

# Hungarian I.C.U. Datacapture Protocol

## Issue 1.3 26<sup>th</sup> July 2001

<b>Version</b>	<b>Reason for Change</b>
Issue 1.3	<p>26<sup>th</sup> July: Corrected 77h examples            12<sup>th</sup> July: Re-edited minimal ICU (IEK) requirements in Appendix D with recommendations for game software designers.            POWER ON message modified            BCD / Binary mode switch in variable length messages            SEND DATA: Extended size monetary values involved.            Re-edited minimal ICU (IEK) requirements in Appendix D</p>
Issue 1.2	<p>New Coin Values Added            Minimal requirements of Hungarian Integrated Control Unit (I.C.U.) are involved in Appendix D.</p>
Issue 1.1	<p>Modified 25pin Connector</p>
Issue 1.0 – 1 <sup>st</sup> Dec 2000	<p>First draft created from VAN Dataport v1.4</p> <ul style="list-style-type: none"> <li>- Introduction updated</li> <li>- Added <i>Default Baud Rate &amp; Fallback</i> section</li> <li>- Added <i>Mandatory Messages</i> list</li> <li>- Moved coin types info. to new <i>Coin Types</i> section</li> <li>- Added info. on Hungarian coins</li> <li>- Added <i>Game</i> message (69<sub>H</sub>)</li> <li>- Added info. on minimal support for <i>Door/Switches</i> message (6E<sub>H</sub>)</li> <li>- Remove Tk Number from <i>Power On</i> message (70<sub>H</sub>)</li> <li>- Updated error codes list to include HUF coins</li> </ul>

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## Introduction

This document describes a data-communication protocol between Hungarian Gaming machines and a Hungarian Integrated Control Unit (I.C.U.) manufactured by Playsafe Monitoring Ltd.

This protocol is a variant on the V.A.N. Dataport protocol v1.4 for gambling machines in The Netherlands. This allows manufacturers of machines supporting the V.A.N. protocol to include support for the Hungarian I.C.U. Dataport protocol with minimal changes.

**Note!** A machine that supports all the mandatory features in this datacapture protocol can be fitted with a Playafe I.C.U. in order to comply with legislation brought into effect from 1<sup>st</sup> January 2001.

## Connection

For details see appendix B.

## Transmission mode

1200 / 9600 Bps. (see appendix B).

- 1 Start bit
- 8 Data bits
- 1 ODD parity bit
- 1 Stop bit

## Default Baud Rate & Fallback

At power on, the machine and the I.C.U. will default a speed of 1200 baud.  
The machine must maintain the state of the speed selection signal at all times.

A machine which supports the Datacapture protocol at 9600 baud, may apply the speed select signal at any time to request that the I.C.U. switches to 9600 baud.

If the machine receives 3 consecutive negative answers (NAK) or 3 consecutive no responses from the I.C.U., the machine will fallback to the default speed of 1200 baud.

**Note:** For machines which do not support the speed link signal, the Playsafe I.C.U. may be configured for either baud rate using a jumper/link provided. In this case, the fallback option is not possible.

## General

The communication between the gaming machine and the Datacapture-unit takes place within the following rules:

- All communications will be initiated by the Gaming machine.
- Each message is terminated by a 1-byte checksum of all bytes in this message.
- Any delay between characters within a message will not exceed 10 msec.
- After the receipt of the last byte of a message there is a delay of 10 msec. before an answer is sent back.
- If a negative answer is received, there will be a delay of 10 msec. before re-transmission will take place.
- If there is no answer within 500 msec. after the last byte is sent, re-transmission will take place.
- The gaming machine can only continue after a positive answer from the Datacapture-unit. If no positive answer is received, the message must be repeated until a positive answer is received.
- On communications error the gaming machine will stop any operation as soon as possible (end of any mechanical process). Coin input etc. however, must be disabled immediately. Any value (credits, wins, chances, features, feature-contents) present at that moment will be stored by the gaming machine.
- In Door-open-mode or Test-mode the machine will ignore all communication with the Datacapture unit / Linked-Jackpot system.

**Note!** All times marked like this in this document are for a transmission speed of 1200 Bps. To get the times for 9600 Bps these times have to be divided by 8.

**Synchronisation**

Immediately after power-on, before the initialisation message is sent, or if the gaming machine receives 3 consecutive negative answers, the gaming machine tries to synchronise communications (again). To synchronise communications the gaming machine will send an ENQ (05 hex) every 500 msec. until the Datacapture-unit responds with a positive answer. This synchronisation message does not need to be checksummed.

**Message format**

Transmission from the gaming machine to the Datacapture-unit will always be initiated by the transmission of a 'header byte'. This 'header byte' defines the following:

- Message type
- Whether this is a Virgin or a Re-transmission

Bit 7 of the header byte defines if the message is a Virgin or a re-transmission. This to prevent the Datacapture-unit to register the same message twice.

- Bit 7 not set it is a virgin message.
- Bit 7 set it is a re-transmission.

There are several types of messages defined in this standard.

- Header only messages 01-5F hex information implied by header.
- 1-Byte messages 60-67 hex one extra byte to hold the information.
- 2-Byte messages 68-6F hex two extra bytes to hold the information.
- Variable length messages 70-7E hex max. 20 extra bytes to hold information.
- Non-checksummed messages eg. ENQ, ACK, NAK etc.

**Message response****Door Closed**

The normal response of the Datacapture-unit on a message from the Gaming machine is either Positive (ACK 06 hex) if everything is OK, Negative (NAK 15 hex, or no answer at all) if anything went wrong or ESC (1B hex) if that message is not implemented.

In some cases a positive answer can be replaced by other characters with a different meaning Eg.

