Atronic
Great Games Great People

Cashline™

Software / Basic Setup

P-Level STD Sofware

Software Feature:

- Multi Denomination
- Autoplay
- Fast Gameplay
- Continuous Play
- Progressive Jackpot capability
- Ticket In Ticket Out
- Cashless Transfers

Rev. 1.0

Cashline™
Software / Basic Setup
P-Level STD Software

Rev. 1.0

Rel. January 2006

Read this Manual carefully BEFORE performing any procedure described in this manual!

Following special equipment is needed to perform procedures described in this manual!

- ***RAM Reset EPROM***
- ***Comm board Clear EPROM***
- ***Config Key EPROM***
- ***PC Setup Kit***
- ***Jackpot configuration software "Alinkconfig for Windows"***
  (if Jackpot configuration is required - see manual "Progressive Jackpots")

Please contact Atronic Technical Service to obtain appropriate equipment.

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continued next page

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CONTENT

INTRODUCTION

This manual aims to describe basic setup procedures needed for commissioning and operating an Atronic Cashline™ machine, running P-Level STD Software with Master Board #31.

TOPICS COVERED BY ADDITIONAL MANUALS

- Installation and Commisioning
  (incl. safety instructions, technical data, etc.)
  -> See manual "Installation" for a specific cabinet.

- Components, Operating procedures, Audit Menu, Service Menu.
  -> See manual "Operating / P-Level STD".

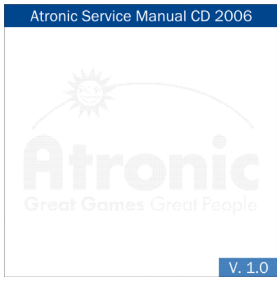
- Linked Progressive Jackpot Configuration
  -> See manual "Progressive Jackpots".

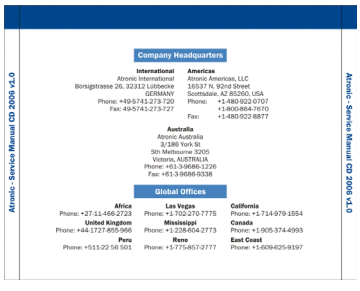
- OEM Peripherals
  (Coin- and bill acceptors, hopper, printer, etc.)
  -> See topic "Peripherals" on Atronic Service CD.

- Spare Parts
  -> See "Parts Catalogue" for a specific cabinet.

***Note**:*
All mentioned manuals can be found on a CD-ROM titled ***Atronic Service Manual 2006***

If this manual did not came with this CD-ROM, please ask Atronic Technical Service for a free copy.





SETUP OVERVIEW

Setup of Cashline™ gaming machines is structured in several main procedures.

1. DIP Switch Settings

By means of three DIP switch blocks on the Master Board it is possible to configure some basic hardware settings, exception procedures and special requirements. Master Board DIP switches are factory pre-set according to customer requirements.

(optional) Comm Board also requires configuration via DIP switch settings.

***Note**:*
This lists below are intended to give a brief overview and do not include all possible settings.

Adjustable via DIP-settings:

- Bill Validator (enable/disable)
- Top Lamp Type
- Hopper Empty Procedure
- Payout Limit Procedure
- Coin In Procedure
- Win Payout Procedure
- Hopper Jam Procedure
- Game Start Procedure

2. Clear Memory Procedure

The Clear Memory Procedure (RAM-Reset) is necessary to initiate the "Initial Setup" procedure. It will clear all statistical data and (according to excecution) other machine settings.

3. Initial Setup

Initiated automatically after Clear Memory Procedure. Used to configure basic machine setting.

Adjustable via Initial Setup:

- Multi Denomination Support
- Coin/Token Value
- Denomination
- Tokenisation String
- Metering
- Credit Limit
- Handpay Cancel Allowed
- Bonusing
- Cashless Transactions
- Progressive Group
- Commboard Required
- Bill Acceptor Type
- Residual Credits Payout
- Autoplay / Coninuous Game Play

4. Paytable Configuration

Initiated automatically after Initial Setup. Depending on paytable version some menu items are not available.

Adjustable via Paytable Config.

- Player Denominations*
- Accounting Denomination*
- Number of Lines
- Bet per Line
- Percentage (RTP)
- Denomination / Percentage Assignment*

**with Multi Denomination Feature enabled only*

SETUP OVERVIEW *continued*

5. PC Setup

PC Setup is carried out by means of an (dongle secured) external user program. It allows to change hardware configuration, upload JCM billtables and to activate additional features.
An Atronic PC-Setup Kit including PC-Setup software, dongle and setup cable is required.

Adjustable via PC-Setup:

- Change Hardware Configuration
- Upload Bill Table (JCM)
- Additional Jackpot Key Function
- Win Limit (enable/disable)
- Key Off Limit
- Progressive Jackpot Meter Mode (hits/credits)

6. Jackpot Configuration

Progressive Jackpot configuration is carried out by means of an external user program. Software "A-Link Config", dongle and setup cable is required.
This topic is covered by the "Progressive Jackpots" manual.

If Multi Denomination Feature has been enabled, progressive Jackpot mode is not supported.

Adjustable via Jackpot Config.:

- Prog. Jackpot Type
- Base Value
- Increments
- Hidden Jackpot
- In Machine Display
- Display Style and Texts

7. Menu Setup

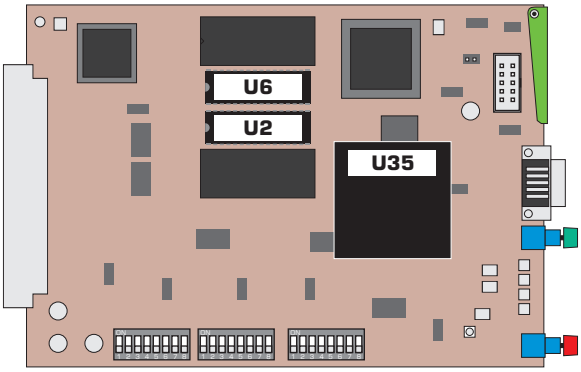
Menu Setup covers operator selectable machine configuration. It is part of the "Service Menu", which is directly accessible during normal operation. This topic is covered by the "Operating P-Level STD" manual.

Adjustable via Menu Setup

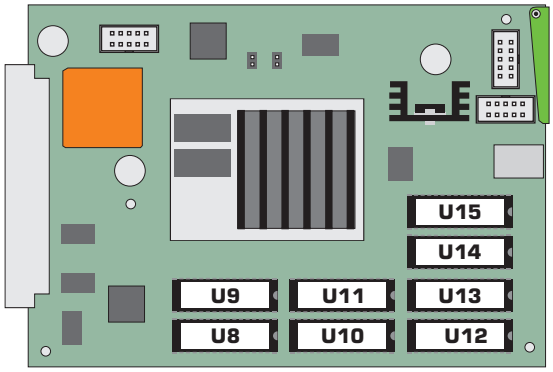
- Toplight Patterns
- Remote Credit Increments
- Hopper Payout Limit
- Language
- Double Up Setup
- Hopper Refill Amount
- Bills Enabled
- Animation Mode
- Win Presentation
- Jackpot Music
- System Lockup Options
- Sound Menu
- Door Open Sound
- Celebration Limit
- Denomination Window
- Voucher Redemption

LOCATION OF SOFTWARE EPROMS*

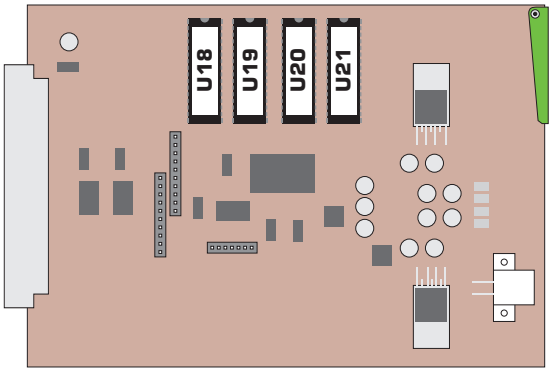
- **Main software** is installed on the Master Board, socket U2.
- **Paytable software** is installed on the Master Board, socket U6.
- **Security Device / GAL** is installed on the Master Board, socket U35.
- **Graphic software** is installed on the Graphic Board, sockets U8 to U15.
- **Sound software** is installed on the Sound Board, sockets U18 to U21.
- **Comm software** is installed on the Comm Board, sockets U34 and U35.



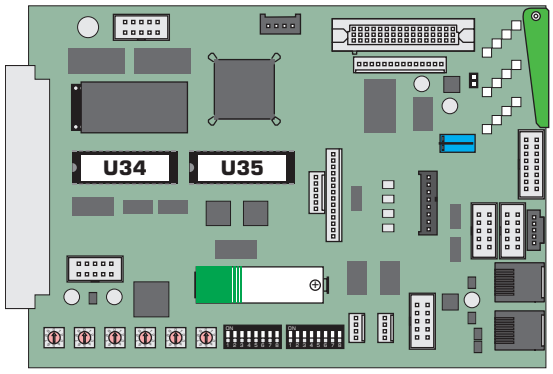
Master Board #31



Graphic Board #41



Sound Board #22



Comm Board 68k, Rev. 2.10

* *Atronic Gaming Machines are equipped with One-Time-Programmable-ROM modules (OTP-ROM). For simplification they are named EPROM within this manual.*

CLEAR MEMORY PROCEDURE

Introduction

The Clear Memory Procedure is required

- To clear statistical data.
- To change basic machine configuration via Initial Setup.
- To change Master Board and Comm Board DIP-Switch settings.
- In case of a game conversion.

The Clear Memory Procedure consists of 3 different parts, which always have to be carried out together. After Clear Memory Procedure has been carried out, the Initial Setup Procedure starts automatically.

Required Atronic EPROM´s:

Master Board RAM Reset 12

This EPROM (*labelled RRES-_-_-12*) replaces the Main software EPROM on Master Board socket U2 during Clear Memory Procedure. Depending on which Master Board button is pressed during power up, 4 different reset routines are available.

Button pressed during RAM Reset Power up	Statistical data and Softmeters cleared	Init Setup settings cleared	Menu Setup settings cleared	PC Setup settings cleared
None	Yes	No	No	No
Reset Button (red)	Yes	No	No	Yes
Service Button (green)	Yes	Yes	Yes	No
Both Buttons	Yes	Yes	Yes	Yes

Do not use previous versions of RAM Reset EPROM together with software including Multi Denomination Feature!
For detailed Master Board #31 information see Appendix, page 57.

Note:
If a JCM bill acceptor is installed and PC Setup settings have been cleared, a bill table upload via PC Setup is necessary. See also page 39.

CLEAR MEMORY PROCEDURE *continued*

Configuration Key (CONFIG Key)
This EPROM (*labelled CK-STD-A-x-STD*) replaces the Paytable software EPROM on Master Board socket U6 during Clear Memory Procedure.

Comm board Clear
These two EPROM´s (*labelled Q_CB_RAM_CLEAR*) replaces Comm software EPROMs on Comm Board socket U34 and U35 during Clear Memory Procedure.

Note:
Configuration Key EPROM is available in different versions to comply with jurisdictional requirements.

Note:
If no Comm Board is installed, a Comm Board Clear is not required.

Configure DIP Switch Settings

Check and configure DIP Switch settings **before** performing a Clear Memory Procedure. Any subsequent alteration is **not** possible.

If a Ticket In Ticket Out configuration is required set necessary Commboard DIP switches. See chapter Ticket In Ticket Out for a detailed configuration guide.

For detailed Master board and Comm board DIP Switch tables see the following pages.

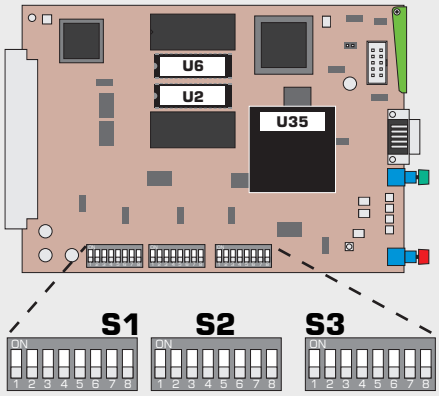
MASTER BOARD #31 DIP SWITCH SETTINGS

Table refers to P-Level STD Main software.

Switch			Description
1-1			**Holland specific requirements**
ON			Holland requirements enabled
OFF			Holland requirements disabled
1-2			**Hopper empty procedure**
ON			Hopper must be refilled, payout continues after main door is closed
OFF			Left amount is hand paid
1-3	**1-4**		**Over maximum payout limit procedure**
OFF	OFF		Pay limit from hopper, rest hand paid
OFF	ON		Total amount is hand paid
ON	OFF		Pay coins from hopper until amount reaches next full hundred, rest is hand paid
1-5			**ROM SIG calculation**
ON			ROM SIG over first 128 byte of MAIN & PAYTABLE
OFF			ROM SIG over whole MAIN eprom
1-6			**not used**
1-7	**1-8**	**2-2**	**Coin in procedure**
ON	ON	OFF	Inserted coins are added to the BET or IN meter until maximum bet is reached,further coins are rejected
ON	ON	ON	Inserted coins are added to the BET or IN meter until maximum bet is reached, the game is started automatically at maximal bet
OFF	ON		Inserted coins are added to the BET or IN meter until maximum bet is reached, further coins are added to the CREDIT meter
OFF	OFF		Inserted coins are added to the CREDIT meter, the IN meter is not displayed

Switch			Description
2-1			**Win payout procedure for all wins**
ON			Pay win amount from the hopper
OFF			Add win amount to the credit meter
2-3			**Hopper jam procedure**
ON			Hopper jam must be cleared, payout continues after main door is closed
OFF			Left amount is hand paid
2-4			**Bill validator usage**
ON			Bill validator is enabled
OFF			Bill validator is disabled (not equipped)
2-5			**Top prize won procedure**
ON			GM assumes top prize is paid by some progressive system and will show win amount "0"
OFF			GM pays top prize amounz according to pay table
2-6			**not used**
2-7			**Game start**
ON			Bet is forced before new game can be started
OFF			Game is started with last bet (only used by standard slot panel) (3 reel games)
2-8			**Number of candles**
ON			Top light with 2 lamps
OFF			Top light with 3 lamps

Switch			Description
3-1			**not used**
3-2			**not used**
3-3			**not used**
3-4			**not used**
3-5			**not used**
3-6			**not used**
3-7			**Coin diverter malfunction procedure**
ON			GM locks with error message
OFF			Diverter malfunction is not reported
3-8			**Bill validator operation mode**
ON			Accepted bills are changed immediately by paying bill value from the hopper
OFF			Value of accepted bill is added to the credit meter



***Note**:*
Master Board DIP switches are factory pre-set according to customer requirements.

Please check for correct settings before putting the machine into operation.

