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Mini-Smart Card for FP5 / GP5 Inverter Series

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SAFETY FIRST !

LETHAL VOLTAGES MAY BE PRESENT!

PLEASE READ THIS INSTRUCTION MANUAL THOROUGHLY BEFORE ATTEMPTING ANY INSTALLATION, OPERATION, MAINTENANCE OR INSPECTION. FAILURE TO FOLLOW THE RECOMMENDED PROCEDURES OR CAUTIONS IN THIS MANUAL COULD RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO EQUIPMENT.

CAUTION !

1. CHECK THE NAME WRITTEN ON THE PRODUCTS AND INSURE THAT THE PROPER PART HAS BEEN RECEIVED.
2. THOROUGHLY INSPECT THE PART(S) FOR ANY DAMAGE DUE TO SHIPMENT OR HANDLING.
3. THE PART(S) MAY CONTAIN CMOS CHIPS AND CAN BE DAMAGED BY STATIC ELECTRICITY. HANDLING SHOULD BE IN ACCORDANCE WITH INDUSTRY STANDARDS.
4. BEFORE INSTALLING THE PART(S) TURN OFF ALL POWER TO THE EQUIPMENT AND INSURE THE CHANGE INDICATOR LAMP ON THE INVERTER IS **OFF**. **LETHAL VOLTAGES ARE PRESENT !**
5. DO NOT CONNECT OR DISCONNECT WIRING WHILE POWER IS **ON !**
6. FOLLOW GOOD STANDARD WIRING PRACTICES AND ANY APPLICABLE CODES THAT MAY APPLY.

DESCRIPTION

The 100-0111-01 MINI SMART CARD, when installed, provides an additional (2) analog outputs, (2) digital (relay) outputs, and (2) open collector outputs for the FP5 / GP5 Inverter series. The output functions are programmable by using jumpers or dry contact closures on the input terminals. The options are described in detail later in this manual.

INSTALLATION

Before attempting any installation make sure that all power is turned off to the equipment being worked on. Carefully remove the Digital Operator from the inverter and remove the cover in accordance with the instructions in the Inverter manual. Place the 100-0111-01 option card on the (4) plastic stand-offs **(A)** on the inverter control board and push down to seat (see fig. 1, page 4). Then connect the cable from the option card to 2CN of the control card.

BOARD PROGRAMMING

With reference to FIG.2 on page 5, the digital and analog inputs are programmed with jumpers or dry contacts to obtain the desired output functions. The tables on page 6 show the relationships between the input jumper configurations and the output functions for both digital and analog. In looking at the tables the digital conventions H=HIGH and L=LOW are used to describe the input states required to achieve the desired outputs.

DIGITAL inputs are programmed:

H (no jumper or open)

L (place a jumper between the digital input and com.)

ANALOG inputs are programmed:

H (place a jumper between the digital input and +15)

L (no jumper or open)