- If an Arcade Management Command needs to be sent (see Arcade Management Commands).
- If a Management message needs to be displayed or cleared (see Management Messages)
- If a Linked-Jackpot prize needs to be paid (see Linked-Jackpot).

If ESC (1B hex) is received as an answer, the gaming machine can continue as if an ACK was received. It merely means that this message was not supported by the Datacapture-unit.

**Door Open / Test**

During Door-open operation (Service door open) and during Test there is no communication required. E.g. If no answer is received from the Datacapture-unit within the normal timeout, the gaming-machine assumes a ACK was received.

**Minimal Requirements to Fulfil Official Hungarian ICU Specification**

The following messages are always required to be supported by the machine, in order to satisfy the minimal data storage requirements of the legislated I.C.U. specification (see Appendix D):

- Cash In (20<sub>H</sub> – 27<sub>H</sub>)
- Cash Out (44<sub>H</sub>-4B<sub>H</sub>)
- Take n Credits(62<sub>H</sub>)
- Stakes (69<sub>H</sub>)
- Value of One Credits(6B<sub>H</sub>)
- Total Win Value (6C<sub>H</sub>)
- Power On (70<sub>H</sub>)
- Cancelled Credits(74<sub>H</sub>)
- Send Value(77<sub>H</sub>)

## Arcade Management Commands

To make it possible for an Arcade management system to change the machine status from a distance, it is possible to send commands via the Datacapture-unit to the Gaming machine. Instead of the normal positive Acknowledge as an answer to a message from the gaming machine, the Datacapture-unit will transmit the next type of message to enter a specific mode:

1. 01h SOH Header.
2. ?? 1st byte of arcade management command flags (MSB).
3. ?? 2nd byte of arcade management command flags (LSB).
4. ?? Checksum.

Next options are available as Arcade Management commands:

Second byte (LSB):

- Bit 0 Enter Coin reject mode Reject coins, don't accept credits anymore.
- Bit 1 Enter Payout-mode Convert all points to credits and pay all credits.
- Bit 2 Enter Refill mode Refill the Payout-unit.
- Bit 3 Enter Book keeping mode Enter main book keeping menu.
- Bit 4 Enter 'Sleep' mode In this mode the machine is 'disabled'.
- Bit 5 Enter Alarm mode Generate a alarm sound and a lamp flash ASAP.
- Bit 6 Enter Dump mode Empty the Payout-unit (all coins).
- Bit 7 Request Cashable value The total of credits, collected wins, etc.

First byte (MSB):

- Bit 8 Reserved for future use
- Bit 9 Reserved for future use
- Bit 10 Reserved for future use
- Bit 11 Reserved for future use
- Bit 12 Reserved for future use
- Bit 13 Reserved for future use
- Bit 14 Reserved for future use
- Bit 15 Cancel all commands Cancel all commands, return to normal game mode.

- Bit 0, Coin reject mode: Once the machine reaches out-of-credit, a message should be displayed to warn potential players Eg. 'No operation'.
- Bit 4, Sleep mode: The machine does not accept any player action and displays only one message Eg. 'No operation'. This will be activated as soon as the current game is finished.
- Bit 7, Request Cashable value: The 'Cashable value' includes everything that can be converted to cash eg. credits, collected, winbanks etc.
- Bit 15, Cancel all commands: Will clear all command flags in the machine and the Management messages in the display, just like Datacapture-unit message ETX (03 hex).

If a bit is set to 1, the option is activated, If a bit is (re)set to 0, the option is deactivated.

Eg. The Arcade management system requests 'Enter Coin Reject Mode' which results in the Datacapture-unit sending: 00000000-00000001.  
The Arcade management system then requests 'Enter book keeping mode'. In order to apply this and retain the 'coin reject mode', the Datacapture-unit sends: 00000000-00001001.

It is up to the Arcade Management System to avoid incompatible modes (Eg it makes no sense to refill and dump at the same time, in fact, some combinations might give unpredictable results). However, it is possible to enter 'alarm' mode and request the 'cashable value' at the same (or a later) time.

If a gaming machine does not support this option, it sends an ESC (1B hex) character which needs to be acknowledged with an ACK (06 hex) by the Datacapture-unit .

If the gaming machine does support this option, there will be no response from the gaming machine with a positive or negative answer. If the checksum is incorrect, the gaming machine will re-transmit the original message to indicate a receive error to the Datacapture-unit. If the checksum was OK, the gaming machine continues and will use this Arcade Management command flags to enter the requested mode as soon as possible. The moment these commands take effect, it will be confirmed to the Datacapture-unit by sending the appropriate message (68 hex), which then in turn can inform the Arcade management system.

The available options and bit definitions are the same as in message 68 hex, Arcade Management Command response.

On Power on all arcade management commands are cancelled.

**Note!** To shorten the response time for the Arcade management systems it is recommended to send an ENQ to the Datacapture-unit during idle time (Eg. once per second).

### Machine Display Messages

To make it possible for arcade management systems and/or Linked-Jackpot controllers to display a message on the machine's (alphanumeric) display the following type of message can replace a positive answer:

1	02h	STX	Header, Display message.
2	??	??	Number of data bytes in this message.
3-(n-1)	??	??	ASCII message (maximum 16 characters).
n	??	??	Checksum.

If a gaming machine does not support this option, it sends an ESC (1B hex) character which needs to be acknowledged with an ACK (06 hex) by the Datacapture-unit .

If the gaming machine does support this option, there will be no response from the gaming machine with a positive or negative answer. If the checksum is incorrect, the gaming machine will re-transmit the original message to indicate a receive error to the Datacapture-unit. If the checksum was OK, the gaming machine will display this message during idle time. This message is cleared automatic after 5 minutes, or as soon as the Datacapture-unit sends a ETX (03 hex) as a positive answer to a message, or if the message is overwritten by a new one.