***Note**:*
If Multi Denomination Feature is enabled, configuration of an BET or IN meter is not possible.

DIP SWITCH SETTINGS FOR COMMBOARD

for Comm software P_-SM-xx-xxx

Rotary Switches

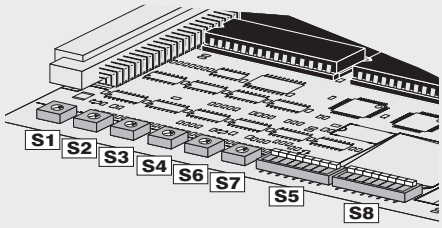
Switch	Function
S1	EGMs Progressive System Address
S2	EGMs Progressive System Address
S3	EGMs Accounting System Address Channel 2 (Automatically enable 2nd Channel if set)
S4	EGMs Accounting System Address Channel 2 (Automatically enable 2nd Channel if set)
S6	EGMs Accounting System Address Channel 1
S7	EGMs Accounting System Address Channel 1

DIP Switch Block **S5**

Switch			Function
5-1	5-2	5-3	
OFF	OFF	OFF	Mikohn MS-10 Progressive
ON	OFF	OFF	Accounting Progressive
OFF	ON	OFF	APL Progressive (if included in eprom)
ON	ON	OFF	Mikohn MS-27 Mystery
OFF	OFF	ON	Mikohn MS-27 Mystery + Progressive
ON	OFF	ON	Accounting System 3rd Channel
OFF	ON	ON	not used, defaults to Mikohn MS-10
ON	ON	ON	not used, defaults to Mikohn MS-10
5-4			
ON			APL EGM act as Master
OFF			APL EGM act as Slave
5-6			
ON			Activate implemented Accounting System
OFF			Disable implemented Accounting System
5-7			
ON			Handpay AND ticket overwritten if not read
5-8			
ON			Ticket info only will be overwritten if not read

DIP Switch Block **S8**

Switch			Description	Affected LongPolls
8-2				
OFF			Prog JP Chann 1	0x80, 0x86
ON			Prog JP Chann 2	
8-3				
OFF			EFT Chann 1	0x22 to 0x26, 0x28, 0x29
ON			EFT Chann 2	0x62 to 0x67, 0x28, 0x29
8-4				
OFF			Bonus Chann 1	0x2E, 0x8A, 0x8B
ON			Bonus Chann 2	
8-5				
OFF			Control Chann 1	0x03 to 0x07, 0x0A to 0x0C
ON			Control Chann 2	0x94, 0xA8
8-6				
OFF			Coupon Chann 1	0x4C, 0x4D, 0x57, 0x58, 0x70, 0x71
ON			Coupon Chann 2	0x7D (Exp 0x3F, 0x57, 0x67, 0x68)
8-7				
OFF				CB sends Total drop meter to host
ON				CB sends Coin drop meter (Bally)
8-8				
ON				Message if accountingsystem isn´t connected
OFF				No message if accountingsystem isn´t connected



***Note**:*
Only Comm software with protocol identifier "SM" (SAS Multidenom) will support Multi Denomination Feature.
*Example: P_-**SM**-MA-STD_-B-08A*

DIP SWITCH SETTINGS FOR COMMBOARD

for Comm software P_-G4-xx-xxx

Rotary Switches

Switch	*Function*
S1	EGMs Progressive System Address
S2	EGMs Progressive System Address
S3	EGMs Accounting System Address
S4	EGMs Accounting System Address
S6	EGMs Accounting System Address
S7	EGMs Accounting System Address

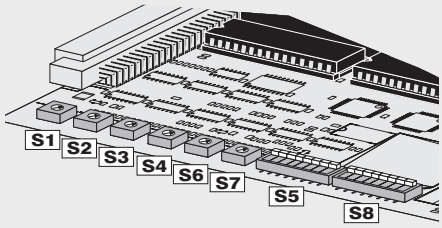
DIP Switch Block **S5**

Switch			*Function*
5-1	**5-2**	**5-3**	
OFF	OFF	OFF	Mikohn MS-10 Progressive
ON	OFF	OFF	Accounting Progressive
OFF	ON	OFF	APL Progressive (if included in eprom)
ON	ON	OFF	Mikohn MS-27 Mystery
OFF	OFF	ON	Mikohn MS-27 Mystery + Progressive
ON	OFF	ON	not used, defaults to Mikohn MS-10
OFF	ON	ON	not used, defaults to Mikohn MS-10
ON	ON	ON	not used, defaults to Mikohn MS-10
5-4			
ON			APL EGM act as Master
OFF			APL EGM act as Slave
5-6			
ON			Activate implemented Accounting System
OFF			Disable implemented Accounting System
5-7	**5-8**		
ON	OFF		Not used
OFF	ON		Not used

DIP Switch Block **S8**

Switch	*Description*	*Function*
8-1		Not used
8-2		Not used
8-3		Not used
8-4		Not used
8-5		Not used
8-6		Not used
8-7		Not used
8-8		
ON		Message if accountingsystem isn´t connected
OFF		No message if accountingsystem isn´t connected

CLEAR MEMORY PROCEDURE

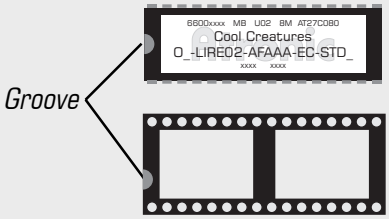


***Note**:*
*GRIPS Commboard software does **not** support Multi Denomination Feature and/or Ticket In Ticket Out!*

CLEAR MEMORY PROCEDURE - RAM RESET 12

Always make sure to mount EPROM´s correctly. Socket groove and EPROM groove have to point to the same direction. Wrong insertion will cause permanent damage!

Check and set Master Board and Comm Board DIP switch settings before performing a Clear Memory Procedure.



1. Switch power off and remove Master Board and Comm Board.

2. Replace EPROM U2 on the Master Board with RAM Reset EPROM (RRES-_-_-12).

   Replace EPROM U6 on the Master Board with Config Key EPROM (CK-STD-A-x_STD).

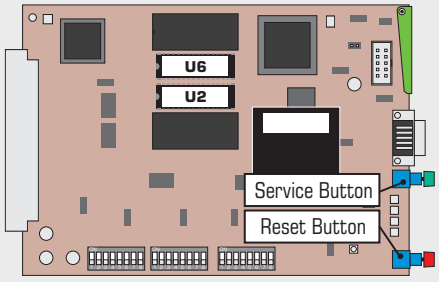
   Replace EPROMs U34 and U35 on the Comm Board with Comm Board Clear EPROM´s (x_CB_RAM_CLEAR) U34 and U35.

3. Reinstall Master Board and Comm Board.

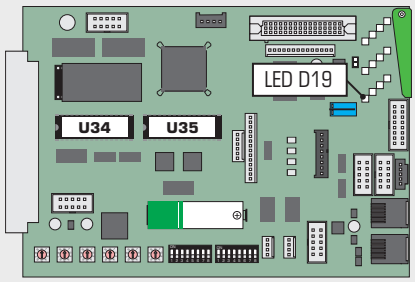
4. Switch on power while holding that Master Board button pressed, you have choosen from the table.

Button pressed during RAM Reset Power up	Statistical data and Softmeters cleared	Init Setup settings cleared	Menu Setup settings cleared	PC Setup settings cleared
None	Yes	No	No	No
Reset Button (red)	Yes	No	No	Yes
Service Button (green)	Yes	Yes	Yes	No
Both Buttons	Yes	Yes	Yes	Yes

Hold button(s) pressed until an audible signal confirms that RAM Reset was successful.
A flashing LED (D19) on the Comm Board confirms that Comm Board Clear was successful.



Master Board #31



Comm Board 68k, Rev. 2.10

CLEAR MEMORY PROCEDURE - RAM RESET 12

5. Switch power off and remove Master Board and Comm Board.

6. Replace EPROM (RRES-_-_-12) with original Main EPROM U2 on the Master Board.

   Replace Comm Board Clear EPROM´s U34 and U35 on the Comm Board with original Comm EPROM´s U34 and U35.

7. Reinstall Master Board and Comm Board.

   Switch on power.
   After about 3 minutes the message "CONFIG EPROM DETECTED, PLEASE RESTART WITH ORIGINAL PAY-TABLE EPROM (U6)" is displayed.

8. Switch power off and remove Master Board.

9. Replace Config Key EPROM on the Master Board with original Paytable EPROM U6.

10. Reinstall Master Board and switch on power.

11. After power up the message "RAM ERROR" is displayed. Press and hold Master Board Reset Button for approx. 5 seconds until a confirmation sound is played.

12. Carry out Touch Screen calibration as shown on screen.

Clear Memory Procedure is now finished.

For following procedures see next page.

Depending on which Master Board button has been pressed during power up, following procedures are possible:

- *No button or Reset Button pressed:*
  Initial Setup settings have not been cleared.
  Machine starts with the Initial Setup Summary screen. Settings can be confirmed or refused.

- *Service Button pressed:*
  Initial Setup settings have been cleared. Machine starts Initial Setup with default settings. Carry out Initial Setup as described on pages 19-28.

- *Both buttons pressed:*
  All settings have been cleared.
  Machine starts with message "MENU SETTINGS ERROR". Turn Audit Key to clear message and carry out Initial Setup as described on pages19-28.

Clear Memory Procedure - Troubleshooting

Menu Settings Error
This message is displayed if Menu Setup settings have been cleared during Clear Memory Procedure.
=> Clear message by turning Audit Key.

Paytable EPROM Error
This message is shown if a wrong Paytable has been installed. Machine locks up.
=> Install the correct Paytable EPROM.

Config CRC Error
This message is shown if a selectable paytable is used and a RAM Reset without Config Key EPROM has been performed.
=> Repeat the routine with Config Key EPROM.

Use RAMCLEAR EPROM and change Denomination
This message is displayed if a wrong Paytable has been selected.
=> Perform Memory Clear Procedure.

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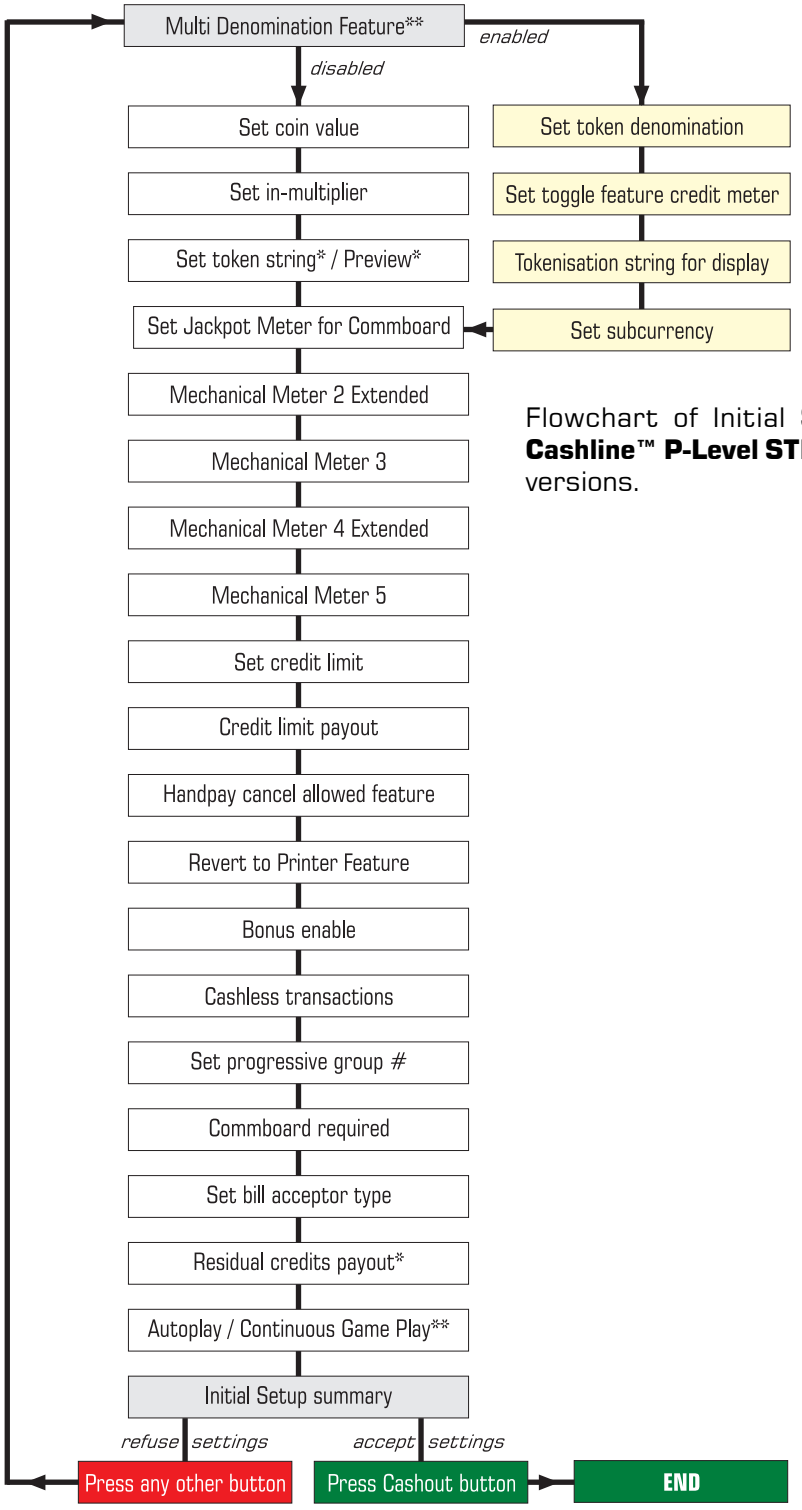
INITIAL SETUP PROCEDURE - FLOWCHART: P-LEVEL STD

The Initial Setup Procedure is intended to change basic machine settings, which must not or should not be altered during normal operation.