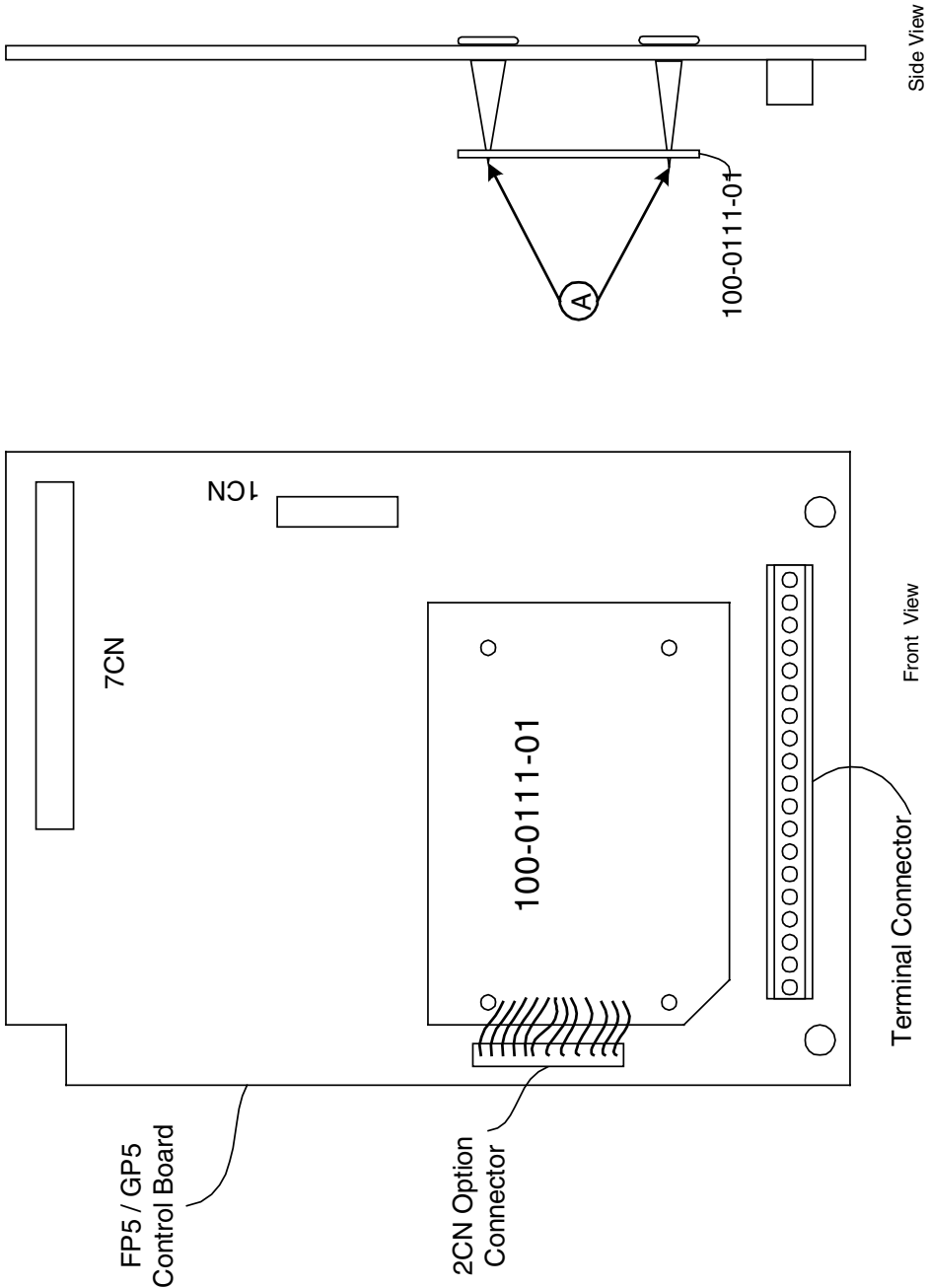


FIGURE 1 - INSTALLATION OF THE 100-0111-01 MINI-SMART CARD

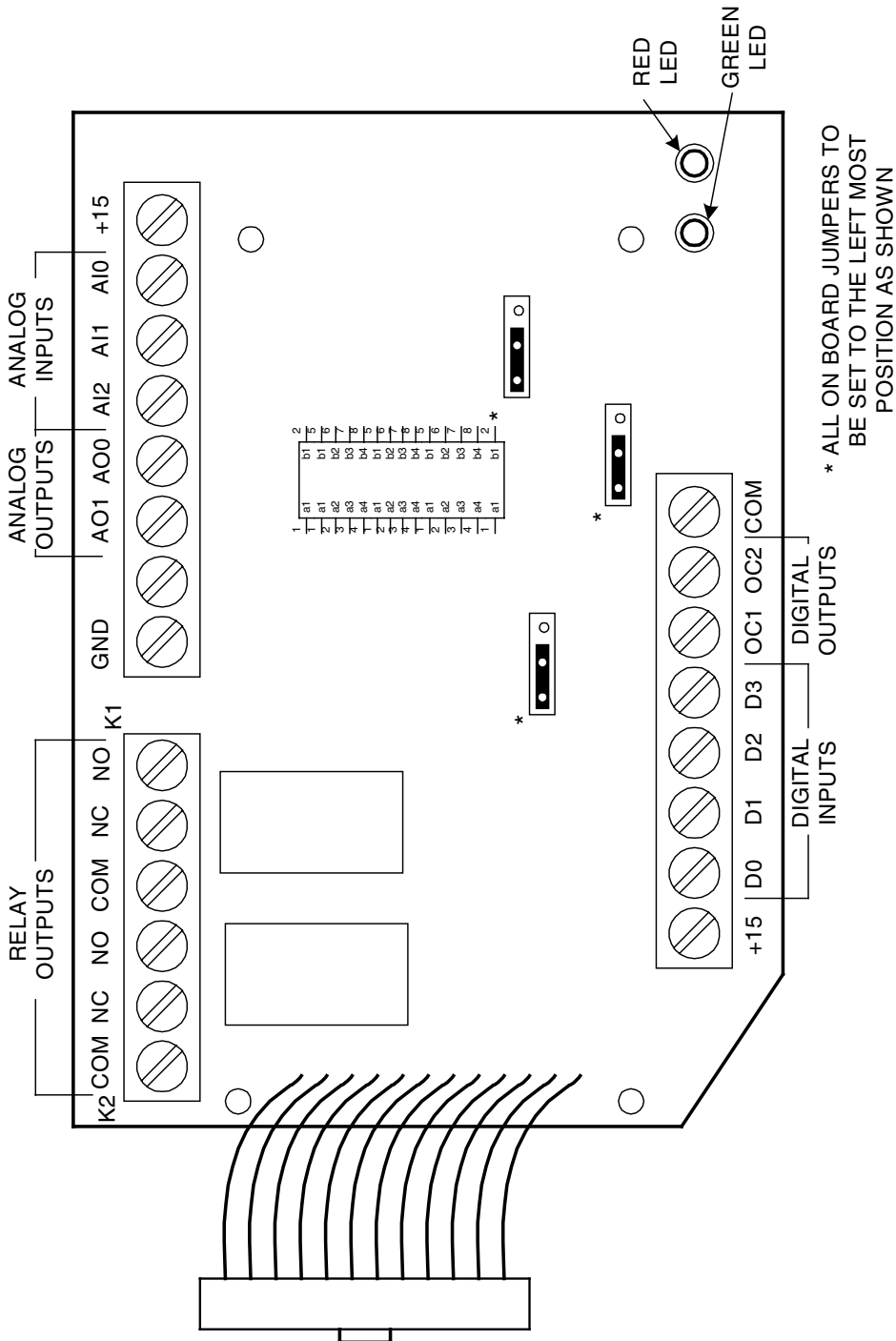


FIGURE 2-100-0111-01 BOARD LAYOUT

DIGITAL PROGRAMMING

DIGITAL INPUTS / OUTPUTS							
INPUT TERMINALS				OUTPUT TERMINALS			
D3	D2	D1	D0	OC2	OC1	K2	K1
H	H	H	H	3	2	1	0
H	H	H	L	5	4	1	0
H	H	L	H	7	6	1	0
H	H	L	L	1	0	3	2
H	L	H	H	5	4	3	2
H	L	H	L	7	6	3	2
H	L	L	H	1	0	5	4
H	L	L	L	3	2	5	4
L	H	H	H	7	6	5	4
L	H	H	L	1	0	7	6
L	H	L	H	3	2	7	6
L	H	L	L	5	4	7	6
L	L	H	H	1	0	6	5
L	L	H	L	3	2	6	5
L	L	L	H	7	4	6	5
L	L	L	L	NO FUNCTION			

DIGITAL OUTPUT FUNCTIONS

- 0 - DURING RUN
- 1 - ZERO SPEED
- 2 - FREQUENCY AGREED
- 3 - DESIRED FREQUENCY AGREED
- 4 - FREQUENCY DETECTION 1
- 5 - FREQUENCY DETECTION 2
- 6 - INVERTER OPERATION READY
- 7 - DURING UNDER VOLTAGE

NOTES:

- 1 - Open collector OC1 and OC2 are referenced to COM. and the output maximum rating is **40 VDC @ 100 mA.**
- 2 - K1 and K2 contact ratings: 0.5 A @ 120 VAC RES.
1.0 A @ 24 VDC RES.

ANALOG PROGRAMMING

ANALOG INPUTS / OUTPUTS					
INPUT TERMINALS			OUTPUT TERMINALS		
AI2	AI1	AI0	AO1	AO0	
L	L	L	1	0	
L	L	H	2	0	
L	H	L	3	0	
L	H	H	2	1	
H	L	L	3	1	
H	L	H	3	2	
H	H	L	NO FUNCTION		
H	H	H	NO FUNCTION		

ANALOG OUTPUT FUNCTIONS

- 0- OUTPUT FREQUENCY
(0 – 10 V = 0 to maximum frequency set by **C SPEC=n012)**
F SPEC=n011)
- 1- OUTPUT VOLTAGE
(0 – 10 V = 0 to maximum voltage set by **C SPEC=n013)**
F SPEC=n012)
- 2- OUTPUT CURRENT
(0 – 10 V = 0 to inverter rated current; 5 V = 100%)
- 3- DC BUS VOLTAGE
(0 – 10 V = 0 - 500 V for 200 V models and 0 – 1000 V for 400 V models)

NOTE: All analog outputs are with respect to GND terminal and have a 10 BIT resolution with a maximum output current of 10 mA.

LED INDICATORS

- GREEN LED - Power indicator (always on)
RED LED - Communications indicator
(Flashing rapidly = communications ok)
(Flashing slowly = no communications)

INVERTER PROGRAMMING