It is up to the Gaming machine if and when this message is displayed, all depending on the game-design.

If the gaming machine supports this option, the character-set must contain at least capitals A-Z, decimals 0-9, space, decimal point and minus sign.

### Coin Types

Denominations are : 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000 HUF

### Linked-Jackpot

There are four moments to communicate with the Linked-Jackpot system:

1. At the start of a game → Increment Linked-Jackpot.
2. At the end of the game → Request Linked-Jackpot result.
3. When a LJ-Trigger occurs → Trigger Linked-Jackpot win.
4. For display purposes → Request current Linked Jackpot value

The only time a Linked-Jackpot win can be transferred to the Gaming machine, is as an answer to the messages 5E hex (Request Linked-Jackpot Result), 5F hex (Trigger Linked-Jackpot win) and 6C hex (Total Win-value). If no Linked-Jackpot prize is won, the answer can be a normal positive answer. If the Linked-Jackpot is won and the prize needs to be paid, the following type of message will come as an answer:

1. 07h BEL Header.
2. ?? ?? MSB byte of BCD/BINARY Linked-Jackpot prize.
3. ?? ?? Middle byte of BCD/BINARY Linked-Jackpot prize.
4. ?? ?? Middle byte of BCD/BINARY Linked-Jackpot prize.
5. ?? ?? LSB byte of BCD/BINARY Linked-Jackpot prize.
6. ?? ?? Checksum.

The Linked-Jackpot value is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

*Eg. a prize of HUF. 1234.56 will be sent as [07h][00h][12h][34h][56h][A3h]*

There will be no response from the gaming machine with a positive or negative answer. If the checksum is incorrect, the gaming machine will re-transmit the original message to indicate a receive error to the Datacapture-unit. If the checksum was OK, the gaming machine will pay the received prize and return the actual paid amount to the Datacapture-unit using message 73 hex.

If a Linked-Jackpot increment results in a win, the gaming machine will be set to 'Celebration mode'. In this mode a lot of fuss is made to draw attention to the fact that the Jackpot was won on this machine (this includes sound and light). Celebration mode is started whenever the Linked-Jackpot controller sends a Linked-Jackpot win value to the gaming machine and is stopped after app. 30 seconds.

**Note:** See POWER ON message for BCD/BINARY settings

### Current Linked-Jackpot value

The current Linked-jackpot value may be requested for display purposes. This can be done using message 5C hex (Request current Linked Jackpot value).

The response on this request will be in the same format as for the Linked-Jackpot win value. The header byte however will be 08 hex.

1. 08h BEL Header.
2. ?? ?? MSB byte of BCD/BINARY Linked-Jackpot value.
3. ?? ?? Middle byte of BCD/BINARY Linked-Jackpot value.
4. ?? ?? Middle byte of BCD/BINARY Linked-Jackpot value.
5. ?? ?? LSB byte of BCD/BINARY Linked-Jackpot value.
6. ?? ?? Checksum.

If no Linked-Jackpot is connected an ACK can be returned instead.

**Note!** Keep in mind that the value displayed on the machine might be slightly out of sync with the actual value.

See POWER ON message for BCD/BINARY settings!

**Header only messages**

These messages contain all the information needed in the header itself and are normally used for counting events.

**0Ah - TAKE ONE CREDIT**

This message is sent every time a credit is taken from the credit meter.

**1Eh – CALL ATTENDANT**

If the gaming machine or player needs assistance from the site operator.

*Eg. [1Eh][1Eh] If player pressed CALL ATTENDANT button.*

**Note!** Message 75 hex (REFILL REQUIRED) will inform the Datacapture-unit that refill is required.

**1Fh –ATTENDANT ARRIVED**

If the site operator arrived, this message should be sent.

*Eg. [1Fh][1Fh] If attendant identified himself to the machine (e.g. by turning the refill key).*

**20h to 2Bh - CASH IN**

The appropriate CASH IN message should be sent every time a coin is thrown in for credits.

**2Ch to 37h - CASH TO CASHBOX**

This message can be used, if the gaming machine can detect if a coin enters the Cash-box. This message is sent in addition to the CASH IN message.

**38h to 43h - CASH REFILL**

If coins are thrown in to refill the Payout-unit, the appropriate CASH REFILL message should be sent.

**44h to 4Fh - CASH OUT**

If a coin is paid to the player, the appropriate CASH OUT message should be sent.

**50h to 5Bh - CASH DUMP**

If coins are paid to empty the Payout-unit, the appropriate CASH DUMP message should be sent instead of the CASH OUT message.

**5Ch - Request current Linked Jackpot value**

This message can be used to request the current Linked-Jackpot value for display purposes.

**5Dh – INCREMENT Linked Jackpot**

This message is sent every time an increment pulse should be sent to the Linked-Jackpot system. The stake incremented is the same as used by 0A hex (Take one credit).

**5Eh - Request Linked Jackpot INCREMENT result**

If a game did not result in a win, this message should be sent to request the result of the Linked-Jackpot increment.

**5Fh - TRIGGER Linked Jackpot WIN**

This message is used to inform the Linked-jackpot controller, if a game (designed for triggered Linked-Jackpots) hits the trigger. The response for this message should be the amount won, using the standard Linked-Jackpot messages.

**One byte messages**

One byte messages contain one extra byte to hold the required information.

**60h - TARGET PERCENTAGE**

1. 60h Header.
2. ?? 1 byte target percentage.
3. ?? Checksum.

