIN descriptions and Alphabetized Pin List.
Rev. D	3/15/2006	<ol style="list-style-type: none"> 1. Corrected Errors 2. Updated Chip Part Numbers and Specifications for new PLC on a Chip chips per ECN 1466.
Rev. E	12/13/2007	<ol style="list-style-type: none"> 1. Added Patent Information 2. Removed PWM from PLCMOD-M2-128000 3. Added coloring to emphasize low voltage pin.

IMPORTANT NOTICE

Divelbiss reserves the right to discontinue or make changes to its products without notice. Customers assume the responsibility for the appropriate application of Divelbiss components. It is the customer's responsibility to ensure that adequate design and operating safeguards are addressed to eliminate any hazards inherent to their application.

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 1 - 4

Definitions

EEPROM	Electrically erasable-programmable read only memory
FLASH	A type of non-volatile memory
HDIO	Divelbiss high density input output bus
LQFP	Leaded quad flat package
SRAM	Static random access memory
TTL	Transistor-transistor logic
SSI	Synchronous Serial Interface
CAN	Controller Area Network

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 1 - 5

About this Data Sheet

This data sheet is provided to provide technical information on the PLC on a Chip Module. This document provides the information listed in the Table of Contents.

For circuit design information, including recommendations on PLC on a Chip Module circuitry considerations including layout, PCB design, recommended required circuitry and peripheral circuitry including I/O, please refer to the **PLC on a Chip Circuit Design Guidelines** document.

For specific information regarding configuring a PLC on a Chip Module for use in EZ LADDER, refer to the **PLC on a Chip EZ LADDER Configuration** document.

CAUTION!!!

When handling the PLC on a Chip Module, please follow component ESD handling procedures to prevent the PLC on a Chip being damaged by electro-static discharge.

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 1 - 7

PLCMOD-M2-256XXX

(The PLCMOD-M2-2563XX is not recommended for new designs. Please use PLCMOD-M2-2562XX instead.)

Memory

FLASH	256KB
EEPROM	4KB
SRAM	12KB

Power supply

5VDC

Temperature

-40°C to +85°C

Communications

Asynchronous Serial: 1 - TTL Programming port, 1 - TTL Multipurpose port
 Baud Rate: Programming Port - 9600-57600 bps
 TTL Multipurpose Port - 9600-57600 bps (115200 bps Modbus slave)

Synchronous Serial: SPI compatible, 1 - TTL level

CAN: Up to 5 TTL level CAN Ports

Input / Output

Analog Input 8 channels 0-5VDC 10bit

PWM Output Up to 8 channels 8-bit or Up to 4 channels 16-bit

Digital Input Up to 33 0-5 VDC inputs

Digital Output Up to 33 0-5 VDC outputs

Divelbiss HDIO bus 128 inputs on HDIO modules
 24VAC
 115VAC
 10-24VDC

128 outputs on HDIO modules
 10-24VDC @ 1A
 24-115VAC @ 1A
 Relay @ 5A
 Form C Relay @ 10A

Real Time Clock

Optional

Programming

Programs using Divelbiss EZ Ladder, a ladder diagram and function block development platform.