After completing the above steps, re-assemble the cover and digital operator. Making sure all wiring and parts assembly are completed, apply power to the inverter. In accordance with the following table, set the applicable parameters for the C SPEC or F SPEC as shown.

FP5 / GP5 PARAMETER SETTINGS		
C SPEC	F SPEC	PARAMETER
n001 = 3	n001 = 3	Allows writing to all parameters
n010 = F	n010 = 0	V/f pattern selection
n103 = 0	n101 = 0	Disables time over detection
n105 = 0	n103 = 0	Frequency reference units
n106 = 10	n104 = 10	MODBUS address 10
n107 = 2	n105 = 2	9600 Baud
n108 = 0	n106 = 0	No parity

NOTE: After changing these parameters the power to the inverter must be cycled.

This completes the installation of the option card.

WARNING!

Saftronics manufactures component parts that can be used in a wide variety of industrial applications. The selection and application of *Saftronics* products remains the responsibility of the equipment designer or end user. *Saftronics* accepts no responsibility for how its products may be incorporated into the final design.

Under no circumstances should any *Saftronics* product be incorporated into any product or design as the exclusive or sole safety control. Without exception, all controls should be designed to dynamically fault detect and fail safe under all circumstances. All products designed to incorporate a component part manufactured by *Saftronics*, must be supplied to the end user with appropriate warnings and instructions as to the safe use and operation. Any warnings provided by *Saftronics* must be passed through to the end user.

Saftronics offers an express warranty only as to the quality of its products to conform to the catalog specifications. **NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS OFFERED.** *Saftronics* assumes no liability for any personal injury, property damage, losses or claims, arising out of the mis-application of its products.