Defines the target percentage the machine is set to. This message is typically transmitted if the target of the machine changes by setting DIL-switches or by Software control. The value is transmitted as a binary value. Values between 0 and 100 represent a fixed target percentage. Values from 101 on are machine specific and represent a level setting (Eg. 101=Low, 102=medium, 103=high etc.).

*Eg. [60h][4Eh][AEh] if the target percentage fixed to 78%.*

**61h - PAYOUT ERROR**

1. 61h Header.
2. ?? 1 byte coin identification.
3. ?? Checksum.

This message is sent if a Payout error occurred during Payout of a coin (Payout verification missed a coin). The coin identification is the same number used to identify a CASH OUT coin in the header only messages (44 hex - 4F hex).

This message will be transmitted after the normal CASH OUT message (44 hex - 4F hex).

**62h – TAKE n CREDITS**

1. 62h Header.
2. ?? 1 byte number of credits to take.
3. ?? Checksum.

This message is transmitted on Multi-stake machines if there are more than 1 credits taken at once. The number of credits taken is transmitted as a binary value.

**Two byte messages**

Two byte messages contain two extra bytes to hold the required information.

**68h - ARCADE MANAGEMENT COMMAND RESPONSE**

As soon as it is possible for the gaming machine to execute a requested arcade management command, this will be confirmed to the Datacapture-unit by sending the next message to the Datacapture-unit, which then in turn can inform the Arcade management system.

1. 68h Header.
2. ?? 1st byte of arcade management command flags (MSB).
3. ?? 2nd byte of arcade management command flags (LSB).
4. ?? Checksum.

Next options are available as Arcade Management commands:

Second byte (LSB):

- Bit 0 Enter Coin reject mode Reject coins, don't accept credits anymore.
- Bit 1 Enter Payout-mode Convert all points to credits and pay all credits.
- Bit 2 Enter Refill mode Refill the Payout-unit.
- Bit 3 Enter Book keeping mode Handle book keeping features.
- Bit 4 Enter 'Sleep' mode In this mode the machine is 'disabled'.
- Bit 5 Enter Alarm mode Generate a alarm sound and a lamp flash.
- Bit 6 Enter Dump mode Empty the Payout-unit (all coins).
- Bit 7 Reserved for future use

First byte (MSB):

- Bit 8 Reserved for future use
- Bit 9 Reserved for future use
- Bit 10 Reserved for future use
- Bit 11 Reserved for future use
- Bit 12 Reserved for future use
- Bit 13 Reserved for future use
- Bit 14 Reserved for future use
- Bit 15 Cancel all commands Cancel all commands, return to normal mode.

Bit 4, Sleep mode: the machine does not accept any player action and displays only one message Eg. 'No operation'

Bit 15, Cancel all commands: will clear the Management messages too, just like ETX (03 hex).

**Note!** The Cashable Value request has its own response message.

**Note!** On Power on all arcade management commands are cancelled.

If the gaming machine is not capable to execute these commands, the request should be answered with an ESC (1B hex).

**69h – GAME**

1. 6Bh Header.
2. ?? 1st byte of Stake-value (MSB).
3. ?? 2nd byte of Stake-value (LSB).
4. ?? Checksum.

This message is sent at the start of each game. The stake value is presented in binary and represents the value of stakes which apply to the new game.

**6Bh - VALUE OF ONE CREDIT**

1. 6Bh Header.
2. ?? 1st byte of value of one credit (MSB).
3. ?? 2nd byte of value of one credit (LSB).
4. ?? Checksum.

This message is sent to indicate a change in the value for 1 credit. This value is transmitted as a binary value.

*Eg. [6Bh][80h][19h][04h] if the value for 1 credit is set to 25 cents.*

**6Ch - TOTAL WINVALUE**

5. 6Ch Header.
6. ?? 1st byte of Win-value (MSB).
7. ?? 2nd byte of Win-value (LSB).
8. ?? Checksum.

This message is sent at the end of each game. The win value is presented in binary and represents the number of credits won (if no win occurred it is not necessary to send this message).

This message has also the effect that the result of the Linked-jackpot can be returned to the machine (same as 5E hex, REQUEST LINKED JACKPOT INCREMENT RESULT).

**6Dh – ADD n TO LINKED-JACKPOT**

1. 6Dh Header.
2. ?? 1st byte of increment value (MSB).
3. ?? 2nd byte of increment value (LSB).
4. ?? Checksum.

This message is transmitted on Multi-stake machines if there are more than 1 pulses to send to the Linked-Jackpot controller at once. The number of pulses is transmitted as a binary value.

**6Eh - DOOR / SWITCH STATUS**

1. 6Eh Header.
2. ?? 1st byte of switch status (MSB).
3. ?? 2nd byte of switch status (LSB).
4. ?? Checksum.

Defines the door switch status of all doors and key-switches in the machine by the state of the bits in the both data bytes. This message should be sent every time one of these switches is changed.

Second byte (LSB):

- |         |                         |           |               |
|---------|-------------------------|-----------|---------------|
| • Bit 0 | Refill key              | 1=open    | 0=closed      |
| • Bit 1 | Bookkeeping key         | 1=open    | 0=closed      |
| • Bit 2 | Reserved for Future use |           |               |
| • Bit 3 | Reserved for Future use |           |               |
| • Bit 4 | Service door            | 1=open    | 0=closed      |
| • Bit 5 | Cash-box door           | 1=open    | 0=closed      |
| • Bit 6 | Side door (Payout-unit) | 1=open    | 0=closed      |
| • Bit 7 | Payout-unit present     | 1=present | 0=not present |

First byte (MSB):

- |          |                         |          |              |
|----------|-------------------------|----------|--------------|
| • Bit 8  | Refill mode             | 1=active | 0=not active |
| • Bit 9  | Book keeping mode       | 1=active | 0=not active |
| • Bit 10 | Dump mode               | 1=active | 0=not active |
| • Bit 11 | Test mode               | 1=active | 0=not active |
| • Bit 12 | Reserved for Future use |          |              |
| • Bit 13 | Reserved for Future use |          |              |
| • Bit 14 | Reserved for Future use |          |              |
| • Bit 15 | Reserved for Future use |          |              |

These bits are set at the moment when the door is opened/closed or the mode is entered/left.