Part Numbering

PLCMOD-M2-256 X X 0

of CAN Ports

- 0 None
- 2 3 CAN Ports
- 3 5 CAN Ports

Real Time Clock

- 0 None
- 1 Installed

SECTION 2

SIGNAL DESCRIPTIONS



Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 2 - 2

P1 Pin Function Summary

Pin Number	Primary Function	Alternate Function	Description	EZ Ladder I/O Reference
1	+5VDC (VDD)	----	POWER INPUT	----
2	GND (VSS)	----	DIGITAL GROUND	----
3	NC	----	NOT CONNECTED	----
4	VBAT	----	CONNECTION POINT FOR 3.0VDC BATTERY FOR REAL TIME CLOCK	----
5	+5VDC (VDD)	----	POWER INPUT	----
6	+5VDC (VDD)	----	POWER INPUT	----
7	GND (VSS)	----	DIGITAL GROUND	----
8	GND (VSS)	----	DIGITAL GROUND	----
9	NC	----	NOT CONNECTED	----
10	/RESET	----	BI-DIRECTIONAL RESET - ACTIVE LOW	----
11	RESET	----	RESET OUTPUT- ACTIVE HIGH	----
12	/LOW_VOLTAGE	----	ACTIVE LOW LOW VOLTAGE SENSE INPUT	None
13	/GPI29	/SS0 ²	ACTIVE LOW DIGITAL INPUT / SPI0 SLAVE SELECT SIGNAL (CONSULT FACTORY)	GPI29
14	/GPI32	MISO0 ²	ACTIVE LOW DIGITAL INPUT / SPI0 MASTER IN SLAVE OUT SIGNAL (CONSULT FACTORY)	GPI32
15	/GPI31	MOSI0 ²	ACTIVE LOW DIGITAL INPUT / SPI0 MASTER OUT SLAVE IN SIGNAL (CONSULT FACTORY)	GPI31
16	/GPI30	SCK0 ²	ACTIVE LOW DIGITAL INPUT / SPI0 CLOCK SIGNAL (CONSULT FACTORY)	GPI30
17	TXD0	----	COM0 TRANSMIT SIGNAL - OUTPUT	----
18	RXD0	----	COM0 RECEIVE SIGNAL - INPUT	----
19	/RTS0	CANTX4 ¹	COM0 ACTIVE LOW READY TO SEND SIGNAL / CAN4 TRANSMIT SIGNAL	----
20	/CTS0	CANRX4 ¹	COM0 ACTIVE LOW CLEAR TO SEND SIGNAL / CAN4 RECIVE SIGNAL	----
21	TXD1 ²	----	COM1 TRANSMIT SIGNAL - OUTPUT	----
22	RXD1 ²	----	COM1 RECEIVE SIGNAL - INPUT	----
23	/RTS1 ²	CANRX3 ¹	READY TO SEND / CAN 3 RECEIVE SIGNAL	----
24	/CTS1 ²	CANTX3 ¹	CLEAR TO SEND / CAN3 TRANSMIT SIGNAL	----
25	/GPI9	----	ACTIVE LOW DIGITAL INPUT	GPI9
26	/GPI0	----	ACTIVE LOW DIGITAL INPUT	GPI0

¹ This CAN port is only available on the PLCMOD-M2-5123XX and PLCMOD-M2-2563XX.

² Not Available on the the PLCMOD-M2-1280X0

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 2 - 3

P1 Pin Function Summary (Con't)

Pin Number	Primary Function	Alternate Function	Description	EZ Ladder I/O Reference
27	GPO28	CANTX0 ¹	ACTIVE HIGH DIGITAL OUTPUT / CAN0 TRANSMIT SIGNAL	GPO28
28	GPO29	CANRX0 ¹	ACTIVE HIGH DIGITAL OUTPUT / CAN0 RECEIVE SIGNAL	GPO29
29	GPO27	CANTX1 ¹	ACTIVE HIGH DIGITAL OUTPUT / CAN1 TRANSMIT SIGNAL	GPO27
30	GPO30	CANRX1 ¹	ACTIVE HIGH DIGITAL OUTPUT / CAN1 RECEIVE SIGNAL	GPO30
31	GND (VSS)	----	DIGITAL GROUND	----
32	GPO31	HDIO_BBRESET	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO31
33	GPO22	HDIO_ADDR_4	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO22
34	GPO18	HDIO_BBCLK	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO18
35	GPO21	HDIO_ADDR_5	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO21
36	GPO23	HDIO_ADDR_3	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO23
37	GPO20	HDIO_ADDR_6	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO20
38	GPO17	HDIO_BBWR	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO17
39	GPO19	HDIO_ADDR_7	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO19
40	GPO16	HDIO_BBOUT	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO16
41	GPO26	HDIO_ADDR_0	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO26
42	GPO32	HDIO_BBIN	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO32
43	GPO25	HDIO_ADDR_1	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO25
44	GPO24	HDIO_ADDR_2	ACTIVE HIGH DIGITAL OUTPUT / DIVELBISS HIGH DENSITY I/O EXPANSION BUS SIGNAL	GPO24
45	GPO15	PWM0 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO15
46	GPO14	PWM1 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO14
47	GPO13	PWM2 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO13

¹ This CAN port is only available on the PLCMOD-M2-5123XX and PLCMOD-M2-2563XX.

