SUNRISE MAXI and MAXI+ Credit Boards

The **MAXI** credit board allows the MARS or other electronic or mechanical coin mechs to be used for all Video Game and other standard coin- op applications.

The **MAXI**+ credit board may be used as above and for additional specialised applications.

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APPLICATIONS
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1.Video Game: Standard Mode.
Standard "conversion" Video game with one or two coin mechs operating together, with a single credit output connection to the game PCB.

2.Video Game: Separate Mech Mode.
For 2 player video games designed to operate with a separate ME111 mech for each player . The Player 1 and Player 2 coin mechs operate independently, with a separate Player 1 and Player 2 credit output. Effectively, this mode provides two credit boards in one.

3. Video Game: Stored Credit, 4 Players.
For 2, 3 or 4 player games originally designed to operate with separate coin entry for each player. The credit board allows 1 or 2 multi-coin mechs. The credit board stores incoming credit. Each player presses his button to take credit from the credit pool. Allows multi player games to operate from a single coin mech and a single credit board.   Optional four wire coin / credit or credit only display panel.

4. Skilltester.
Allows connection of 1 or 2 multi-coin accepters to the 20 cent Skill tester models, with optional coin / credit display panel. Can also be used with other games which require coin lockout handshaking.

5. Pinball.
The relay output allows connection of the credit board to switch matrix operated games such as pinball games and others requiring an isolated or 3 wire coin input.

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COMMON FEATURES
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STANDARD COIN MECH INTERFACE. (via the EDGE CONNECTOR pins). Inputs for 10, 20 ,50 cents, $1.00 and $2.00 coin. These inputs accept a standard coin mech pulse, i.e. a momentary pulse to GND.

MARS COIN MECH INTERFACE. (via the keyed 15 pin connector). Inputs for 10, 20, 50 cents, $1.00 and $2.00 coin. This interface can connect to MARS mechs with 13 or 15 pin connectors, via a double ended straight thru harness connecting all corresponding pins. The MARS mech coin signals will be automatically set as a momentary pulse to 12 volts. Any individual coin channel may be disabled by removing the appropriate jumper plug on the credit board.

INDIRECT CREDIT CONVERSION. (Preferred operating mode). Bonus credit is calculated on the total value of coins inserted, regardless of their individual denominations.   Example:- If 1 x Two Dollar coin gives 3 credits, then so will 2 x One Dollar coins.

or DIRECT CREDIT CONVERSION. Coin denominations may not be mixed. Indirect credit conversion is generally preferred).

ANTENNA. A simple static pickup antenna wire may be connected to the credit board. The length of the wire and its proximity to the cabinet wiring harness will determine the sensitivity of the static reset function. Operation is visually indicated by a flash of the on-board LED indicator.

SPARK RESET OUT. This is an open collector, low side output which may be connected to the game board RESET input. If the game board has no reset input, a PCB technician could add the input to the gameboard, via an unused edge connector pin.

COIN METER. All coin registrations are accumulated as 10 cent units on a single coin meter. Connect a coin meter between 12 volts and the credit board Coin Meter Output . No diode is needed, the credit board contains an internal protection diode.

LAMP OUTPUT. This open collector, low side output allows installation, where appropriate, of 12 volt lamps inside the Start Buttons.

ALARM   The Anti Stringing Alarm is triggered if the coin switch is closed longer than 250 mS, and is intended for anti stringing protection of mechanical mechs. This open collector output may be connected to a general purpose Piezo Screamer, (-) lead to credit board, (+) lead to +12 volt supply. Alternatively it may be connected to a game board RESET input, so that stringing causes game to immediately reset, and stay reset for 10 seconds.

DISPLAY DATA, CLOCK. Where appropriate, the separately sold 6 digit or 2 digit LED display PCB may be connected. The 6 digit display shows $-c inserted and the resulting credit. The 2 digit display shows credit only.

SERVICE CREDIT SWITCH input, allows a push button switch to give free credits for testing the game without incrementing the coin meter. Also allows Free Game Mode (see below).

FREE GAME MODE. This mode is entered by holding the SERVICE CREDIT switch closed for more than four seconds. If fitted, the start button lamps light and remain lit. The credit display shows 99. Pressing a start button will then start a free game, or a two player start button will start a two player game. The Free Game Mode remains in operation until the host game is switched off.