**Notes:** These modes have nothing to do with the arcade management commands. They only reflect the status generated by actions on the machine itself.

Bits 4, 5 & 6 (doors) must always be supported (when any door open, implies machine will not update meters, and so I.C.U. should not update internal counter's due to Dataport messages

Bit 11 (test mode) is also required to be supported if the machine does not normally update meters (except when actually testing the meters are working) when in this mode (I.C.U. also must not update counters).

All other bits are optional.

**Variable length messages**

These messages can contain up to 20 data bytes to hold information and are defined as follows:

1st byte	header byte	defines message type
2nd byte	message length	defines number of data bytes in this message
3rd byte	data byte 1	
4th byte	data byte 2	
...		
...		
checksum	1-byte checksum of header, length and data bytes.	

**70h - POWER ON**

The first message sent after power-on is the Power-On message that includes the door switch status at power on time. If any of the flags in the door/switch status are changed, after the gaming machine completed the power on sequence, this door/switch status is sent again (message 60 hex) to monitor any changes during power on.

1	70h	1 byte	Header.
2	14h	1 byte	number of data bytes in this message.
3-5	a)	3 bytes	manufacturer code.
6-9	b)	4 bytes	reserved.
10-12	c)	3 bytes	Version number.
13-14	d)	2 bytes	Supported Arcade management command flags.
15	e)	1 byte	Supported options flags.
16-17	f)	2 bytes	Value of one credit.
18	g)	1 byte	Target percentage.
19-20	h)	2 bytes	Door/switch status at power on.
21	i)	1 byte	Protocol version number.
22	j)	1 byte	Mode settings
23	??	1 byte	Checksum

a) 3 bytes Manufacturer code to indicate manufacturer. (Exact format to be defined by manufacturer)

b) reserved

c) 3 bytes Machine version number to indicate Software version and/or revision number. (Exact format to be defined by manufacturer)

d) 2 Bytes Supported Arcade management command flags.

These flags reflect the Arcade management command capabilities of the machine. The two bytes reflect the Arcade Management command and are 1 if a command is supported. eg. Second byte (LSB):

- Bit 0 Enter Coin reject mode Reject coins, don't accept credits anymore.
- Bit 1 Enter Payout-mode Convert all points to credits and pay all credits.
- Bit 2 Enter Refill mode Refill the Payout-unit.
- Bit 3 Enter Book keeping mode Handle book keeping features.
- Bit 4 Enter 'Sleep' mode In this mode the machine is 'disabled'.
- Bit 5 Enter Alarm mode Generate a alarm sound and a lamp flash.
- Bit 6 Enter Dump mode Empty the Payout-unit (all coins).
- Bit 7 Reserved for future use

First byte (MSB):

- Bit 8 Reserved for future use
- Bit 9 Reserved for future use
- Bit 10 Reserved for future use
- Bit 11 Reserved for future use
- Bit 12 Reserved for future use
- Bit 13 Reserved for future use
- Bit 14 Reserved for future use

- Bit 15 Cancel all commands Cancel all commands, return to normal mode.
- e) 1 byte Supported options flags.  
These flags reflect the supported options capabilities of the machine. eg.
- Bit 0 Machine display messages.
  - Bit 1 Linked-Jackpots.
  - Bit 2 Cash to Cashbox.
  - Bit 3 Cash dumps.
  - Bit 4 Payout errors.
  - Bit 5 Error reports.
  - Bit 6 Payout level reports.
  - Bit 7 Refill required reports.
- f) 2 byte Value of one credit (same as header 6B hex).
- g) 1 byte Target percentage (same as header 60 hex).
- h) 2 bytes Door/switch status at power on (same as header 6E hex).
- i) 1 byte Protocol version number. This to enable future protocol updates.
- j) 1 bytes Mode settings.
- Bit 0 0 BCD mode, 1 binary mode to Variable Length Messages (BCD is default)
  - Bit 1 Reserved for future use
  - Bit 2 Reserved for future use
  - Bit 3 Reserved for future use
  - Bit 4 Reserved for future use
  - Bit 5 Reserved for future use
  - Bit 6 Reserved for future use
  - Bit 7 Reserved for future use

On Power on all arcade management commands and display messages are cancelled.

### 71h - ERROR MESSAGE

If the gaming machine generates an error, this error message can be sent to the Datacapture-unit. It is up to the Datacapture-unit if these messages are saved only by the 2-byte number or including the descriptive text. Lots of these error messages are standardised and are described in a separate document.

1	71h	1 byte	Header.
2	??	1 byte	Number of data bytes in this message (may not exceed 20).
3-4	a	2 bytes	Error code.
5-(n-1)	b	n bytes	ASCII error description (maximum 18 decimal).
n	??	1 byte	Checksum.

- a) 1 byte Error identification number.  
b) n ASCII characters Error description. This description may not exceed 18 characters.

**Note!** If the error appears in the STANDARD ERROR CODES list, the descriptive text may be omitted.

**72h - PAYOUT UNIT FLOAT LEVEL**

This message can be used in machines able to accurately measure the float of coins held for Payout purposes. This message is sent after Power-on to inform the Datacapture-unit of the amount in the Payout-unit(s).