² Not Available on the the PLCMOD-M2-1280X0

P1 Pin Function Summary (Con't)

Pin Number	Primary Function	Alternate Function	Description	EZ Ladder I/O Reference
48	GPO12	PWM3 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO12
49	GPO11	PWM4 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO11
50	GPO10	PWM5 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO10

P2 Pin Function Summary

Pin Number	Primary Function	Alternate Function	Description	EZ Ladder I/O Reference
1	GPO9	PWM6 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO9
2	GPO8	PWM7 ²	ACTIVE HIGH DIGITAL OUTPUT / PULSE WIDTH MODULATION OUTPUT	GPO8
3	GND (VSS)	----	DIGITAL GROUND	----
4	NC	----	NOT CONNECTED	----
5	NC	----	NOT CONNECTED	----
6	NC	----	NOT CONNECTED	----
7	CNT_B	----	COUNTER INPUT CHANNEL B	----
8	NC	----	NOT CONNECTED	----
9	CNT_A	----	COUNTER INPUT CHANNEL A	----
10	NC	----	NOT CONNECTED	----
11	/GPI1	----	ACTIVE LOW DIGITAL INPUT	GPI1
12	/GPI2	----	ACTIVE LOW DIGITAL INPUT	GPI2
13	/GPI3	----	ACTIVE LOW DIGITAL INPUT	GPI3
14	/GPI4	----	ACTIVE LOW DIGITAL INPUT	GPI4
15	/GPI5	----	ACTIVE LOW DIGITAL INPUT	GPI5
16	/GPI6	----	ACTIVE LOW DIGITAL INPUT	GPI6
17	/GPI7	----	ACTIVE LOW DIGITAL INPUT	GPI7
18	/GPI8	----	ACTIVE LOW DIGITAL INPUT	GPI8
19	WD_LED	----	WATCHDOG OUTPUT	----
20	NC	----	NOT CONNECTED	----

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² Not Available on the the PLCMOD-M2-1280X0

P2 Pin Function Summary (Con't)

Pin Number	Primary Function	Alternate Function	Description	EZ Ladder I/O Reference
21	NC	----	NOT CONNECTED	----
22	NC	----	NOT CONNECTED	----
23	/GPI25	----	ACTIVE LOW DIGITAL INPUT	GPI25
24	/GPI26	----	ACTIVE LOW DIGITAL INPUT	GPI26
25	/GPI27	CANRX2 ¹	ACTIVE LOW DIGITAL INPUT / CAN2 RECEIVE SIGNAL	GPI27
26	GPO7	CANTX2 ¹	ACTIVE HIGH DIGITAL OUTPUT / CAN2 TRANSMIT SIGNAL	GPO7
27	GPO5	----	ACTIVE HIGH DIGITAL OUTPUT	GPO5
28	GPO4	----	ACTIVE HIGH DIGITAL OUTPUT	GPO4
29	GPO3	----	ACTIVE HIGH DIGITAL OUTPUT	GPO3
30	GPO2	----	ACTIVE HIGH DIGITAL OUTPUT	GPO2
31	/GPI11	----	ACTIVE LOW DIGITAL INPUT	GPI11
32	/GPI10	----	ACTIVE LOW DIGITAL INPUT	GPI10
33	GPO6	----	ACTIVE HIGH DIGITAL OUTPUT	GPO6
34	GPO1	----	ACTIVE HIGH DIGITAL OUTPUT	GPO1
35	GPO0	----	ACTIVE HIGH DIGITAL OUTPUT	GPO0
36	/GPI12	----	ACTIVE LOW DIGITAL INPUT	GPI12
37	/GPI13	----	ACTIVE LOW DIGITAL INPUT	GPI13
38	/GPI14	----	ACTIVE LOW DIGITAL INPUT	GPI14
39	/GPI15	----	ACTIVE LOW DIGITAL INPUT	GPI15
40	/GPI16	----	ACTIVE LOW DIGITAL INPUT	GPI16
41	NC	----	NOT CONNECTED	----
42	GND (VSS)	----	DIGITAL GROUND	----
43	/GPI17	AN0	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI17 / AN0
44	/GPI18	AN1	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI18 / AN1
45	/GPI19	AN2	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI19 / AN2
46	/GPI20	AN3	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI20 / AN3
47	/GPI21	AN4	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI21 / AN4

¹ This CAN port is only available on the PLCMOD-M2-5123XX and PLCMOD-M2-2563XX.