Flowchart of Initial Setup Procedure for **Cashline™ P-Level STD (standard)** software versions.

* *available only, if in-multiplier is >1*

** *feature available with particular games only.*

INITIAL SETUP

The Initial Setup Procedure is intended to change basic machine settings, which are not allowed to be altered during normal operation. Initial Setup will start automatically after Clear Memory Procedure has been carried out.

Initial Setup settings not cleared

If Initial Setup settings have not been cleared during Clear Memory Procedure (Service button not pressed during power up), Initial Setup will start with the Initial Setup Summary Screen. Press Cashout button to confirm settings or press any other button to refuse (and alter) settings. If settings were refused, Initial Setup will start from the beginning, allowing to change settings.

Multi Denomination Feature

The Multi Denomination Feature allows to enable up to five player selectable denomination presets. Each single preset can have a different payout percentage value, allowing to assign higher payout percentages to higher denominations.

With Multi Denomination Feature enabled Initial Setup has different setup options. Additionally Paytable Configuration has more options to be configured.

If Multi Denomination Feature has been enabled, progressive jackpot mode is not supported.

Multi Denomination Feature is not available for all P-Level STD games. Please consult Atronic Technical Service or your local sales representative for detailed information.

Comm Software with Multi Denomination support

If Multi Denomination Feature is enabled and a Comm Board is installed, a Comm software with protocol identifier "SM" (SAS Multidenom) has to be used. Otherwise the machine will lock at startup. Current P-Level "SM" Commboard software: P_-**SM**-MA-STD_-B-08A

INITIAL SETUP PROCEDURE

MULTI DENOMINATION FEATURE

Multi Denomination Feature allows to configure up to five player selectable denomination settings.

Restrictions:
With *Multi Denomination Feature* enabled, progressive Jackpot, In-Meter and residual credits Play Off Feature is not supported.

Following settings apply, if Multi Denomination Feature has been enabled. If Multi Denomination Feature has been disabled, proceed on next page.

SET TOKEN DENOMINATION

- Set the money value of one token or coin.
  Make sure that the coin decal shows the same value.

SET TOGGLE FEATURE CREDIT METER

- If enabled, players can toggle the credit meter to show credits or currency by touching the credit meter area on screen.

SET TOKENISATION STRING FOR ON SCREEN DISPLAY

- Select a currency from the list.
  Selecting "***" allows to enter a 3-digit abbreviation.

SET SUBCURRENCY

- Select a sub-currency from the list.
  Selecting "***" allows to enter a 3-digit abbreviation.

If Multi Denomination Feature is enabled, proceed on page 23.

***Note**:*
*Make sure to use only Comm software with SAS Multidenom support (P_-**SM**-MA-STD_-B-08A) when enabling Multi Denomination Feature.*

INITIAL SETUP PROCEDURE

Settings described on this page only apply, if Multi Denomination Feature has been disabled.

***Example**:*
Accepted coin is 1 US-Dollar and should buy 4 credits.
(Denomination = 25 cent)

SET COIN VALUE

- Set the money value of one token or coin.
  Make sure that the coin decal shows the same value.
  For coin-less operation set coin value = 1.

Set coin value = 1
(range 0.00 - 5000.00)

SET IN-MULTIPLIER

- Define the number of credits that one coin is worth.

  COIN VALUE / IN-MULTIPLIER = DENOMINATION

  Select one value from the displayed list.
  Selecting *** allows to enter a specific multiplier, which is then added to the list of multipliers. This specific multiplier can only be set once.

Set in-multiplier = 4
(range 1 - 100)

SET TOKENISATIONSTRING FOR ON SCREEN DISPLAY

(only if In-Mulitplier > 1)

- Select a currency from the list.
  Selecting "***" allows to enter a 3-digit abbreviation.

Set string = $

PREVIEW TOKENISATIONSTRING FOR ON SCREEN DISPLAY

(only if In-Mulitplier > 1)

- Confirm preview or change the tokenisation string as desired. This string is displayed in the lower right corner of the game screen.

1$ BUYS 4 CREDITS

SET JACKPOT METER FOR COMMBOARD

- Set Jackpot Meter for Commboard can be configured to Jackpot with Progressive or Jackpot without Progressive.
  If Jackpot with Progressive is configured, the softmeter "Jackpot with Progressive" is reported to the system.
  If Jackpot without Progressive is configured, the softmeter "Jackpot" is reported to the system.

  Important:
  Mechanical Meter 6 counts as adjusted in this menu! Mechanical Meter 6 can subsequently be adjusted to count Jackpot hits instead of Jackpot amount by means of PC-Setup software.

MECHANICAL METER 2 EXTENDED

- The following meter modes are available:
  - Credits won without Jackpot
  - Credits won with Jackpot

MECHANICAL METER 3

- The following meter modes are available:
  - Drop with bills
  - Drop without bills

MECHANICAL METER 4 EXTENDED

- The following meter modes are available:
  - Hand paid without Jackpot
  - Hand paid with Jackpot

MECHANICAL METER 5

- The following meter modes are available:
  - Games
  - Bills in currency

***Note**:*
Non-adjustable meters are not displayed during Initial Setup.

See also Initial Setup Flowchart on page 19.

For a detailed Mechanical Meter definition see Appendix page 62 - 64.

SET COIN SEPERATION

- Select "Hopper Seperation", if a Residual Credits Hopper is installed. Select "Token Seperation", if a Multi Channel Coin Plate and a Token Box is installed to seperate Token from other coins.

***Note**:*
Only available if the machine is configured for Token separation.

SET CREDIT LIMIT

- Adjust the maximum amount of credits the machine will allow to accumulate to the credit meter.

  Important: Limit is specified in currency!

SET CREDIT LIMIT PAYOUT

- Select *whole win* or *partly*.

  If set to *whole win* and the limit is exceeded, the whole win amount is paid out directly by hopper/handpay/Voucher.

  If set to *partly*, the win amount up to the credit limit is added to the credit meter. Only the part exceeding the credit limit is paid out directly by hopper/handpay/Voucher.

HANDPAY CANCEL ALLOWED FEATURE

- If *enabled*, it is possible for a player to cancel a handpay request (after cash out) by starting a new game.

  Handpay cancel allowed feature interacts with residual credits payout, see page 26.

REVERT TO PRINTER FEATURE

- Select *enabled* or *disabled*.

  Enabled: In case of a hopper error a pay out via ticket printer is forced and the machine locks until the error is cleared.

  Disabled: In case of a hopper empty/jam error and **hopper empty procedure** is set to Refill Mode, the machine locks and continues pay out after hopper refill.

  In case of a hopper empty/jam error and **hopper empty procedure** is set to Handpay Mode, a handpay is forced and the machine locks until the error is cleared.

***Note**:*
*Set "**hopper empty procedure**" via DIP switch 1/2 on masterboard.*

ON = Refill Mode
OFF = Handpay Mode

BONUS ENABLED

- The bonusing feature allows player bonuses generated by an external tracking/accounting system.

  If bonusing is enabled, it is not possible to configure a "Celebration Limit" via Menu Setup.

CASHLESS TRANSACTIONS

- If *enabled*, it is possible to transfer credits to and from the machine by an external system.

SET PROGRESSIVE GROUP#

- Some progressive jackpot systems utilize progressive jackpot groups. In this menu the group number can be entered (1-254).

  Leave Group at 0 (zero) for:

  - non progressive mode
  - Mikohn™ Progressives
  - Atronic Progressive Link (APL)™

  Set Group for:

  - System Progressives

***Note**:*
Only available if the machine is equipped with a progressive security device.

COMMBOARD REQUIRED

- If this option is set to *Yes*, the machine locks after a Comm Board malfunction or loss of communication to the online system.

  If set to *No*, the machine runs with or without a Comm Board being detected.

***Note**:*
Configure to YES if system communication is vital (e.g. progressive jackpot).

SET BILL ACCEPTOR TYPE

Set according to the installed bill acceptor type.

- CBV V2 (IBS, IDS,...)
  used for GPT™ GII and GIII Argus™ acceptors.
- JCM
  used for JCM™ WBA type acceptors.

RESIDUAL CREDITS PAYOUT

Only available if in-mulitplier has been set > 1.

- Following payout modes for residual credits (not equaling the value of a tokenized coin) are available:

  CASHABLE / PLAYABLE
  When residual credits are remaining after a payout the following message is shown in the gameline: "*Press cash-out for handpay or continue gameplay*". If the player presses the cash out button again the machine behavior depends on the **handpay cancel allowed feature** setting.

  - If the **handpay cancel allowed feature** is set to enabled, the following message is shown: "*Call Attendant for handpay or press any play button to continue with gameplay*". The player panel stays active and the player can place a new bet. In this case the handpay request will be cancelled.

  - If the **handpay cancel allowed feature** is set to disabled, the machine locks and "*Call Attendant for handpay*" is displayed on-screen. Player has to wait for handpay.

FORCED PLAY OFF
Residual credits remain on the credit meter. No payout is possible. If cash out button is pressed the following message is shown: "*Insert money or play off residual credits*". The Player has to play off residual credits in normal gameplay.

PLAY OFF FEATURE
When residual credits are remaining after a payout the following message is shown in the gameline: "*Press cash-out to gamble residual credits or continue gameplay*".

- If the cash out button is pressed the Residual Credits Play Off Feature screen is displayed. This feature screen is similar to the Double Up screen. The residual credits can be gambled to a full coin, which is paid out immediately.

- If the player sets a new bet, the remaining credits can be played off in normal gameplay.

***Note**:*
If Multi Denomination Feature has been enabled, PLAY OFF FEATURE is not available.

AUTOPLAY / CONTINUOUS GAME PLAY

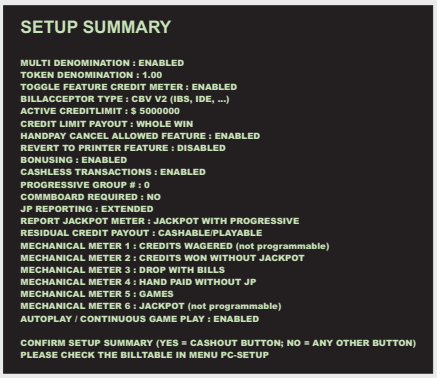
- This setting allows to enable / disable the Autoplay and Continuous Game Play Feature. If enabled, an additional on-screen button allows to activate fast Autoplay.

***Note**:*
Autoplay / Continuous Game Play is not available with all game themes. See manual "Operating / P-Level STD" for feature description.

SETUP SUMMARY

A summery of all Initial Setup settings is displayed.

- Press "Cash Out" button to confirm settings.
  or
- Press any other button to refuse settings.
  Initial Setup will restart from the beginning.



Check all settings thoroughly. Any subsequent modification of settings after pressing "Cash Out" requires a new Clear Memory Procedure.

Further procedures:

- The machine will automatically enter Paytable Configuration after Initial Setup Summary is confirmed.
- Perform PC Setup for hardware configuration, if necessary. For a detailed PC Setup description see pages 33 - 47.
- Set clock and configure further options via Menu Setup to customize the machine according to casino requirements. See manual "Operating / P-Level STD" for details.

Menu Settings Error

If a Clear Memory Procedure has been performed, the machine tries to restore all Menu Setup settings out of the triple-stored memory areas. If Menu Setup settings have been cleared (by pressing the Service button during RAM reset power up), the machine locks with the error message MENU SETTINGS ERROR.

- Turn Audit Key to clear the message.
  Menu Setup setting are reset to default values.
- Check all Menu Setup settings.
  See manual "Operating / P-Level STD" for details.

PAYTABLE CONFIGURATION WITH MULTI DENOMINATION ENABLED

Following settings apply, if Multi Denomination Feature has been enabled. If Multi Denomination Feature has been disabled, proceed on page 31.

SET PLAYER DENOMINATIONS

- Choose up to five player selectable denominations, which are later accessible during game play. The left column shows all possible denominations.
  Set at least two denominations and confirm settings with "*Save & Quit*". Selected denominations are arranged in correct order and double-entries are deleted automatically.

ACCOUNTING DEMONINATION

- This setting defines the base denomination for accounting. Mechanical Meters will use this base denomination for accounting. Values sent to an accounting system are recalculated to this base denomination. Confirm settings with "*Save & Quit*".

HOW MANY REELS?

- Number of reels is always 5.
  Confirm with "Cash Out" button.

HOW MANY LINES?

- Set appropriate number of pay lines according to button panel labelling.

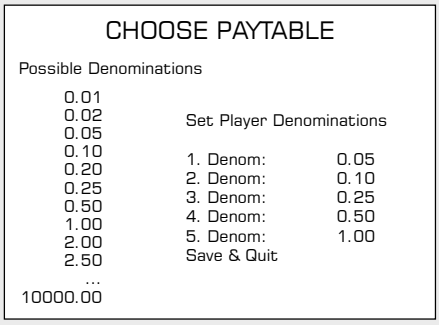
WHICH BET PER LINE?

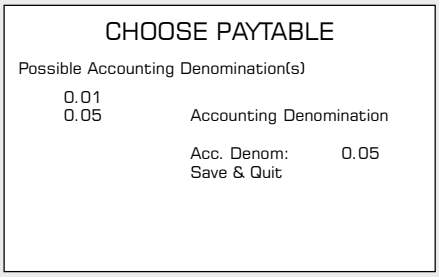
- Set an appropriate max. bet per line setting according to button panel labelling.

  *In some jurisdictions a hardcoded **Maxbet Limit** (in currency) is implemented. In this case no settings exceeding this Maxbet Limit are possible!*

Use the lit buttons to navigate:

left lit button = up
right lit button = down
center lit button = step settings





Note:
See also page 31.