- |    |     |         |   |
|----|-----|---------|---|
| 1. | 72h | 1 byte  | Header.                                     |
| 2. | 03h | 1 byte  | Number of data bytes in this message.       |
| 3. | a   | 1 byte  | Coin identification.                        |
| 4. | b   | 2 bytes | Number of coins in Payout-unit (MSB first). |
| 5. | ??  | 1 byte  | Checksum.                                   |

- a) Coin identification number. This is the same number used to identify a CASH OUT coin in the header only messages (44 hex - 4F hex)..
- b) Number of coins in this Payout-unit.

**73h - LINKED-JACKPOT WINVALUE**

If a connected Linked-Jackpot system requested to pay a win, this message will be sent to inform the Datacapture-unit of the actual amount paid.

If BCD mode (see POWER ON(70h))

- |    |     |        |  |
|----|-----|--------|--|
| 1. | 73h | 1 byte | Header.                                  |
| 2. | 04h | 1 byte | Number of data bytes in this message.    |
| 3. | ??  | 1 byte | MSB byte of BCD Linked-Jackpot prize.    |
| 4. | ??  | 1 byte | Middle byte of BCD Linked-Jackpot prize. |
| 5. | ??  | 1 byte | Middle byte of BCD Linked-Jackpot prize. |
| 6. | ??  | 1 byte | LSB byte of BCD Linked-Jackpot prize.    |
| 7. | ??  | 1 byte | Checksum.                                |

If BINARY mode(see POWER ON(70h))

- |    |     |        |   |
|----|-----|--------|---|
| 1. | 73h | 1 byte | Header.                                     |
| 2. | 04h | 1 byte | Number of data bytes in this message.       |
| 3. | ??  | 1 byte | MSB byte of binary Linked-Jackpot prize.    |
| 4. | ??  | 1 byte | Middle byte of binary Linked-Jackpot prize. |
| 5. | ??  | 1 byte | Middle byte of binary Linked-Jackpot prize. |
| 6. | ??  | 1 byte | LSB byte of binary Linked-Jackpot prize.    |
| 7. | ??  | 1 byte | Checksum.                                   |

The Linked-Jackpot value is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

**74h – CANCELLED CREDITS**

If a big win is paid by the attendant (cash by hand), The amount cancelled from the machine is sent to the Datacapture-unit using this message.

If BCD mode (see POWER ON(70h))

- |    |     |        |                                       |
|----|-----|--------|---------------------------------------|
| 1. | 74h | 1 byte | Header.                               |
| 2. | 04h | 1 byte | Number of data bytes in this message. |
| 3. | ??  | 1 byte | MSB byte of BCD Cancelled amount.     |
| 4. | ??  | 1 byte | Middle byte of BCD Cancelled amount.  |
| 5. | ??  | 1 byte | Middle byte of BCD Cancelled amount.  |
| 6. | ??  | 1 byte | LSB byte of BCD Cancelled amount.     |
| 7. | ??  | 1 byte | Checksum.                             |

If BINARY mode (see POWER ON(70h))

1. 74h 1 byte Header.
2. 04h 1 byte Number of data bytes in this message.
3. ?? 1 byte MSB byte of binary Cancelled amount.
4. ?? 1 byte Middle byte of binary Cancelled amount.
5. ?? 1 byte Middle byte of binary Cancelled amount.
6. ?? 1 byte LSB byte of binary Cancelled amount.
7. ?? 1 byte Checksum.

The cancelled amount is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

### 75h - REFILL REQUIRED

This message can be sent to inform the arcade management system that the Payout-unit is empty. The amount short is the amount needed to finish the current payout request. The bit-flags show which payout devices are empty.

If BCD mode (see POWER ON(70h))

1. 75h 1 byte Header.
2. 05h 1 byte Number of data bytes in this message.
3. ?? 1 byte Bit flags of units running empty
4. ?? 1 byte MSB byte of BCD amount short.
5. ?? 1 byte Middle byte of BCD amount short.
6. ?? 1 byte Middle byte of BCD amount short.
7. ?? 1 byte LSB byte of BCD amount short.
8. ?? 1 byte Checksum.

If BINARY mode (see POWER ON(70h))

1. 75h 1 byte Header.
2. 05h 1 byte Number of data bytes in this message.
3. ?? 1 byte Bit flags of units running empty
4. ?? 1 byte MSB byte of binary amount short.
5. ?? 1 byte Middle byte of binary amount short.
6. ?? 1 byte Middle byte of binary amount short.
7. ?? 1 byte LSB byte of binary amount short.
8. ?? 1 byte Checksum.

The bit flags are defined as:

- Bit 0 Payout-unit 1 10 HUF
- Bit 1 Payout-unit 2 20 HUF
- Bit 2 Payout-unit 3 50 HUF
- Bit 3 Payout-unit 4 100 HUF
- Bit 4 Payout-unit 5 200 HUF
- Bit 5 Payout-unit 6 500 HUF
- Bit 6 Payout-unit 7 1000 HUF
- Bit 7 Payout-unit 8 2000 HUF

The amount short is fixed to 4 BCD/BINARY bytes and represents a monetary currency value.

**Note!** The Power-On (70 hex) and Value-of-One-Credit (6B hex) messages define which currency is used.

**76h - REQUEST CASHABLE VALUE RESPONSE**

This message is the response on a Cashable Value request from the Arcade management system.

If BCD mode (see POWER ON(70h))

1. 76h 1 byte Header.
2. 04h 1 byte Number of data bytes in this message.
3. ?? 1 byte MSB byte of BCD Cashable value.
4. ?? 1 byte Middle byte of BCD Cashable value.
5. ?? 1 byte Middle byte of BCD Cashable value.
6. ?? 1 byte LSB byte of BCD Cashable value.
7. ?? 1 byte Checksum.