N = on, F = off

DIP SW 12345678	1st credit, bonus credit	DIP SW 12345678	1st credit, bonus credit
-FFFFFF-	10c=1	-FFNFNF-	$1=1, $2=3, $5=8
-NFFFFF-	20c=1	-NFNFNF-	$1=1, $2=3, $4=7
-FNFFFF-	20c=1, 40c=3	-FNNFNF-	$1=1, $2=3, $4=7, $5=10
-NNFFFF-	20c=1, $1=6	-NNNFNF-	$1=1, ($2=2) $3=4
-FFNFFF-	20c=1, $1=7	-NFFFNN-	$1=1, $2=4
-NFNFFF-	40c=1	-FFFNNF-	$2=1
-FNNFFF-	40c=1, 60c=2, 80c=3, $1=4	-NFFNNF-	$2=1, $3=2
-NNNFFF-	40c=1, $1=3 ($2=6)	-FNFNNF-	$2=1, $3=2, $5=4
-FFFNFF-	40c=1, $1=3, $2=7	-NNFNNF-	$2=1, $4=3
-FFFNFN-	40c=1, $1=3, $2=8	-FFNNNF-	$2=1, $4=3, $5=5
-NFFNFN-	40c=1, $1=3, $2=9	-NFNNNF-	$3=1
-FNFNFN-	40c=1, $1=4 ($2=8)	-FNFFNN-	$3=1, $5=2, $7=3
-NNFNFN-	40c=1, $1=4, $2=9	-NNNNNF-	$3=1, $5=2, $10=5
-FFNNFN-	40c=1, $1=4, $2=10	-FFFFFN-	$3=1, $5=2, $8=4, $10=6
-NFFNFF-	50c=1 ($1=2, $2=4)	-NFFFFN-	$4=1
-FNNNFN-	50c=1,($1=2),$2=5	-NNFFFN-	$4=1, $8=3, $12=5
-NNNNFN-	50c=1, $1=3 ($2=6)	-NFNFNN-	$4=1, $6=2
-FFFFNN-	50c=1, $1=3, $2=7	-FNNFNN-	$4=1, $6=2, $8=3
-FNFNFF-	60c=1	-FFNFNN-	$4=1, $7=2, $9=3
-NNFNFF-	60c=1, $1=2 ($2=4)	-FNFFFN-	$4=1, $10=3
-FFNNFF-	60c=1, $1=2, $2=5	-NNFFNN-	$4=1, $7=2, $10=3
-NFNNFF-	60c=1, $1=2, $3=7, $4=10	-FFNFFN-	$5=1
-FNNNFF-	80c=1	-NFNFFN-	$5=1, $8=2
-NNNNFF-	80c=1, $2=3	-FNNFFN-	$5=1, $10=3
-FFFFNF-	80c=1, $2=3, $5=8	-NNNFFN-	$5=1, $10=3, $15=5
-NFFNNF-	$1=1, ($2=2)		
-FNFFNF-	$1=1, $2=3		
-NNFFNF-	$1=1, $2=3, $3=5		

	OPERATING MODES		
N------F	1.Video Game: Standard	F------F	5.Skilltester
N------F	2.Video Game: Separate	N------F	6.Pinball
N------N	3.Video Game: 4 Player	NNNNNNNN	Display Test

Adjust game PCB for 1 coin / 1 credit.

1 10c. inhibit
2 $2 inhibit
3 $1 inhibit
4 50c. inhibit
5 0 volts supply (GND)
6 +12 volts supply
7 20c. inhibit
8 20c. coin pulse
9 Unused
10 50c. coin pulse
11 $1 coin pulse
12 Polarising key
13 $2 coin pulse
14 output common (+12v)
15 10c coin pulse

PINOUT OF THE MARS INTERFACE.

Note.

Coin mech models MS100 & MS111 do not have pin 1 and 15, and 10 cents is not available for these models.