² Not Available on the the PLCMOD-M2-1280X0

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 2 - 6

P2 Pin Function Summary (Con't)

Pin Number	Primary Function	Alternate Function	Description	EZ Ladder I/O Reference
48	/GPI22	AN5	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI22 / AN5
49	/GPI23	AN6	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI23 / AN6
50	/GPI24	AN7	ACTIVE LOW DIGITAL INPUT / ANALOG INPUT	/GPI24 / AN7

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 2 - 7

Detailed Signal Descriptions

+5VDC (VDD)

These pins are the main power supply pins for the PLC on a Chip Module. They must be supplied with +5VDC.

CNT_A / CNT_B

These input pins are hardware counter inputs.
The counters have the following specifications:

32-bit resolution
Maximum input frequency = 1MHz

/CTS0 / CANRX4

Active low clear to send input signal for COM0. Secondary functionality as CAN receive signal for CAN4.

/CTS1 / CANTX3

Active low clear to send input signal for COM1. Secondary functionality as CAN transmit signal for CAN3.

GND (VSS)

These pins are to be connected to the system digital ground.

/GPIx

These pins are dedicated active low digital inputs.

/GPI17 - /GPI24, ANx

These active low digital input pins are multiplexed as analog inputs. When analog input configuration is selected, all 8 inputs (/GPI17 - /GPI24) will be configured as analog inputs. The PLC on a Chip Module analog inputs have the following characteristics:

10-bit resolution.
Sampled at beginning of ladder scan.
0-5VDC input range

/GPI27 / CANRX2

This active low digital input pin has secondary functionality as the receive signal for CAN2.

/GPI29 / SS0

Active low digital input with secondary functionality as SPI0 active low slave select signal. Consult factory for SPI0 usage

/GPI30 / SCK

Active low digital input with secondary functionality as SPI0 clock signal. Consult factory for SPI0 usage.

/GPI31 / MOSI

Active low digital input with secondary functionality as SPI0 master out slave in signal. Consult factory for SPI0 usage.

/GPI32 / MISO

Active low digital input with secondary functionality as SPI0 master in slave out signal. Consult factory for SPI0 usage.

GPOx / HDIO_ADDRx

These digital output pins have a secondary function as the address lines for the Divalbiss HDIO expansion bus.

GPOx / PWMx

These pins are digital output pins which have a secondary functionality as a Pulse Width Modulation output.

GPOx

These pins are dedicated digital outputs.

GPO7 / CANTX2

This digital output pin has secondary functionality as the transmit signal for CAN2.

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 2 - 8

Detailed Signal Descriptions (Con't)

GPO16 / HDIO_BBOUT

This digital output pin has a secondary function as the BBOUT output for the Divelbiss HDIO expansion bus.

GPO17 / HDIO_BBWR

This digital output pin has a secondary function as the BBWR output for the Divelbiss HDIO expansion bus.

GPO18 / HDIO_BBCLK

This digital output pin has a secondary function as the BBCLK output for the Divelbiss HDIO expansion bus.

GPO27 / CANTX1

This digital output pin has secondary functionality as the transmit signal for CAN1.

GPO28 / CANTX0

This digital output pin has secondary functionality as the transmit signal for CAN0.

GPO29 / CANRX0

This digital output pin has secondary functionality as the receive signal for CAN0.

GPO30 / CANRX1

This digital output pin has secondary functionality as the receive signal for CAN1.

GPO31 / HDIO_BBRESET

This digital output pin has a secondary function as the BBRESET output for the Divelbiss HDIO expansion bus.