If BINARY mode (see POWER ON(70h))

1. 76h 1 byte Header.
2. 04h 1 byte Number of data bytes in this message.
3. ?? 1 byte MSB byte of binary Cashable value.
4. ?? 1 byte Middle byte of binary Cashable value.
5. ?? 1 byte Middle byte of binary Cashable value.
6. ?? 1 byte LSB byte of binary Cashable value.
7. ?? 1 byte Checksum.

The Cashable value is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

**77h - SEND DATA**

This is message send data value, the data type defined by 3<sup>rd</sup> byte.

If BCD mode (see POWER ON(70h))

1. 77h 1 byte Header.
2. 05h 1 byte Number of data bytes in this message.
3. a) 1 byte Type of data
4. ?? 1 byte MSB byte of BCD data value.
5. ?? 1 byte Middle byte of BCD data value.
6. ?? 1 byte Middle byte of BCD data value.
7. ?? 1 byte LSB byte of BCD data value.
8. ?? 1 byte Checksum.

If BINARY mode (see POWER ON(70h))

1. 77h 1 byte Header.
  2. 05h 1 byte Number of data bytes in this message.
  3. a) 1 byte Type of data
  4. ?? 1 byte MSB byte of binary data value.
  5. ?? 1 byte Middle byte of binary data value.
  6. ?? 1 byte Middle byte of binary data value.
  7. ?? 1 byte LSB byte of binary data value.
  8. ?? 1 byte Checksum.
- a) 1 byte Type of data. This is define type of 4 bytes data.
- |           |                       |
|-----------|-----------------------|
| 00h       | Cash In               |
| 01h       | Cash Out              |
| 02h       | Stake (start of game) |
| 03h       | Win (end of game)     |
| 04h – FFh | Reserved              |

The data value is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

**7Eh - Approval authority datacom message**

This header is reserved to be used by the approval authority and will be machine specific.

**Appendix A - List of Header Codes**

Header only messages from gaming machine to Datacapture-unit  
Mandatory messages are highlighted in bold font.

<b>hex</b>	<b>ascii</b>	<b>description</b>	<b>hex</b>	<b>ascii</b>	<b>description</b>
00	NUL	DO NOT USE	30	0	Cash to Cash-box 20 HUF
01	SOH	Reserved	31	1	Cash to Cash-box 50 HUF
02	STX	Reserved	32	2	Cash to Cash-box 100 HUF
03	ETX	Reserved	33	3	Cash to Cash-box 200 HUF
04	EOT	Reserved	34	4	Cash to Cash-box 500 HUF
05	ENQ	Synchronisation request	35	5	Cash to Cash-box 1000 HUF
06	ACK	Positive acknowledge	36	6	Cash to Cash-box 2000 HUF
07	BEL	Reserved	37	7	Cash to Cash-box 5000 HUF
08	BS	Reserved	38	8	Cash Refill 1 HUF
09	HT	Not used	39	9	Cash Refill 2 HUF
0A	LF	Take one credit	3A	:	Cash Refill 5 HUF
0B	VT	Not used	3B	;	Cash Refill 10 HUF
0C	FF	Not used	3C	<	Cash Refill 20 HUF
0D	CR	Not used	3D	=	Cash Refill 50 HUF
0E	SO	Not used	3E	>	Cash Refill 100 HUF
0F	SI	Not used	3F	?	Cash Refill 200 HUF
10	DLE	Not used	40	@	Cash Refill 500 HUF
11	DC1	Not used	41	A	Cash Refill 1000 HUF
12	DC2	Not used	42	B	Cash Refill 2000 HUF
13	DC3	Not used	43	C	Cash Refill 5000 HUF
14	DC4	Not used	44	D	Cash Out 1 HUF
15	NAK	Negative acknowledge	45	E	Cash Out 2 HUF
16	SYN	Reserved	46	F	Cash Out 5 HUF
17	ETB	Reserved	47	G	Cash Out 10 HUF
18	CAN	Reserved	48	H	Cash Out 20 HUF
19	EM	Reserved	49	I	Cash Out 50 HUF
1A	SUB	Reserved	4A	J	Cash Out 100 HUF
1B	ESC	Command not implemented	4B	K	Cash Out 200 HUF
1C	FS	Reserved	4C	L	Cash Out 500 HUF.
1D	GS	Reserved	4D	M	Cash Out 1000 HUF.
1E	RS	Call Attendant	4E	N	Cash Out 2000 HUF.
1F	VS	Attendant Arrived	4F	O	Cash Out 5000 HUF.
20	space	Cash In 1 HUF	50	P	Cash Dump 1 HUF
21	!	Cash In 2 HUF	51	Q	Cash Dump 2 HUF
22	"	Cash In 5 HUF	52	R	Cash Dump 5 HUF
23	#	Cash In 10 HUF	53	S	Cash Dump 10 HUF
24	\$	Cash In 20 HUF	54	T	Cash Dump 20 HUF
25	%	Cash In 50 HUF	55	U	Cash Dump 50 HUF
26	&	Cash In 100 HUF	56	V	Cash Dump 100 HUF
27	'	Cash In 200 HUF	57	W	Cash Dump 200 HUF
28	(	Cash In 500 HUF.	58	X	Cash Dump 500 HUF.
29	)	Cash In 1000 HUF.	59	Y	Cash Dump 1000 HUF.
2A	*	Cash In 2000 HUF.	5A	Z	Cash Dump 2000 HUF.
2B	+	Cash In 5000 HUF.	5B	[	Cash Dump 5000 HUF.
2C	,	Cash to Cash-box 1 HUF	5C	\	Request current Linked Jackpot value
2D	-	Cash to Cash-box 2 HUF	5D	]	Increment Linked Jackpot
2E	.	Cash to Cash-box 5 HUF	5E	^	Request Linked Jackpot increment result
2F	/	Cash to Cash-box 10 HUF	5F	_	Trigger Linked-Jackpot win