PAYTABLE CONFIGURATION WITH MULTI DENOMINATION ENABLED

DENOMINATION / PERCENTAGE ASSIGNMENT

- Use this setting to assign a specific payout percentage to a particular player denomination. This allows to assign higher payout percentages to higher denominations. The percentage value is shown by the last two digits of the paytable version.
  Confirm settings with "Save & Quit"

CHOOSE PAYTABLE

Possible versions	Denomination	Percentage
5-21-10-A90	0.05	5-21-10-A90
5-21-10-A92	0.10	5-21-10-A90
	0.25	5-21-10-A90
	0.50	5-21-10-A92
	1.00	5-21-10-A92
	Save & Quit	

PAYTABLE SUMMARY

After configuration, a summary is displayed.

- Press "Cash Out" button to confirm settings *or*
- press any other button to reject settings.

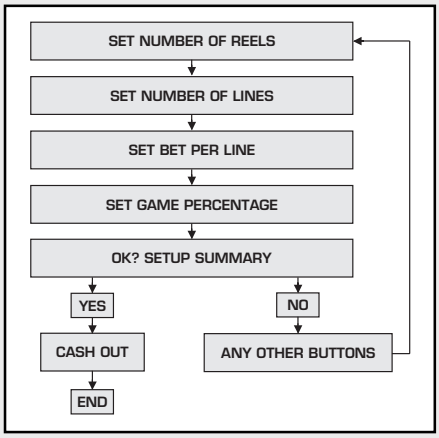
By rejection the Paytable Configuration procedure will automatically restart from the beginning.

Check all settings thoroughly. Any subsequent modification of settings after pressing "Cash Out" requires a new Clear Memory Procedure.

Proceed with PC Setup (if necessary) and Menu Setup.

PAYTABLE CONFIGURATION WITH MULTI DENOMINATION DISABLED

Following settings apply, if Multi Denomination Feature has been disabled.



HOW MANY REELS?

- Number of reels is always 5.
  Confirm with "Cash Out" button.

HOW MANY LINES?

- Set appropriate number of pay lines according to the button panel labelling.

WHICH BET PER LINE?

- Set an appropriate max. bet per line setting according to the button panel labelling.

  *In some jurisdictions a hardcoded **Maxbet Limit** (in currency) is implemented. In this case no setting which exceeds the Maxbet Limit is possible!*

  *Examples: Maxbet Limit = **5**$*

  ***9** lines x **5** credits per line x **0,10**$ denomination = **4.50**$ Maxbet is a valid selection.*

  ***5** lines x **10** credits per line x **1**$ denomination = **50**$ Maxbet is invalid, selection not possible.*

SET GAME PERCENTAGE

- Depending on the versions available in the paytable EPROM, the Operator can choose the required pay-out percentage. The percentage value is shown by the last two digits of the paytable version.

  Example: 5-09-05-A94 = 94%

PAYTABLE SUMMARY

- After configuration, a summary is displayed and the operator can confirm or reject the settings. By rejection the procedure will automatically restart.

- blank page -

PC SETUP

Introduction

PC-Setup allows operators to

- Change basic hardware configuration
- Upload JCM™ bill tables
- Set additional Jackpot Key functions (remote)
- Enable a Win Limit
- Re-program Mechanical Meter 6 (Jackpot)

Atronic gaming machines are delivered pre-programmed according to customer specific requirements.

Due to additional hardware installation, changed handling requirements, updated software or fault correction by the operator, it might be necessary to re-program these options by means of PC-Setup.

Atronic has developed a version of PC Setup for computers with a Windows OS called **Mainconfig for Windows**.

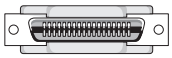
***Note**:*
PC-Setup program is also available for DOS environment.

Mainconfig for Windows contains all of the configuration capabilities of the various DOS versions in one program.

PC Setup Kit

PC-Setup Disk

PC-Setup cable



Dongle G/E 0300

***Note**:*
PC Setup Kit also contains an adapter board for Atronic MedRes Touch (Roulette/Bingo) machines. This board is not required for Cashline™ machines.

Requirements for Notebook / PC

Notebook or PC used for PC-Setup must feature a SUB-D 25 printer port (LPT) to connect the dongle and a SUB-D 9 serial port (COM) to connect the setup cable. Also a floppy disk drive is necessary to read the setup disk.

Program Installation

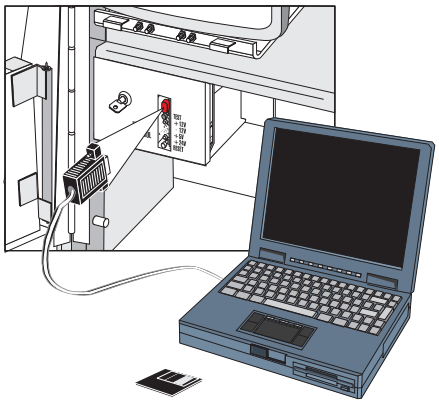
Installation of **Mainconfig for Windows** requires installation of a device driver for the Hardlock Dongle to unlock **Mainconfig for Windows** functionality.

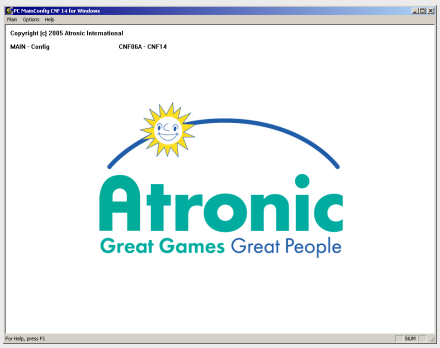
- Copy files **hldrv32.exe** and **Main_Setup_v6-v14.exe** into a temporary folder on your PC.
- Execute **hldrv32.exe** and follow instructions on screen to install the Hardlock Dongle device drivers.
- Reboot PC to initialize drivers.
- Execute **Main_Setup_v6-v14.exe** and follow on-screen instructions to install **Mainconfig for Windows**.

When the installation is completed, there will be a shortcut icon on the desktop called **Main Config**.

Connect Notebook / PC and Machine

- With the notebook switched off, connect the PC Set-up Dongle G/E 0300 to the printer port (LPT1).
- Connect the PC Setup cable to the RS232 connector on the Master Board.
- Connect the other end of the cable to the notebook serial port (COM).
- Power up notebook and start **Mainconfig for Windows** by double clicking the **Main Config** icon.





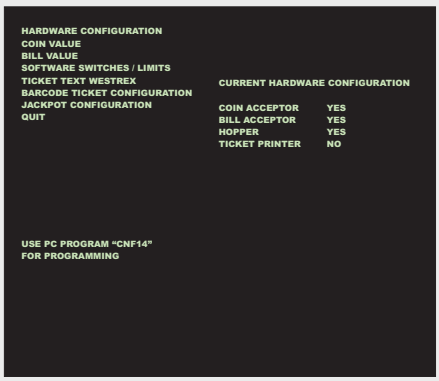
"Mainconfig for Windows" start screen.

PREPARE MAINCONFIG FOR WINDOWS FOR PROGRAMMING

1. Identify and select required Main-Setup version

- Open machine main door and press Service button at front of the Master Board.
- Select item "PC-Setup".

  Information in the lower left of the PC Setup start screen indicates which Main-Setup version to select in Mainconfig for Windows (respective which DOS version to use). P-Level STD main software uses "CNF14" for programming.
- In Mainconfig for Windows click the "Options" tab to enter the Preferences Menu. Choose the Main-Setup version required by the machine.



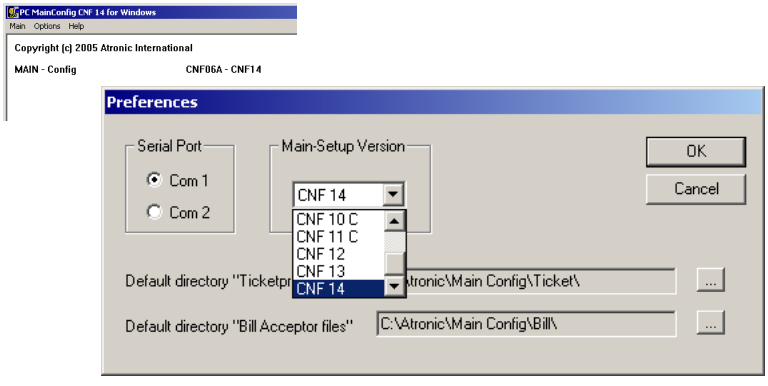
PC-Setup menu at the machine.

2. Set COM port

- Set the serial port (COM 1 or COM 2) where the PC-Setup cable is connected.

3. Set bill table directory

- If needed, enter the default directory where your JCM™ bill table files (*.BT1) are stored.



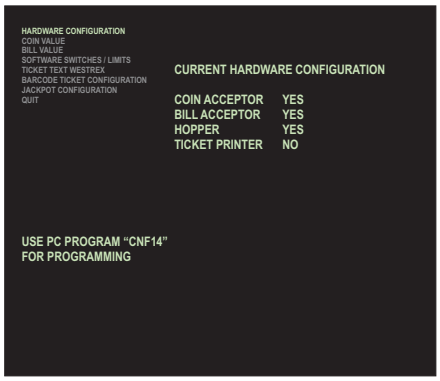
Mainconfig for Windows Preferences Menu.

PC-SETUP (MAIN-) PROCEDURE

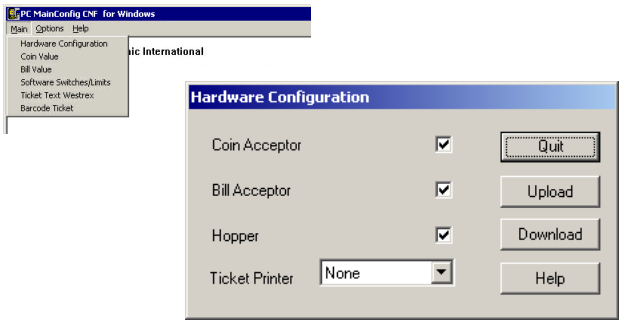
In order to transfer data between gaming machine and PC/notebook, the same routine (e.g. hardware configuration) has to be active on both the machine and the PC.

First download current configuration. Reconfigure by means of Mainconfig for Windows, then upload new configuration!

1. Select item "PC-Setup" and highlight the desired routine.



2. Select the corresponding routine in the configuration program on the PC.



3. Press center lit button on the button panel to initiate data transfer. Following message is displayed:

START TRANSMISSION ON PC

4. Immediatly (within a few seconds) click "Download" button on the PC.

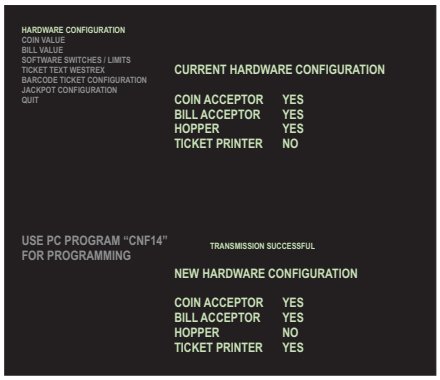
PC-SETUP (MAIN-) PROCEDURE (CONT.)

5. Alter settings (see next pages for details).

6. Press center lit button on the button panel to initiate data transfer.

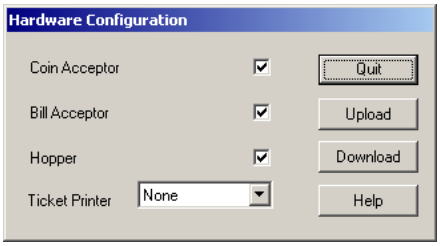
7. Immediatly click "Upload" button on the PC.

8. If transfer has been successful, the machine will display current and new (altered) settings.



Proceed with next routine or quit application.

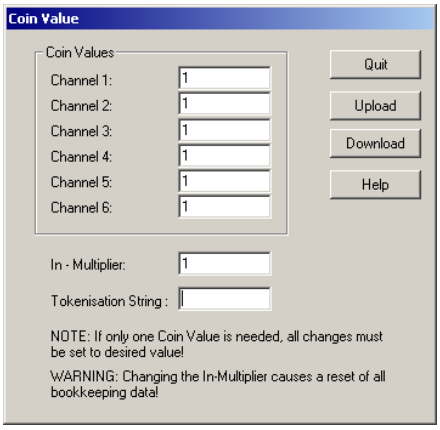
ROUTINE - HARDWARE CONFIGURATION



This routine allows to configure the machine according to the actual installed hardware. Enable or disable coin and bill acceptor, hopper and set ticket printer type.

A bill acceptor must additionally be enabled by setting the corresponding DIP-switch on the Master Board, S2-4 to ON!

ROUTINE - COIN VALUE



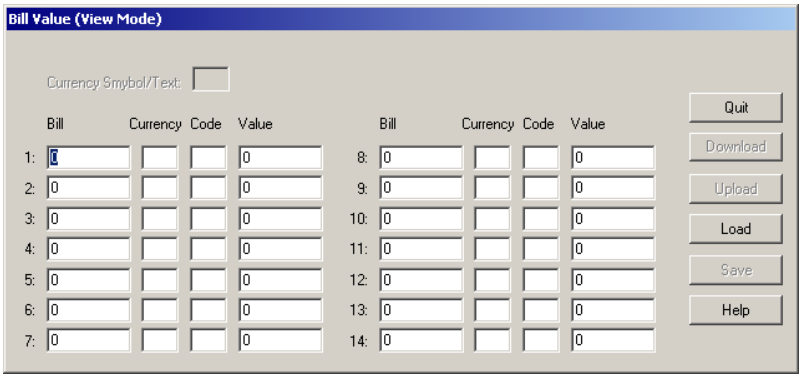
***Note**:*
In most configurations coin values are defined by the machine and are not adjustable via PC Setup. Selecting COIN VALUE in the PC Setup menu, will display message "OPTION NOT USED" or setup options are grayed out.

This routine allows to set different multipliers for each Coin Signal Line (Channel 1-6), used for multi-coin application. With coin comparitors which accept only one type of coin (e.g. CC16) all channels have to be set to the same value.

Additionally an "In-Multiplier" can be set. Accepted **coins and bills** are multiplied with the configured in-multiplier.

Edit the tokenisation string to change the denomination code. Changing the denomination code does not affect the machines coin value!

ROUTINE - BILL VALUE



***Note**:*
In most configurations bill values are defined by the bill acceptor and it is not necessary and not recommended to alter bill value settings.