Enable the desired coin channels by setting the jumper plugs as follows:-

enabled   **disabled**

CONNECTION DETAILS

(1). VIDEO GAME : Standard

EDGE CONNECTOR

Component Side		Solder Side
12 volts DC	1	12 volts DC
GND	2	GND
GND	3	GND
Player 1 Start input	4	-
Player 2 Start input	5	-
-	6	-
Bonus Reset mode sel	7	$2 coin input
-	8	-
-	9	Credit output to Game Board
-	10	-
Free Game Lamp output	11	Service Switch
Display Clock	12	$1 coin input
Display Data	13	-
50c. coin input	14	20c. coin input
-	15	Coin Meter output
Alarm output	16	10c. coin input
Reset output	17	-
Antenna	18	-

INDIRECT CREDIT CONVERSION (Preferred)

1. BONUS RESET by 30 Second TIMER.   Do not connect pin **7c** to GND. Do not connect **4c**, **5c** to the game start switches. The bonus system will automatically reset 30 seconds after the insertion of the last coin.

or:-

2. BONUS RESET by Start Switch . Pin **7c** is connected permanently to GND. Pins **4c** & **5c** are to be connected to the cabinet Start Switch buttons, which also connect to the Game Board. This connection also required if Free Game Mode is to be used.

DIRECT CREDIT CONVERSION (Indirect conversion normally preferred) . Do not connect Start Buttons to credit board. Instead, connect pin **9s** (output) to pin **4c** (player 1 start input), in addition to game board coin input. Connect **7c** to GND.

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(2). VIDEO GAME: Separate Mech Mode

Player #1 coins via MARS connector, player #2 coins via the edge connector.

EDGE CONNECTOR

Component Side		Solder Side
12 volts DC	1	12 volts DC
GND	2	GND
GND	3	GND
Start switch, player 1	4	-
Start switch, player 2	5	-
Connect to GND	6	-
Bonus Reset mode sel	7	$2 coin , player 2 .
-	8	-
	9	Credit Output, player 1
-	10	Credit Output, player 2
Free Game lamp output	11	Service Switch
-	12	$1 coin, player 2
-	13	-
50c. Coin, player 2	14	20c. coin, player 2.
-	15	Coin Meter output
Alarm output	16	10c. coin, player 2.
Reset output	17	-
Antenna	18	-

INDIRECT CREDIT CONVERSION (Preferred operating mode).

1. BONUS RESET by 30 Second TIMER. Do not connect pin **7c** to GND. Do not connect **4c**, **5c** to the game start switches. The bonus system will automatically reset 30 seconds after the insertion of the last coin.

or:-

2. BONUS RESET by Start Switch . Pin **7c** is connected permanently to GND. Pins **4c** & **5c** are to be connected to the cabinet Start Switch buttons, which also connect to the Game Board. This connection also required if Free Game Mode is to be used.

DIRECT CREDIT CONVERSION (Indirect conversion normally preferred). Do not connect Start Buttons to credit board. Instead, connect pin **9s** (output 1) to pin **4c** (Start 1), and connect pin **10s** (output 2) to pin **5c** (Start 2), in addition to their connections to the game board coin inputs. Connect **7c** to GND.

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(3). VIDEO GAME: Stored Credit, 4 Players

EDGE CONNECTOR

Component Side		Solder Side
12 Volts DC	1	12 Volts DC
GND	2	GND
GND	3	GND
Player 1 Credit switch	4	-
Player 2 Credit switch	5	-
Player 3 Credit switch	6	-
Player 4 Credit switch	7	$2 coin input.
-	8	-
Player 3 Credit output	9	Player 1 Credit output
Player 4 Credit output	10	Player 2 Credit output
Credit Lamp	11	Service Switch
Display panel CLOCK	12	$1 coin input.
Display panel DATA	13	-
50c. coin input	14	20c. coin input.
-	15	Coin Meter
Alarm output	16	10c coin input.
Reset output	17	-
Antenna	18	-

OPERATION.
After credit is gained, Credit Lamp flashes, DISPLAY shows total value of coins in $-c and the current credit.
Each press of a player Credit button sends one credit to that players Credit Output. Lamp stops flashing and remains lit until all credit has been taken.