GPO32 / HDIO_BBIN

This digital output pin has a secondary function as the BBIN input for the Divelbiss HDIO expansion bus.

/LOW_VOLTAGE

This active low input is for sensing a low system voltage. This input is required for Retentive functionality. This input must be connected to 5VDC if no low voltage circuit will be used. Power supply should hold up 10msec minimum after power loss is detected.

N/C

No connection is to be made to this pin.

/RESET

This pin is an active-low bi-directional signal used to initialize the PLC on a Chip Module to a known start-up condition. It also acts as an output when an internal reset occurs. Refer to *Circuits Design Guidelines* document for application information. Note: This pin is connected to the Power On Reset Circuitry on the module in a wired-OR configuration.

RESET

This pin is an active-high signal, output only. Used to reset peripheral circuitry.

/RTS0 / CANTX4

Active low ready to send output signal for COM0. Secondary functionality as CAN transmit signal for CAN4.

/RTS1 / CANRX3

Active low ready to send output signal for COM1. Secondary functionality as CAN receive signal for CAN3.

RXD0

Asynchronous serial receive input - COM0. Used for programming with EZLADDER. Refer to the *Circuits Design Guidelines* document for more details.

RXD1

Asynchronous serial receive input - COM1. General purpose. Used with serial communications function blocks in EZLADDER.

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 2 - 9

Detailed Signal Descriptions (Con't)

TXD0

Asynchronous serial transmit output - COM0. Used for programming with EZLADDER. *Circuits Design Guidelines* document for more details.

TXD1

Asynchronous serial receive output - COM1. General purpose. Used with serial communications function blocks in EZLADDER.

VBAT

Provides connection point of 3.0VDC battery powered source for Real Time Clock backup.

WD_LED

This pin provides an output which will toggle to indicate that the PLC on a Chip Module is operating properly.

SECTION 3

ELECTRICAL CHARACTERISTICS



Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 3 - 2

Absolute Maximum Ratings

Absolute maximum ratings indicate limits beyond which damage to the device may occur. Functionality outside of these ratings is indeterminate and reliability may be affected.

Rating	Min	Max	Unit
All I/O ¹ , +5VDC power pins voltage limits	-0.3	6.0	VDC
Storage Temperature	-55	85	°C
/RESET voltage limits	-0.3	6.0	VDC

NOTES: 1. Voltage applied to I/O pins must not exceed voltage applied to +5VDC power pins.

Normal Operating Conditions

Normal operating conditions are the conditions for which the device is intended to be functional.

Rating	Min	Typ	Max	Unit
All I/O, +5VDC power pins - supply voltage (VDD)	4.5	5	5.25	VDC
Oscillator frequency		12.0		MHz
Ambient Temperature	-40		+85	°C
/RESET - release level			2.0	VDC
/RESET - assert level	0.9			VDC
/RESET - Minimum input pulse width	1			μS
/RESET - Startup time from reset	20			μS
All Inputs - Input High Voltage	.65 * VDD		VDD + .3	VDC
All Inputs - Input Low Voltage	VSS - .3		.35 * VDD	VDC
All Inputs - Input leakage current	-2.5		2.5	μA
All outputs - Output High Voltage _{VOHMIN}	VDD - .8			VDC
All outputs - Output Low Voltage _{VOLMAX}			0.8	VDC
All outputs - output current limit _{IO MAX}	-1.0		1.0	mA
Quiescent Supply Current ² w / Real Time Clock		47		mA
Quiescent Supply Current ² without Real Time Clock		45		mA
NVM EEPROM write cycle reliability ³		10,000		Cycles
NVM EEPROM Data Retention Lifetime ³		5		Years
Oscillator startup time		8	100	mS
Thermal resistance ⁴ Θ_{JA}			54	°C/W
Operating Junction Temperature Range T_J	-40		100	°C

- NOTES:
1. This voltage is generated internally in the PLC on a Chip device. Only the bypass capacitors specified in the circuit design section of this document should be terminated to these pins.
 2. Quiescent supply current varies widely from application to application. Actual current drive per output point must be added to this figure to determine total device current consumption.
 3. -40 to 85°C
 4. Double sided FR4 PCB
 5. Power on Reset generated a RESET when voltage drops below 4.5V.

Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 3 - 3

Power Dissipation and Thermal Characteristics

$$T_J = T_A + (P_D * \Theta_{JA})$$

$$P_D = V_{supply} * I_{supply} + P_{IO}$$

V_{supply} = Actual supply voltage to PLC on a Chip

I_{supply} = Actual supply current to PLC on a Chip

$P_{IO} = P_1 + P_2$ = Total power dissipation from output pins where:

$P_1 = \Sigma(V_{OL} * I_{SUNK})$ for all outputs driven low

$P_2 = \Sigma((V_{supply} - V_{OH})) * I_{SOURCE}$ for all outputs driven high

V_{OL} = Actual voltage measured on pin

V_{OH} = Actual voltage measured on pin

I_{SUNK} = Current sunk through pin

I_{SOURCE} = Current sourced from pin

I_{OL}, I_{OH} = Actual current sunk/sourced by pin

SECTION 4

PACKAGE INFORMATION



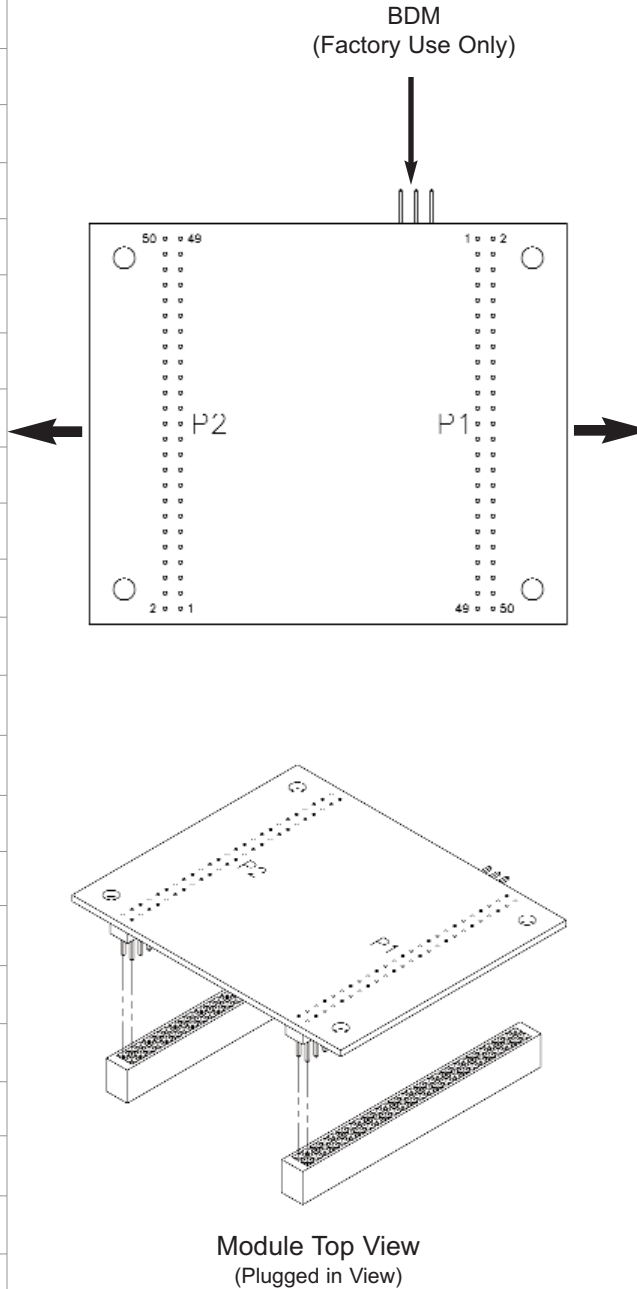
PLC on a Chip Pin Out & Orientation

P2 Pinout

Pin #	Function	Pin #	Function
50	/GPI24 AN7	49	/GPI23 AN6
48	/GPI22 AN5	47	/GPI21 AN4
46	/GPI20 AN3	45	/GPI19 AN2
44	/GPI18 AN1	43	/GPI17 AN0
42	GND	41	NC
40	/GPI16	39	/GPI15
38	/GPI14	37	/GPI13
36	/GPI12	35	GPO0
34	GPO1	33	GPO6
32	/GPI10	31	/GPI11
30	GPO2	29	GPO3
28	GPO4	27	GPO5
26	GPO7 CANTX2	25	/GPI27 CANRX2
24	/GPI26	23	/GPI25
22	NC	21	NC
20	NC	19	WD_LED
18	/GPI8	17	/GPI7
16	/GPI6	15	/GPI5
14	/GPI4	13	/GPI3
12	/GPI2	11	/GPI1
10	NC	9	CNT_A
8	NC	7	CNT_B
6	NC	5	NC
4	NC	3	GND
2	GPO8 PWM7	1	GPO9 PWM6

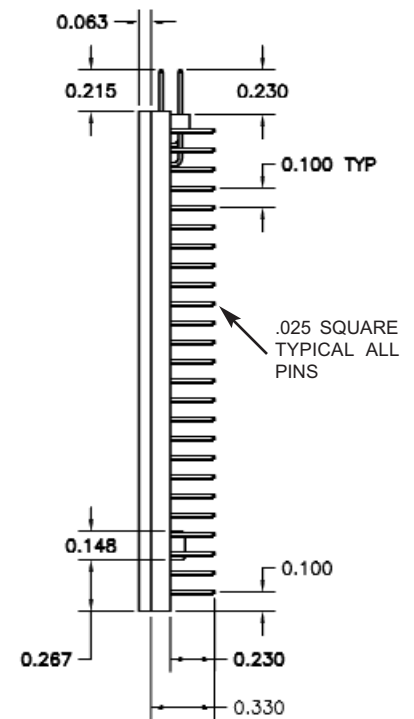
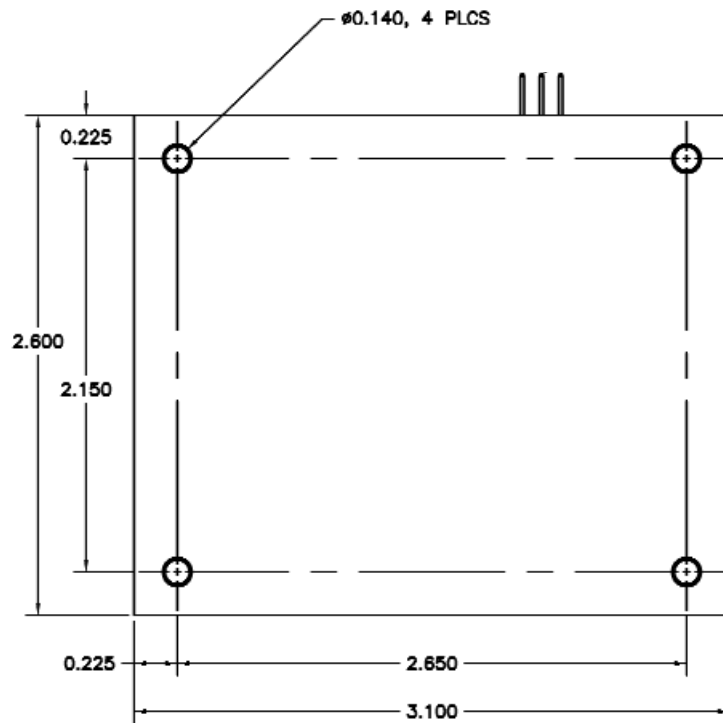
P1 Pinout