This routine is intended to upload JCM™ bill table files and additionally allows to alter bill table settings for special applications.

GPT™ Bill Validator:
An upload of bill table files via PC Setup is not necessary, because the acceptor supports automatically bill table upload. It is only possible to change settings in the column "VALUES" for special applications.

JCM™ Bill Validator:
If PC Setup settings have been cleared during Initial Setup (Reset button pressed during RAM Reset power up), it is necessary to upload a bill table file into the machine. This bill table file defines bill codes and bill values. Use the bill table file (*.BT1) that matches to a specific JCM™ bill validator firmware.

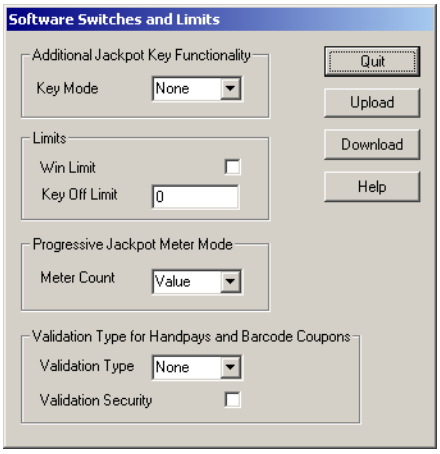
Machine will lock, if uploaded bill table file does not match to the acceptor firmware.
***Example:** Bill acceptor is programmed to accept Euro currency but a bill table for $ currency or no bill table at all is loaded.*

Upload procedure

- Click "Load" and select the required bill table file (e.g. EURO.BT1).
- Click "Upload" to send the bill table to the machine.

  Machines configured to US-$ (default) need no bill table configuration.

ROUTINE - SOFTWARE SWITCHES & LIMITS



Key Mode
Allows to allocate additional functions to the Jackpot Key.

- **NONE**
  No additional function.

- **KNOCK OFF**
  If selected, turning the Jackpot Key will clear all player credits on the credit meter and book them to the "Key Credit Out" soft meter.

- **REMOTE**
  Enables the remote credit function. Turning Jackpot Key allows to book credits to the credit meter.

  ***Note**:*
  See manual "Operating / P-Level STD" for a detailed "remote credit function" description.

Win Limit

- If enabled, a (single) win exceeding 1200 currency units causes the machine to lock up and the win amount has to be hand paid.

Key Off Limit

- **"0"**
  The machine prints vouchers without any check of the current payout amount.

- **Higher than "0"**
  The machine checks whether the payout amount is higher than the key off limit. If so, the machine locks and the voucher has to be confirmed by turning the jackpot key. After printing the voucher, the machine returns to game mode. If the amount is below the limit, the machine prints out the voucher immediately.

Progressive Jackpot Meter Mode
Allows to re-program Mechanical Meter 6 (Jackpot)

- **HITS**
  Mechanical Meter 6 counts number of Jackpot hits.

- **VALUE**
  Mechanical Meter 6 counts value (in credits) of Jackpot hits.

Validation Type for Handpay and Barcode Coupons
Set "Validation Type for Handpays and Barcode Coupons", according to TITO host system settings.

- **NONE**
  No validation required. If a voucher printer is installed, the Master board will create the validation number. The voucher printer uses this validation number for the barcode. The bill acceptor will not redeem these vouchers.

  Validation Security has **no** effect.

When is NONE used?
Used for non-online accounting procedures.

- **STANDARD**
  The Commboard creates a 8-digit validation number upon voucher request and stores it in memory. When the validation number is verified valid (and stored) by the TITO host system the voucher is valid.

  Validation Security has **no** effect.

When is STANDARD used?
When an accounting system has TITO functionality. Setting not recommended.

Validation Type (cont.)

- **ENHANCED**
  The Commboard creates a 16-digit validation number upon voucher request and stores it in memory. When the validation number is verified valid (and stored) by the TITO host system the voucher is valid. To create an enhanced validation number, a validation ID and a validation sequence number must maintain in memory.

  Validation Security

  NO
  The validation number can be stored in a buffer, before it is fetched by the TITO host. Machine is playable without validation ID set.

  YES (typical)
  The TITO host system fetches the validation number from the Commboard immediately upon voucher request. The validation number has to be verified valid and sent back to the Commboard, before the voucher can be printed. The machine will remain locked until a validation ID and a starting sequence number is set by the TITO host system (upon machine power up).

When is ENHANCED used?
Typical setting if an accounting system has TITO functionality or a dedicated TITO host system is used. Used with most SAS based TITO systems

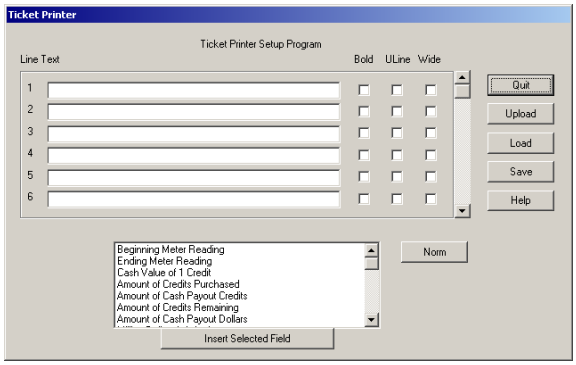
***Note**:*
Enhanced Validation also allows validation of handpays.

- **SYSTEM**
  Vouchers require a 16-digit validation number plus a 2-digit validation system ID supplied by the accounting system at the time of the cash out. In this mode the Commboard may refuse validation, e.g. when the link to the accounting system is disabled. If validation is not possible, the machine will tilt and force a Handpay.

  Validation Security has **no** effect.

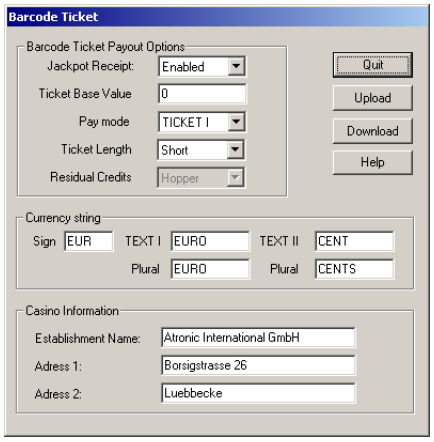
When is SYSTEM used?
When the accounting system supplies the validation number for a voucher.

ROUTINE - TICKET TEXT WESTREX



Option not supported, any setting will be ignored by the machine.

ROUTINE - BARCODE TICKET



This routine allows configuration of voucher format and voucher handling.

Jackpot Receipt

Set to ENABLED or DISABLED (default).

If set to ENABLED, a Jackpot receipt is printed when a (Jackpot) handpay is reset by the attendant. The receipt is intended for casino internal accounting use only and is not cashable or playable. Validation Mode System does not support Jackpot receipts.

Ticket Base Value

The TICKET BASE VALUE is the smallest amount (in credits), which will be printed on the voucher after a cashout, if the machine is configured with a voucher printer and a hopper.

- **TICKET BASE VALUE = 0**
  All credits will be printed on a voucher. Automatically set, if Pay Mode TICKET 1 is selected.

- **TICKET BASE VALUE = 1**
  All Credits up to the HOPPER LIMIT are paid via hopper. The rest is printed on a voucher. Automatically set, if Pay Mode HOPPER 1 is selected.

TICKET BASE VALUE has to be smaller than HOPPER PAYOUT LIMIT!
Hopper Payout Limit can be configured in Service Menu/Menu Setup/Hopper Payout Limit.

- **TICKET BASE VALUE greater than 1**
  Hopper pays up to the TICKET BASE VALUE. The rest is payed by voucher. This allows voucher values to be rounded to multiples of certain values, to prevent residual credits when the voucher is redemptioned by a machine with different denomination.

  For example:
  If TICKET BASE VALUE is set to 100 credits and In-Multiplier is 10, only tickets with values of $10, $20, $30 ... will be printed.

If the machine is tokenized and RESIDUAL CREDITS is set to VOUCHER, the residual credits are added to the voucher amount. This may result in vouchers with odd values.

For examples of different TICKET BASE VALUE settings see Appendix page 66 - 68.

Pay Mode

The "Pay Mode" determines how a pay out is splitted into Voucher- and Hopper pay outs. The pay mode of residual credits has to to be set seperately.

- **TICKET 1**
  All credits (incl. residual) are paid as a voucher. TICKET BASE VALUE is automatically set to 0.

- **TICKET 2**
  All credits up to the next TICKET BASE VALUE are paid by the Hopper. The rest is printed on a voucher.

- **HOPPER 1**
  The Hopper pays up to the Hopper Limit. The rest is printed on a voucher. TICKET BASE VALUE is automatically set to 1.

  Hopper Payout Limit can be configured in Service Menu/Menu Setup/Hopper Payout Limit.

- **HOPPER 2**
  If the pay out is below HOPPER PAYOUT LIMIT: All credits are paid via Hopper.

  If the pay out is above HOPPER PAYOUT LIMIT: A voucher rounded to a (maximal) multiple of the TICKET BASE VALUE is printed. The rest is paid via hopper.

If selecting TICKET 2 or HOPPER 2, it is necessary to set a TICKET BASE VALUE. If no TICKET BASE VALUE is configured, the machine will automatically set a TICKET BASE VALUE equal to the In-Multiplier.

For examples of different PAY MODE settings see Appendix page 66 - 68.

Ticket Length

Different voucher lenghts can be configured (short/long).

When using a Seiko Voucher Printer set Ticket Lenght always to LONG!

Residual Credits

- **HOPPER**
  Residual credits are handled as set with Initial setup option RESIDUAL CREDITS PAYOUT ("Cashable / Playable" or "Forced Play Off").

- **TICKET**
  Residual credits will be added to the voucher values.

> ! If the machine is tokenized and RESIDUAL CREDITS is set to TICKET, the residual credits are added to the voucher amount. This may result in vouchers with odd values.

Currency String

Configure the currency strings that are printed onto the vouchers. Default values are:

Sign:	*$*	Text I:	*Dollar*	Text II: *Cent*
		Plural:	*Dollars*	Plural: *Cents*

Casino Information

Casino name and address can be entered and will be printed on the ticket.

> ! **When configuring this fields manually, make sure to enter the same text that the accounting system uses! The Casino Information text can also be configured via SAS (LP 7D).**
>
> **USE ENGLISH ALPHABET ONLY!**

JACKPOT CONFIGURATION (OPTIONAL)

Jackpot Configuration is only necessary if the machine is configured to progressive Jackpot mode (e.g. A-Link, System progressive). If Multi Denomination Feature has been enabled, progressive mode is not supported.

(Progressive) Jackpot Configuration is carried out by means of an external user program (similar to PC Set-up).

Requirements for Jackpot Configuration

- Software "A-Link Config"
- Hardlock dongle (as used for PC Setup)
- Setup cable (as used for PC Setup)

Carry out Jackpot Configuration before the machine is put into play mode. Do not insert any credits.

Master Board has to be equipped with a progressive mode Security Device on U35 to run progressive mode.

***Note**:*
*See manual "**Progressive Jackpots**" for detailed information about Jackpot Configuration. Manual provides information how to setup:*

- System Progressives
- Mikohn™ Progressives
- Atronic Progressive Link / APL™

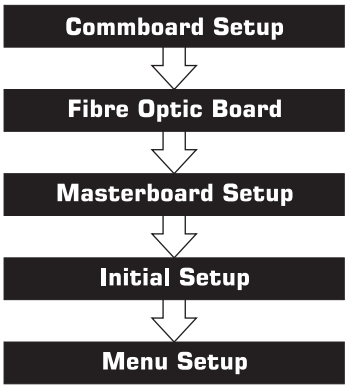
At this point Basic Setup is finished, proceed with Menu Setup, which is described in manual "Operating / P-Level STD".

INTRODUCTION

An Atronic machine that is configured for Ticket In Ticket Out (TITO) can vend voucher, printed by a thermal voucher printer, instead of **or** in addition to Hopper pay-outs. These vouchers can be redeemed either by inserting them into another machine configured for TITO or by "Cashing In" the vouchers. When a voucher is inserted into an gaming machine configured for TITO, the accordingly amount of credits is booked to the machines Credit Meter upon voucher validation.

For operating a Ticket in Ticket out environment a SAS Commboard software is required!

Configuration Overview

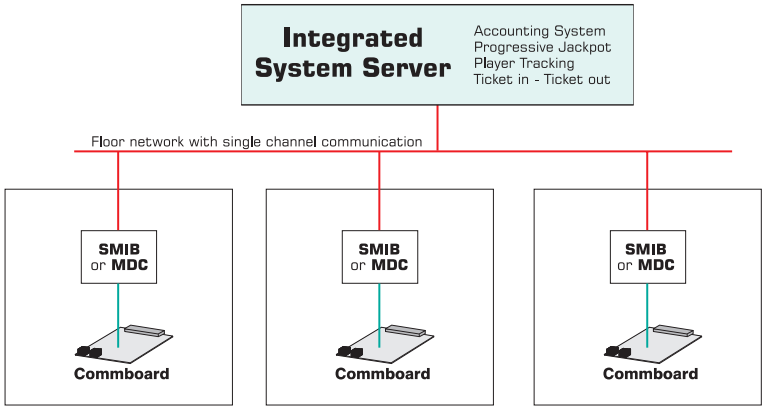


Voucher Types

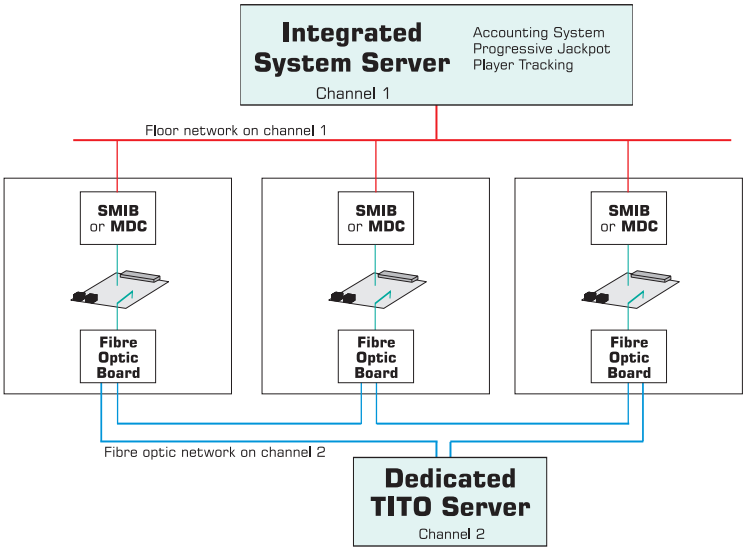
CASHOUT VOUCHER
After the Cashout button has been pressed, the machine prints a CASHOUT VOUCHER for the amount of cashable credits. The bar code is centered.