(4). SKILLTESTER
Requires MAXI+ Credit Board

EDGE CONNECTOR PINOUT

Component Side		Solder Side	
12 volts DC	1	12 volts DC	
GND	2	GND	
GND	3	GND	
Fwd button (S.T. pin 4)	4	Credit relay COM. (S.T. pin 12)	**BONUS RESET by START BUTTON.** Pin **4c** should
-	5	Credit relay N.C. (not used)	be connected as shown to the Move Forward button
-	6	Credit relay N.O. (S.T. pin 8)	input of the Skilltester Game Board, pin 4.
Connect to GND	7	$2 coin input	
-	8	-	
-	9	-	
-	10	-	
-	11	Service switch	
Display panel CLOCK	12	$1 coin input	
Display panel DATA	13	-	**ALARM** Anti Stringing Alarm. This open collector
50c. coin input	14	20c. coin input	output may be connected to a general purpose
-	15	Coin Meter	Piezo Screamer, (-) lead to pin **16c**, (+) lead to
Alarm output	16	10c. coin input	12 volt DC.
-	17	Connect to 12 volts DC	
Antenna	18	Lockout sense (S.T. pin 11)	

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(5). PINBALL.
Requires MAXI+ Credit Board

EDGE CONNECTOR

Component Side		Solder Side	
12 volts DC	1	12 volts DC	Instructions are given for a Williams Pinball.
GND	2	GND	Other games requiring an isolated connection to a
GND	3	GND	switch matrix type coin input can use a similar
-	4	RELAY OUTPUT common	connection.
-	5	RELAY OUTPUT normal closed	
-	6	RELAY OUTPUT normal open	Adjust the pinball pricing **1 coin 1 game.** Set the
Connect to GND	7	$2 coin input	credit board for the desired coins/game and
-	8	-	bonus.
-	9	-	
-	10	-	The credit board bonus coin system will reset
-	11	Service Switch	automatically 30 seconds after insertion of the
-	12	$1 coin input	last coin.
-	13	-	
50c. coin input	14	20c. coin input	**Power.** In a Williams pinball, 12 V DC unregulated
-	15	Coin Meter	is obtained from the power supply PCB connector
Alarm output	16	10c. coin input	**3P6 pin 6** (grey/white wire). GND is connected to
-	17	-	**3P6 pin 11** (black wire).
Antenna	18	-	
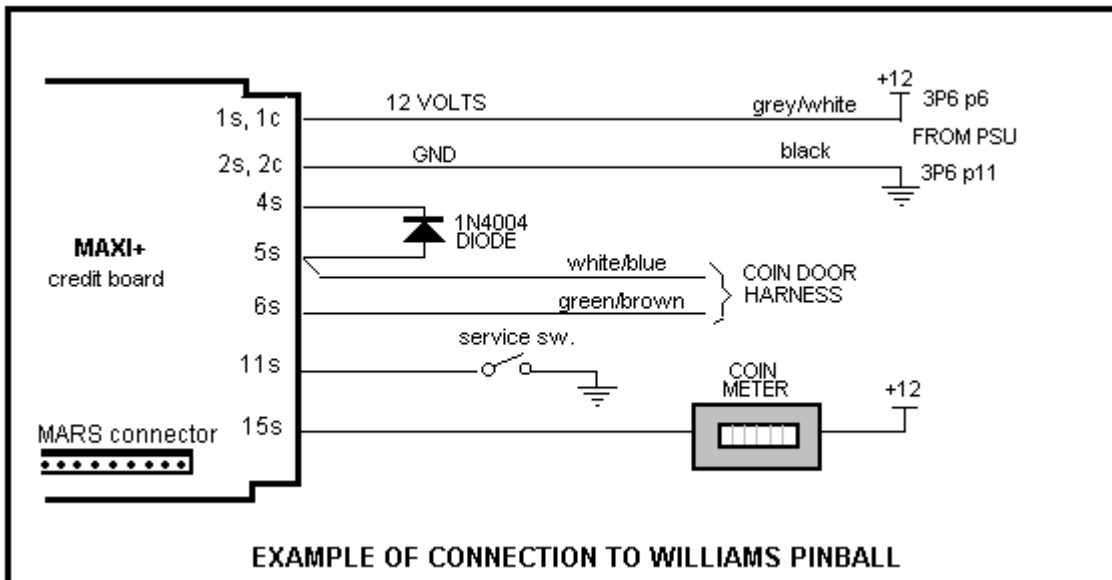
EXAMPLE OF CONNECTION TO WILLIAMS PINBALL