Pin #	Function	Pin #	Function
1	+5VDC	2	GND
3	NC	4	VBAT
5	+5VDC	6	+5VDC
7	GND	8	GND
9	NC	10	/RESET
11	RESET	12	/LOW_VOLTAGE
13	/GPI29 /SS0	14	/GPI32 MISO0
15	/GPI31 MOSI0	16	/GPI30 SCK0
17	TXD0	18	RXD0
19	/RTS0 CANTX4	20	/CTS0 CANRX4
21	TXD1	22	RXD1
23	/RTS1 CANRX3	24	/CTS1 CANTX3
25	/GPI9	26	/GPI0
27	GPO28 CANTX0	28	GPO29 CANRX0
29	GPO27 CANTX1	30	GPO30 CANRX1
31	GND	32	GPO31 HDIO_BBRESET
33	GPO22 HDIO_ADDR_4	34	GPO18 HDIO_BBCLK
35	GPO21 HDIO_ADDR_5	36	GPO23 HDIO_ADDR_3
37	GPO20 HDIO_ADDR_6	38	GPO17 HDIO_BBWR
39	GPO19 HDIO_ADDR_7	40	GPO16 HDIO_BBOUT
41	GPO26 HDIO_ADDR_0	42	GPO32 HDIO_BBIN
43	GPO25 HDIO_ADDR_1	44	GPO24 HDIO_ADDR_2
45	GPO15 PWM0	46	GPO14 PWM1
47	GPO13 PWM2	48	GPO12 PWM3
49	GPO11 PWM4	50	+GPO10 PWM5



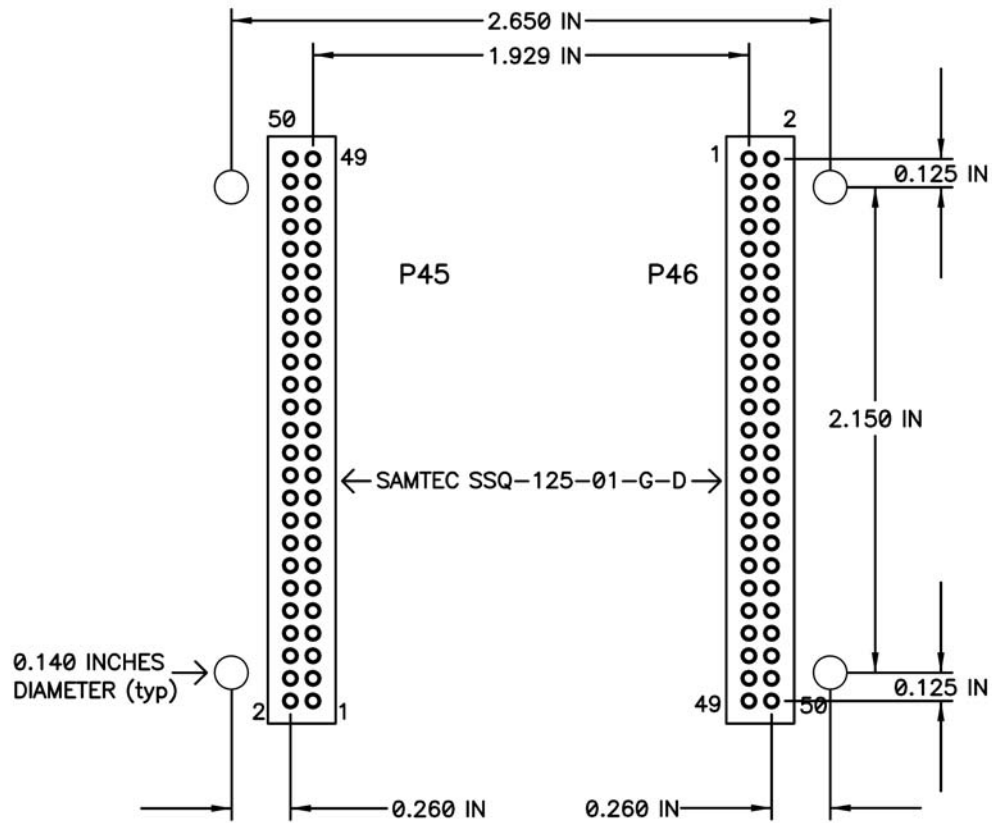
Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 4 - 3

PLC on a Chip Module Dimensions



Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 4 - 4

P1 and P2 PCB Layout Details



Title PLC on a Chip Module Technical Data Sheet	Revision E	Document ID DS-0470104-2-E
Author DSD		Page Number Page 4 - 5

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