CHANGE VOUCHER
If a $1 machine accepts a voucher for $2.25, the machine books 2 credits to the credit meter and prints a CHANGE VOUCHER for $0.25. The bar code is centered.

SINGLE WIRE AND 2 WIRE TITO SYSTEMS



Single wire / Single channel
In a single wire / single channel environment all system communications runs on a single network wire. Applications such as Accounting, Progressive Jackpot, Player Tracking and TITO are handled by an integrated system server.



2 wire system
In a 2 wire environment there are two discrete lines. Applications, such as Accounting, Progressive Jackpot and Player Tracking, handled by an integrated system server, are communicating via standard (ethernet) network on SAS channel 1. The dedicated TITO system is connected via discrete fiber optic network, communicating on SAS channel 2.

Fiber Optic Board

To connect the machine to a fiber optic 2-wire TITO environment, it is necessary to have an Atronic Fiber Optic Board installed. The Fiber Optic Board converts signals from RS232 (typical) or Current Loop (TTL) to fiber optic and vice versa.

The 68k Comm board will need software capable of Dual Channel communication and the board itself configured for Dual Channel communication.

The Fiber Optic Board is available as a 110V or a 230V kit. The Atronic Fiber Optic Kit includes:

- 1 Atronic Fiber Optic Board
- 1 power supply
- 1 RS232 ribbon cable
- 1 fiber optic cable

COMMBOARD 68K SETUP / CASHLINE

Commboard Configuration / P_SM-MA-STD_-B-08A

1. Set the machines accounting system addresses. If the machine is connected to a SMIB set the accounting adress to 01.
   If the machine is not connected to an accounting system by means of a SMIB, each machine must have a unique adress. Adress range is 01 to 99. Dual Channel communication is automatically enabled when a System Adress other than 00 is selected on Channel 2 rotary switches S3 and S4.

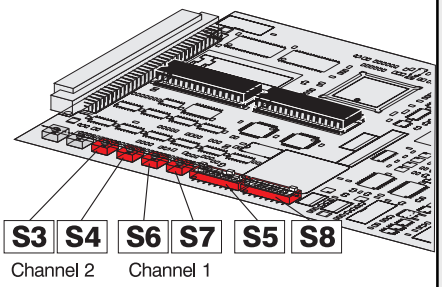
2. Set DIP switch S5 / 6 to ON
   to enable the accounting system communication.

3. *For dual channel mode only:*
   Allocate communication functions to channel 1 or channel 2 with DIP-switches S8 / 2 - 6.
   TITO = Coupon (Switch S8 / 6)

DIP switch bank S8								Channel Allocation Table		Affected LongPolls
1	2	3	4	5	6	7	8			
	Off							Prog JP	Chan 1	0x80, 0x86
	On							Prog JP	Chan 2	
		Off						EFT	Chan 1	0x22 to 0x26, 0x28, 0x29
		On						EFT	Chan 2	0x62 to 0x67, 0x28, 0x29
			Off					Bonus	Chan 1	0x2E, 0x8A, 0x8B
			On					Bonus	Chan 2	
				Off				Control	Chan 1	0x03 to 0x07, 0x0A to 0x0C
				On				Control	Chan 2	0x94, 0xA8
					Off			Coupon	Chan 1	0x4C, 0x4D 0x57, 0x58, 0x70, 0x71
					On			Coupon	Chan 2	0x7D (Exp 0x3F, 0x57, 0x67, 0x68)
						Off				CB sends Total drop meter to host
						On				CB sends Coin drop meter **
							On			Message if accountingsystem isn't connected
							Off			No message if accountingsystem isn't connected

4. Set DIP switch S8 / 8 to ON (optional)
   to enable a machine lock and an on-screen message, in case of communication loss to the accounting system.

Setting Accounting System Addresses



Address on channel 1 (SAS)
S6: x10 digit
S7: x1 digit

Address on channel 2 (SAS)
S3: x10 digit
S4: x1 digit

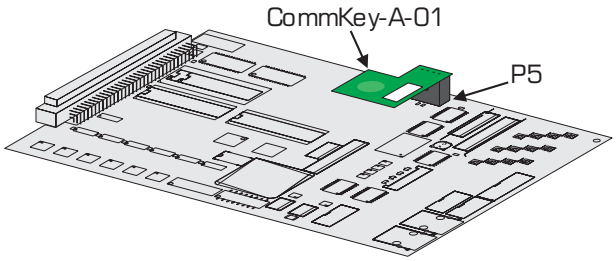
Address 00 disables channel

Example:
Set Channel 1 to address 01
S6 = 0, S7 = 1

Set Channel 2 to address 23
S3 = 2, S4 = 3

COMMBOARD 68K SETUP / CASHLINE

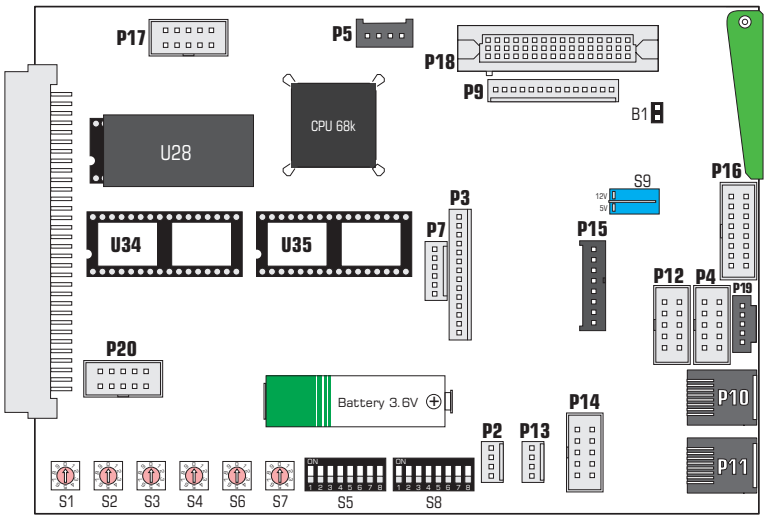
6. Install a Comm Key Dongle to Commboard P5 connector, to enable Voucher Redemption functionality.



7. Re-install Commboard and connect to SMIB or Fiber optic board (next page).

P12 = SAS Channel 1 - RS232 Interface
P4 = SAS Channel 2 - RS232 Interface

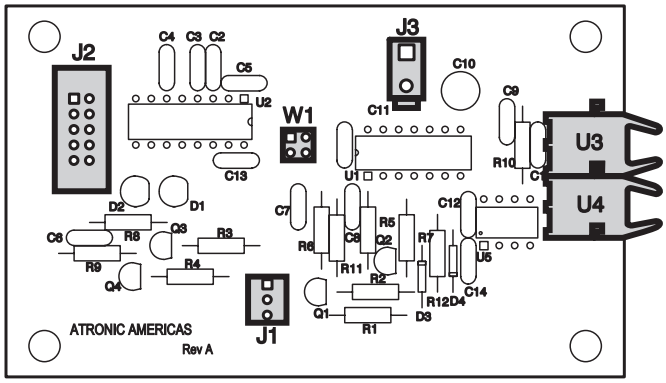
P2 = SAS Channel 1 - Current Loop Interface
(used with Mikohn SMIB and UPT-Harness)
P19 = SAS Channel 2 - Current Loop Interface



FIBER OPTIC BOARD - SETUP (OPTIONAL)

Fiber Optic Board Setup (RS232 mode)

The Fiber Optics Board can be configured to communicate either on SAS channel 1 or on channel 2.



1. Make sure Commboard is set to Dual channel mode and TITO communication is set to desired channel.
   - Channel 1 Set DIP Switch S8 / 6 to OFF
   - Channel 2 Set DIP Switch S8 / 6 to ON

2. Set Jumper **W1** to RS232 mode (Pins 1 & 2).

3. Connect RS232 Cable from Fiber Optic Board **J2** to the Commboard.
   - Channel 1 Connect to Commboard **P12**
   - Channel 2 Connect to Commboard **P4**

4. Connect the Fiber Optic Board power supply to **J3**.

5. Connect the transmitting fiber optic cable (the one that is lit) to **U3** (fiber optical receiver terminal).

6. Connect the fiber optic cable from the Fiber Optic Board kit to **U4** (fiber optical transmitter terminal) and run it to the next machine or to the TITO system.

All fiber optic connections from the Fiber Optic Boards and the TITO system must complete a loop in order for the TITO system to communicate.

Note:
See also fiber optics wiring overview on page 69.

Note:
The fiber optic cable that is transmitting is coming either from the TITO system or another machine.

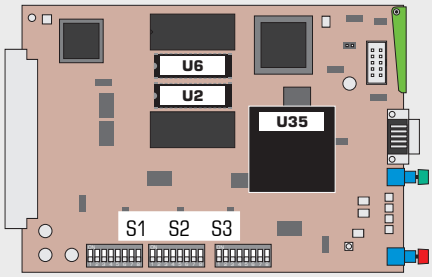
The fiber optic cable ends and the transmit- receive terminals are color-coded.
Grey to Grey
Blue to Blue

MASTER BOARD SETTINGS

Necessary settings

These settings are necessary to have TITO working.

Switch	Set	Description
S2 / 4	ON	Bill validator is enabled.
S3 / 8	OFF	Value of accepted bill is added to the credit meter.



Master Board #31

Standard settings

These settings are standard settings for most environments and can be altered, if necessary.

Switch	Set	Description
S1 / 2	ON	Hopper must be refilled, if empty.
S1 / 3-4	OFF	Pay maximum payout limit from Hopper. Rest is hand pay.
S1 / 7-8	OFF	Inserted coins are added to the credit meter. No IN meter displayed.
S2 / 1	OFF	Add win amount to credit meter.
S2 / 3	ON	Hopper jam must be cleared.
S2 / 5	OFF	GM pays top prize amount according to pay table.
S2 / 8	OFF	Top light with 3 lamps.
S3 / 7	ON	GM locks with error message, in case of a coin diverter malfunction.

Leave all other switches to OFF.

INITIAL SETUP / CASHLINE

Some settings during Initial Setup are necessary to have TITO applications working. Some settings are optional.

- **Revert to printer feature** (optional)

  If ENABLED a printer pay out will be forced, in case of a hopper error.
  If DISABLED, the machine locks in case of a hopper error and *Call Attendant* is displayed.

- **Commboard required** (necessary)

  For TITO setting YES is required.

- **Set Billacceptor Type** (necessary)

  Set to "JCM", if a JCM™ WBA bill acceptor is installed (typical).

- **Residual Credits Payout** (optional)

  This setting only affects, if PC-Setup option "Residual Credits" is set to HOPPER. In this case residual credits are handled as adjusted in this menu.

Other settings during Initial Setup do not affect TITO.

***Note**:*
Some settings made during Initial Setup, interact with settings which will be made later during PC-Setup.

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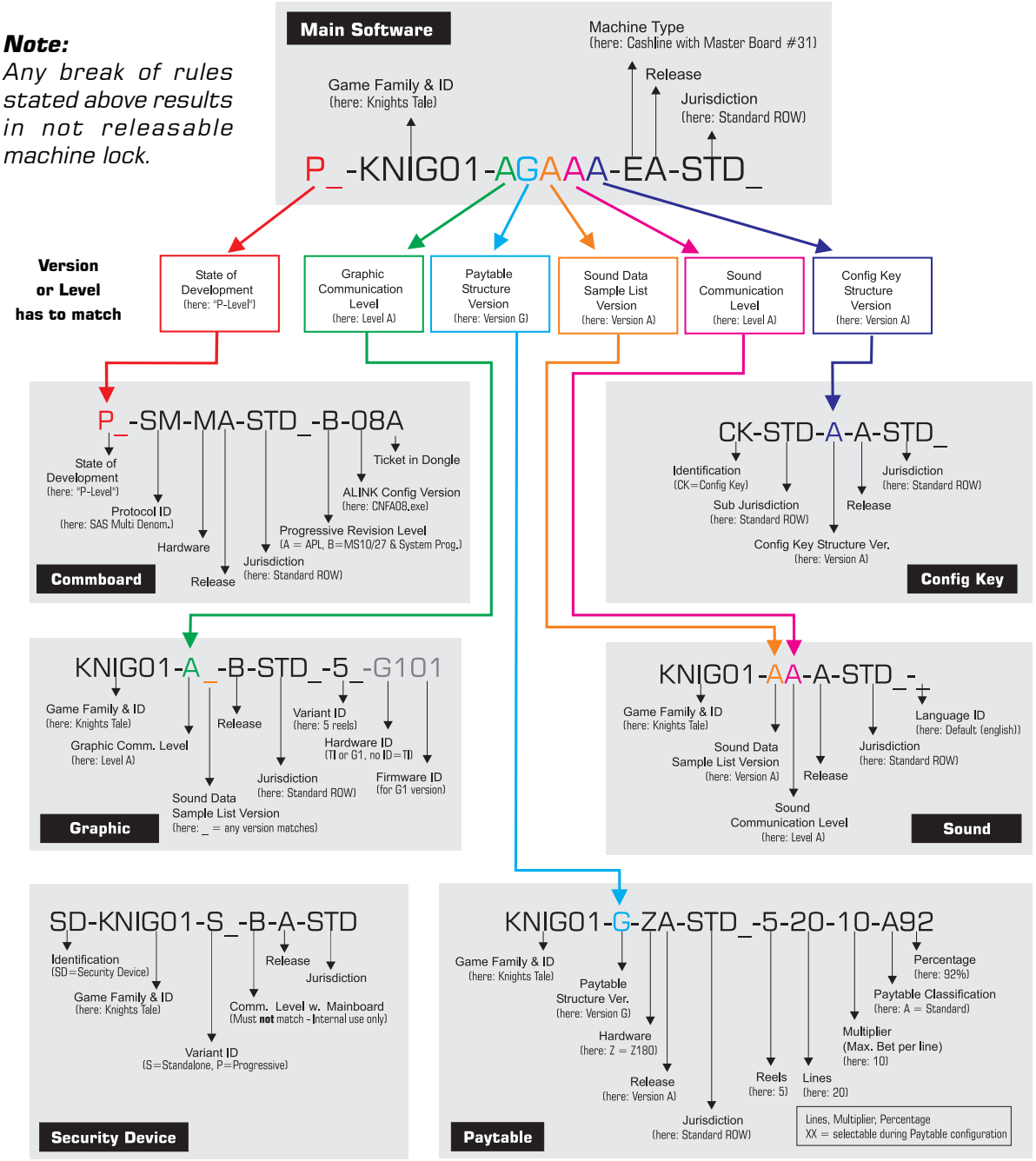
DEFINITION OF EPROM NAMING

Atronic EPROMs are named according to Atronics' Definition of EPROM Naming. This helps to identify and match Software versions. Naming of a particular software is stated on EPROM labels or can be checked via "Audit Menu / Configuration".

- *Game Family* must match for Main, Paytable, Graphic, Sound and Security Device.
- *Communication Level* and *Structure Version* has to match.
  Exception: Main Software is downwards compatible with Paytable software.

Note:
Any break of rules stated above results in not releasable machine lock.



Note: All software versions stated here are only given for example to explain EPROM namings.

MASTER BOARD #31 DIP SWITCH SETTINGS

Table refers to P-Level STD Main software.

Switch			Description
1-1			**Holland specific requirements**
ON			Holland requirements enabled
OFF			Holland requirements disabled
1-2			**Hopper empty procedure**
ON			Hopper must be refilled, payout continues after main door is closed
OFF			Left amount is hand paid
1-3	**1-4**		**Over maximum payout limit procedure**
OFF	OFF		Pay limit from hopper, rest hand paid
OFF	ON		Total amount is hand paid
ON	OFF		Pay coins from hopper until amount reaches next full hundred, rest is hand paid
1-5			**ROM SIG calculation**
ON			ROM SIG over first 128 byte of MAIN & PAYTABLE
OFF			ROM SIG over whole MAIN eprom
1-6			**not used**
1-7	**1-8**	**2-2**	**Coin in procedure**
ON	ON	OFF	Inserted coins are added to the BET or IN meter until maximum bet is reached,further coins are rejected
ON	ON	ON	Inserted coins are added to the BET or IN meter until maximum bet is reached, the game is started automatically at maximal bet
OFF	ON		Inserted coins are added to the BET or IN meter until maximum bet is reached, further coins are added to the CREDIT meter
OFF	OFF		Inserted coins are added to the CREDIT meter, the IN meter is not displayed

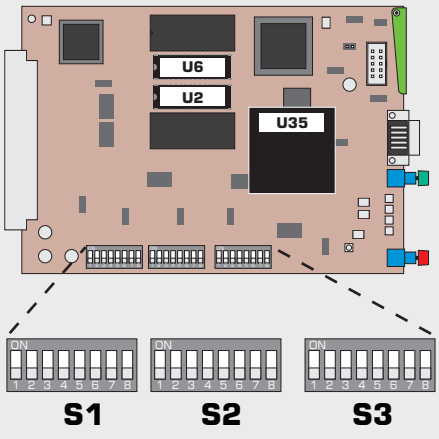
Switch			Description
2-1			**Win payout procedure for all wins**
ON			Pay win amount from the hopper
OFF			Add win amount to the credit meter
2-3			**Hopper jam procedure**
ON			Hopper jam must be cleared, payout continues after main door is closed
OFF			Left amount is hand paid
2-4			**Bill validator usage**
ON			Bill validator is enabled
OFF			Bill validator is disabled (not equipped)
2-5			**Top prize won procedure**
ON			GM assumes top prize is paid by some progressive system and will show win amount "0"
OFF			GM pays top prize amounz according to pay table
2-6			**not used**
2-7			**Game start**
ON			Bet is forced before new game can be started
OFF			Game is started with last bet (only used by standard slot panel) (3 reel games)
2-8			**Number of candles**
ON			Top light with 2 lamps
OFF			Top light with 3 lamps

Switch			Description
3-1			**not used**
3-2			**not used**
3-3			**not used**
3-4			**not used**
3-5			**not used**
3-6			**not used**
3-7			**Coin diverter malfunction procedure**
ON			GM locks with error message
OFF			Diverter malfunction is not reported
3-8			**Bill validator operation mode**
ON			Accepted bills are changed immediately by paying bill value from the hopper
OFF			Value of accepted bill is added to the credit meter

***Note**:*
Master Board DIP switches are factory pre-set according to customer requirements.

Please check for correct settings before puting the machine into operation.

***Note**:*
If Multi Denomination Feature is enabled, configuration of an BET or IN meter is not possible.



USING MASTER BOARD #31 WITH PREVIOUS SOFTWARE VERSIONS

Master Board #31 has been developed to meet enhanced technical requirements of game software with Multi Denomination Feature. To obtain full downwards compatibility, correct jumper setting is required.

Master Board #31 Jumper setting

Master Board #31 uses a jumper for clock frequency selection. Whether this jumper has to be set is indicated by the "Hardware Index" of the main software.

Current EPROM Naming:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	**17**	18	19	20	21	22	23
O	_	-	B	A	B	O	0	2	-	A	A	A	A	A	-	**C**	A	-	S	T	D	S

Position 17 indicates the Hardware Index.

Old EPROM Naming:

1	2	3	4	5	6	7	8	9	10	11	12	**13**	14	15	16	17	18	19
O	_	-	B	A	B	_	-	A	-	A	-	**C**	A	-	S	T	D	S

Position 13 indicates the Hardware Index.

Clear Memory Procedure

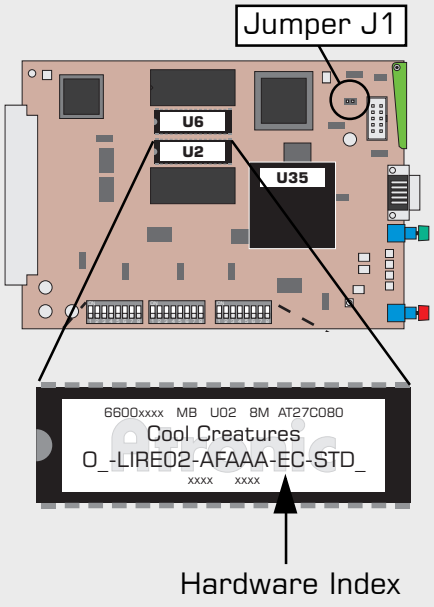
If a main software without Multi Denomination Feature is installed, also previous versions of RAM Reset EPROM can be used. See table for jumper setting during Clear Memory Procedure.

Jumper J1 setting during Clear Memory Procedure	Hardware Index "C"	Hardware Index "D"	Hardware Index "E"
RAM Reset 09	OFF	n/a	n/a
RAM Reset 11	OFF	OFF	n/a
RAM Reset 12	ON	ON	ON

Operation

See table for jumper setting during normal operation.

	Hardware Index "C"	Hardware Index "D"	Hardware Index "E"
Jumper J1 setting during operation.	OFF	ON	ON



n/a = not allowed

DIP SWITCH SETTINGS FOR COMMBOARD

for Comm software P_-SM-xx-xxx

Rotary Switches

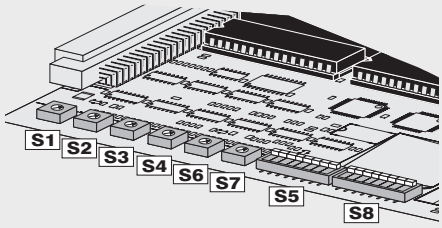
Switch	Function
S1	EGMs Progressive System Address
S2	EGMs Progressive System Address
S3	EGMs Accounting System Address Channel 2 (Automatically enable 2nd Channel if set)
S4	EGMs Accounting System Address Channel 2 (Automatically enable 2nd Channel if set)
S6	EGMs Accounting System Address Channel 1
S7	EGMs Accounting System Address Channel 1

DIP Switch Block **S5**

Switch			Function
5-1	5-2	5-3	
OFF	OFF	OFF	Mikohn MS-10 Progressive
ON	OFF	OFF	Accounting Progressive
OFF	ON	OFF	APL Progressive (if included in eprom)
ON	ON	OFF	Mikohn MS-27 Mystery
OFF	OFF	ON	Mikohn MS-27 Mystery + Progressive
ON	OFF	ON	Accounting System 3rd Channel
OFF	ON	ON	not used, defaults to Mikohn MS-10
ON	ON	ON	not used, defaults to Mikohn MS-10
5-4			
ON			APL EGM act as Master
OFF			APL EGM act as Slave
5-6			
ON			Activate implemented Accounting System
OFF			Disable implemented Accounting System
5-7			
ON			Handpay AND ticket overwritten if not read
5-8			
ON			Ticket info only will be overwritten if not read

DIP Switch Block **S8**

Switch			Description	Affected LongPolls
8-2				
OFF			Prog JP Chann 1	0x80, 0x86
ON			Prog JP Chann 2	
8-3				
OFF			EFT Chann 1	0x22 to 0x26, 0x28, 0x29
ON			EFT Chann 2	0x62 to 0x67, 0x28, 0x29
8-4				
OFF			Bonus Chann 1	0x2E, 0x8A, 0x8B
ON			Bonus Chann 2	
8-5				
OFF			Control Chann 1	0x03 to 0x07, 0x0A to 0x0C
ON			Control Chann 2	0x94, 0xA8
8-6				
OFF			Coupon Chann 1	0x4C, 0x4D, 0x57, 0x58, 0x70, 0x71
ON			Coupon Chann 2	0x7D (Exp 0x3F, 0x57, 0x67, 0x68)
8-7				
OFF				CB sends Total drop meter to host
ON				CB sends Coin drop meter (Bally)
8-8				
ON				Message if accountingsystem isn´t connected
OFF				No message if accountingsystem isn´t connected



***Note**:*
Only Comm software with protocol identifier "SM" (SAS Multidenom) will support Multi Denomination Feature.
*Example: P_-**SM**-MA-STD_-B-08A*

DIP SWITCH SETTINGS FOR COMMBOARD

for Comm software P_-G4-xx-xxx

Rotary Switches

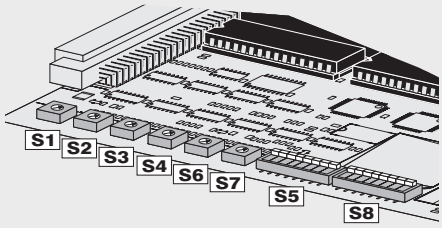
Switch	Function
S1	EGMs Progressive System Address
S2	EGMs Progressive System Address
S3	EGMs Accounting System Address
S4	EGMs Accounting System Address
S6	EGMs Accounting System Address
S7	EGMs Accounting System Address

DIP Switch Block **S5**

Switch			Function
5-1	**5-2**	**5-3**	
OFF	OFF	OFF	Mikohn MS-10 Progressive
ON	OFF	OFF	Accounting Progressive
OFF	ON	OFF	APL Progressive (if included in eprom)
ON	ON	OFF	Mikohn MS-27 Mystery
OFF	OFF	ON	Mikohn MS-27 Mystery + Progressive
ON	OFF	ON	not used, defaults to Mikohn MS-10
OFF	ON	ON	not used, defaults to Mikohn MS-10
ON	ON	ON	not used, defaults to Mikohn MS-10
5-4			
ON			APL EGM act as Master
OFF			APL EGM act as Slave
5-6			
ON			Activate implemented Accounting System
OFF			Disable implemented Accounting System
5-7	**5-8**		
ON	OFF		Not used
OFF	ON		Not used

DIP Switch Block **S8**

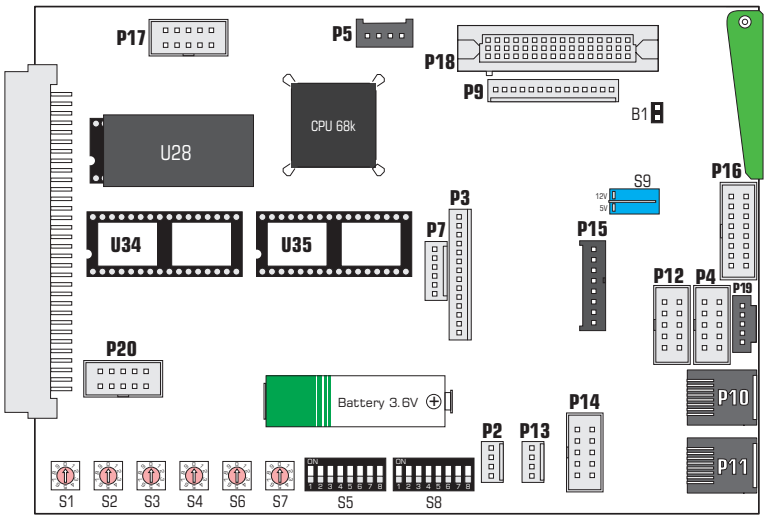
Switch	Description	Function
8-1		Not used
8-2		Not used
8-3		Not used
8-4		Not used
8-5		Not used
8-6		Not used
8-7		Not used
8-8		
ON		Message if accountingsystem isn´t connected
OFF		No message if accountingsystem isn´t connected



***Note**:*
*GRIPS Commboard software does **not** support Multi Denomination Feature and/or Ticket In Ticket Out!*

COMMBOARD CONNECTORS

for Atronic Commboard 68k Rev. 2.10



Connector	Interface	Protocol / Function
P2	TTL	**SAS channel 1** (current loop)
P3	-	Cash-Now trigger signals
P4	RS232	**SAS channel 2** *or* GRIPS
P5	-	Comm Key (Ticket in dongle)
P7	-	External Display
P9	-	+12V
P10, P11	RS485	A-LINK, Mikohn Controller *or* SAS channel 3
P12	RS232	**SAS channel 1**
P13	TTL	Bally
P14	TTL	DACOM
P15	-	not used
P16	RS422	VLC
P17	-	Manufacturer use
P18	RS422	Overhead Displayboard CL
P19	TTL	**SAS channel 2** (current loop)
P20	-	not used

S9	Close to apply +5V or +12V to pin 1 of connector P2
B1	Close jumper to bridge electrical (galvanic) isolation of ground connection.

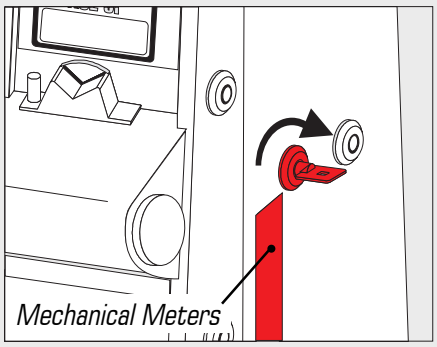
Connector function depends on implemented protocol version of Comm board software.

***Note**: Connectors P10 and P11 are parallel wired.*

***Note**:*
*Close jumber B1, if an **Atronic Systems** online system is connected and uses SAS protocoll.*

MECHANICAL METER DEFINITIONS

If more than one definition is stated in this description, this meter is programmable during Initial Setup. Enter Service Menu or Audit Menu and select "Configurations" to view actual settings.



Turning Audit Key illuminates Mechanical Meters.

MECHANICAL METER 1

(Mechanical Meter label: Credits Wagered)

- ***CREDITS WAGERED***
  Total number of credits which have been bet.

MECHANICAL METER 2

(Mechanical Meter label: Credits Won)

- ***CREDITS WON WITHOUT JP***
  Total value which has been won, except wins/bonus wins that directly result in a hand pay because a limit was exceeded.

- ***CREDITS WON WITH JP***
  Total value which has been won, except progressive Jackpots.

  CREDITS WON W/O JP+Non progressive Jackpots+Bonus wins

  Note:
  Total value of progressive Jackpot wins is booked to the "Progressive 1-8" soft meter, if applicable.

MECHANICAL METER 3

(Mechanical Meter label: Coins Drop)

- ***DROP WITH BILLS*** *(TOTAL DROP)*
  Total value of credits from stacked bills, coins to dropbox and vouchers.
- ***DROP WITHOUT BILLS*** *(COINS DROP)*
  Total value of credits from coins to dropbox.

MECHANICAL METER DEFINITIONS

MECHANICAL METER 4

(Mechanical Meter label: Hand Paid)

- ***HAND PAID WITHOUT JACKPOT***
  Total value of hand pays **initiated by a cash out request** (exceeding hopper payout limit; hopper empty or hopper jam) + key credit out.

- ***HAND PAID WITH JACKPOT***
  Total value of all hand pays, **initiated automatically and/or by a cash out request.** Including Key Credit Out, bonus wins that directly end in a handpay and non progressive Jackpot win, **except progressive Jackpots.**

  Note:
  Total value of progressive Jackpot wins is booked to the "Progressive 1-8" soft meter, if applicable.

MECHANICAL METER 5

(Mechanical Meter label: Games)

- ***GAMES***
  Total number of games played.

- ***BILLS IN CREDITS***
  Total value of accepted bills in credits.

- ***BILLS IN CURRENCY***
  Total value of accepted bills in currency.

MECHANICAL METER DEFINITIONS

MECHANICAL METER 6

(Mechanical Meter label: Jackpot)

If Initial Setup Menu "Set Jackpot Meter for commboard" has been configured to **Jackpot without Progressive**:

- ***JACKPOT***
  Non progressive configuration:
  - Amount of Top award values won (in credits), including all wins that ended directly in a handpay (e.g. celebration win, hopper payou limit).

  Progressive configuration:
  - All wins that ended directly in a handpay (e.g. celebration win, hopper payout limit), **except progressive jackpot wins!**

If Initial Setup Menu "Set Jackpot Meter for commboard" has been configured to **Jackpot with Progressive**:

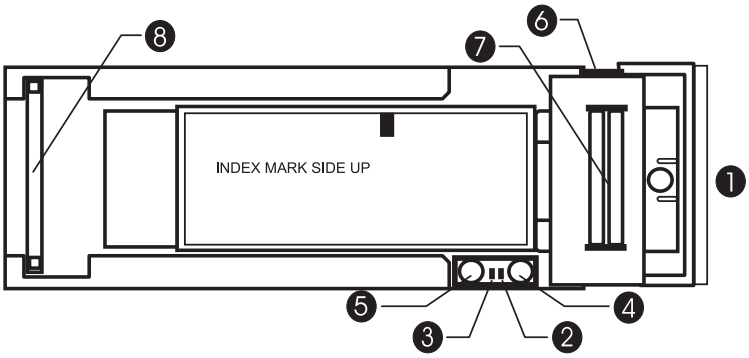
- ***JACKPOT WITH PROGRESSIVE***
  All wins that **directly** end in a handpay (wins above celebration limit or active credit limit, including bonus wins that exceed these limits), **including progressive Jackpot wins!**

  Note:
  Total value of progressive Jackpot wins is booked to the "Progressive 1-8" soft meter, if applicable.

***Note**:*
Mechanical Meter 6 can be re-programmed via PC-Setup (PC Setup/Software Switches and Limits/Progressive Jackpot Meter Mode) to count either Jackpot value (default) or number of Jackpot Hits.

TICKET PRINTER SEIKO PSA-66-ST

Please refer to document "Manual OP Mo GEN Ticket Printer Seiko PSA-66" for more detailed instructions.



1. Front Bezel Display
2. Error! LED
3. Status LED
4. FEED Button
5. CUT Button (no function)
6. Platen Release Lever
7. Paper Insertion Slot
8. Ribbon Cable

Self Test

To start a printer self test, depress and hold the FEED button during power up or reset. A ticket with actual printer configuration is printed.

Bezel Display Status

Bezel Display	Status
Solid On	Printer Idle and Ready
Slow Blink	Paper Low
Fast Blink	Ticket Printer and/or Ticket in Chute
Off	Printer power off

Error Conditions indicated by Keypad LEDs

Condition	Status LED	Error LED
Unit Powered Off	OFF	OFF
Unit Ready	ON	OFF
Unit Flushed	ON	ON
Paper Out	OFF	ON
Platen Down	OFF	ON
Temperature Error	OFF	Med Blink
Voltage Error	OFF	Slow Blink
Print Head Error	ON	Fast Blink
Mising Black Index Mark	ON	Fast Blink
Paper Jam	ON	Fast Blink

Dipswitch setting for use in Atronic machines (RS-232 mode)

1-6	OFF
7	ON
8	OFF
9	ON
10	ON

PAY MODE EXAMPLES

This sections shows some examples, how different settings for "PAY MODE", "TICKET BASE VALUE" AND "RESIDUAL CREDITS" affect pay outs.

Common values for all examples:
In-Multiplier = 10
Hopper Payout Limit = 200 credits

1. Pay Mode set to TICKET 1

All credits (incl. residual) are paid via ticket.
Settings for "Residual Credits (Init Setup and PC-Setup)" does not affect pay out.

2. Pay Mode set to TICKET 2

Ticket Base Value = 100 credits.

a) Residual Credits (PC-Setup) set to HOPPER

Cashout 9 credits:
0 by hopper; 0 by ticket
9 residual credits handled as set in Init Setup

Cashout 199 credits:
90 by hopper; 100 by ticket
9 residual credits handled as set in Init Setup

Cashout 299 credits:
90 by hopper; 200 by ticket
9 residual credits handled as set in Init Setup

b) Residual Credits (PC-Setup) set to TICKET

Cashout 9 credits:
0 by hopper; 9 by ticket

Cashout 199 credits:
90 by hopper; 109 by ticket

Cashout 299 credits:
90 by hopper; 209 by ticket

***Note**:*
*Within Menu Setup "Hopper Payout Limit" is given in **coins**. This value has to be multiplied by the In-Multiplier to get the "Hopper Payout Limit" in **credits**.*

PAY MODE EXAMPLES

continued

Common values for all examples:
In-Multiplier = 10
Hopper Payout Limit = 200 credits

3. Pay Mode set to HOPPER 1
Ticket Base Value set to 1.

a) Residual Credits (PC-Setup) set to HOPPER

Cashout 9 credits:
0 by hopper; 0 by ticket
9 residual credits handled as set in Init Setup

Cashout 199 credits:
190 by hopper; 0 by ticket
9 residual credits handled as set in Init Setup

Cashout 299 credits:
200 by hopper; 99 by ticket
(Residual credits are added to the ticket value, if cashout is above Hopper Payout Limit.)

b) Residual Credits (PC-Setup) set to TICKET

Cashout 9 credits:
0 by hopper; 9 by ticket

Cashout 199 credits:
190 by hopper; 9 by ticket

Cashout 299 credits:
200 by hopper; 99 by ticket

PAY MODE EXAMPLES

continued

Common values for all examples:
In-Multiplier = 10
Hopper Payout Limit = 200 credits

4. Pay Mode set to HOPPER 2
Ticket Base Value set to 100 credits.

a) Residual Credits (PC-Setup) set to HOPPER

Cashout 9 credits:
0 by hopper; 0 by ticket
9 residual credits handled as set in Init Setup

Cashout 199 credits:
190 by hopper; 0 by ticket
9 residual credits handled as set in Init Setup

Cashout 299 credits:
90 by hopper; 200 by ticket
9 residual credits handled as set in Init Setup

b) Residual Credits (PC-Setup) set to TICKET

Cashout 9 credits:
0 by hopper; 9 by ticket

Cashout 199 credits:
190 by hopper; 9 by ticket

Cashout 299 credits:
90 by hopper; 209 by ticket

FIBER OPTIC BOARD - WIRING OVERVIEW

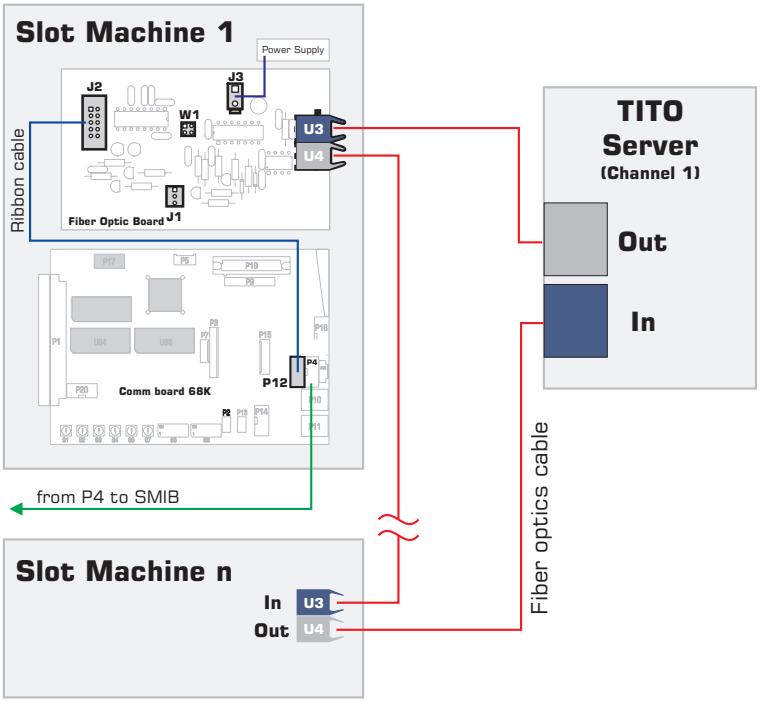


Figure 1:

TITO communication on channel 1

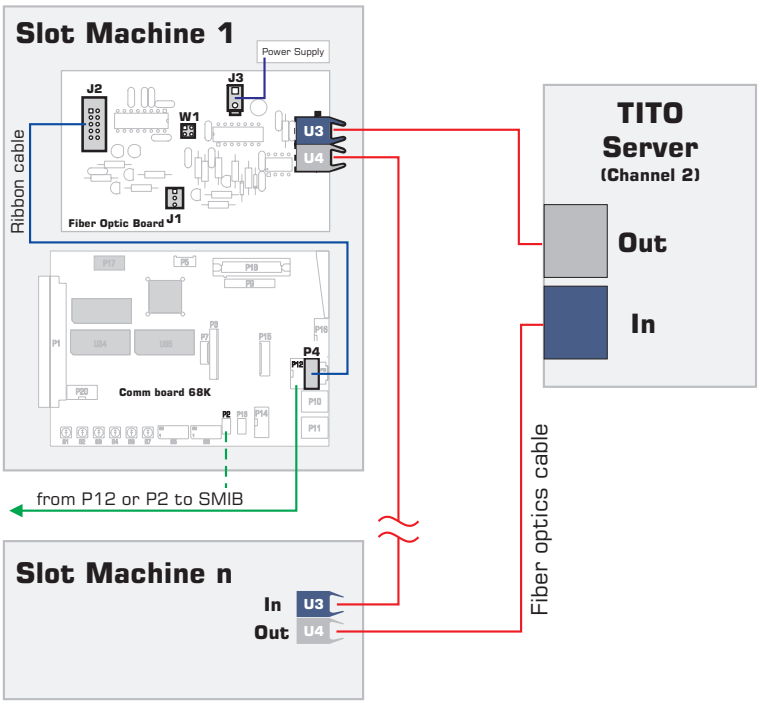


Figure 2:

TITO communication on channel 2

FIBER OPTIC BOARD - TROUBLE SHOOTING

Fiber Optic Board Trouble Shooting:

There are transmit (green) and receive (red) LEDs that "talk" to indicate TITO system and Fiber Optic board communication.

If the receive (red) is not lit:

- Check the fiber optic cable at **U4**,
  Is it correctly plugged in?
  Is the cable in good condition?
- Check the Fiber Optic Board or TITO system that is transmitting to it.

If the transmit (Green) is not lit:

- Check the RS232 **J2** or Current Loop **J1** cables,
  Are they correctly plugged in?
  Is the cable in good condition?
- Check the Fiber Optic Board Jumper **W1** setting.
- Is the Comm Board configured correctly?