**One byte messages from gaming machine to Datacapture-unit**

hex	ascii	description
60	`	Target percentage
61	a	Payout-error
62	b	Take n credits
63	c	Reserved
64	d	Reserved
65	e	Reserved
66	f	Not used
67	g	Not used

**Two byte messages from gaming machine to Datacapture-unit**

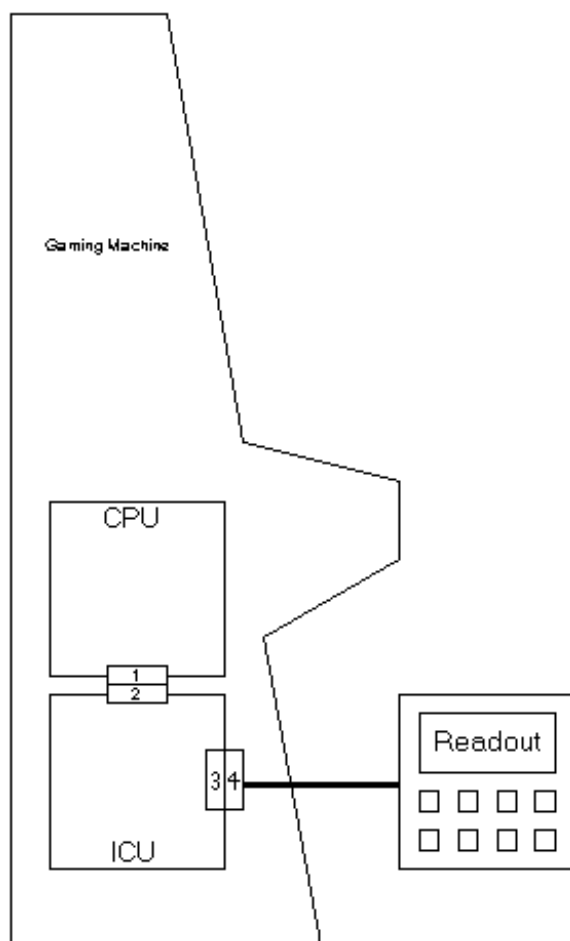
hex	ascii	description
68	h	Arcade management command response
<b>69</b>	<b>i</b>	<b>Game</b>
6A	j	Reserved for future use
6B	k	Value of one credit
<b>6C</b>	<b>l</b>	<b>Total Win-value</b>
6D	m	Add n to Linked-Jackpot
<b>6E</b>	<b>n</b>	<b>Door / Switch status</b>
6F	o	Reserved

**Variable length messages from gaming machine to Datacapture-unit**

hex	ascii	description
<b>70</b>	<b>p</b>	<b>Power-on message</b>
71	q	Error message
72	r	Payout-unit float level
73	s	Linked-Jackpot win value
74	t	Cancelled credits
75	u	Refill required
76	v	Request Cashable Value Response
77	w	Send Data
78	x	Not used
79	y	Not used
7A	z	Reserved
7B	{	Reserved
7C		Reserved
7D	}	Reserved
7E	~	Approval authority datacom message
7F	□	DO NOT USE

**Messages from Datacapture-unit to gaming machine**

<b>hex</b>	<b>ascii</b>	<b>length</b>	<b>description</b>
00	NUL		DO NOT USE
01	SOH	4 bytes	Arcade management command flags
02	STX	max. 19 bytes	Machine Display Message
03	ETX	1 byte	Clear message on machine
04	EOT	1 byte	Communication stopped, game halted
05	ENQ	4 bytes	Reserved for future use
06	ACK	1 byte	Positive acknowledge
07	BEL	6 bytes	Linked-Jackpot Win-value
08	BS	6 bytes	Linked-Jackpot Current-value
09 .. 14			Reserved
15	NAK	1 byte	Negative acknowledge
16 .. 1A			Reserved
1B	ESC	1 byte	Command not implemented
1C .. 1F			Reserved
20 .. FE			Not used.
FF			DO NOT USE.

**Appendix B – Connection**

The I.C.U. will mount directly onto the machine CPU using the 25-way connection

Connectors:

25way D type (to gaming machine):

- 2: Receive Data (datalogger→gaming machine)
- 3: Transmit Data (gaming machine→datalogger)
- 7: Signal Ground
- 18: GND
- 25: +12V

9 way D type (to terminal):

- 2: RxD (Terminál-->IEK)
- 3: TxD (IEK-->Terminál)
- 5: GND

### Appendix C - List of Standard Error Codes

This appendix describes a set of standardised Error codes to be used in message **71-hex (Error Message)** of the **Hungarian I.C.U. Datacapture protocol**.

The error code consists of 2 bytes. This code will be shown on the machine's display and is expressed as hex digits. The first byte is a standardised code and pinpoints the global part of the machine/program where the fault occurred. The second byte is manufacturer dependent and describes the fault condition in a more specific way.

<b>Standard error code</b>	<b>Additional data byte</b>	<b>Alarm message</b>
<b>00</b>		<b>Not used</b>
<b>01</b>	<b>00</b>	<b>Coinmech failure</b>
01	01	Invalid coin input alarm
01	02	Coin timed out in sorter
01	03	Sorter mechanism jammed
01	04	Coinmech Power fail
01	05	Coin timed out in validation
01	06	Coin accept pulses are too close together
01	07	Accepted coin changed during coin accept pulse
01	08	Simultaneous multiple coin accept pulses
01	09	Time-out between validation and sensor area
01	0A	Coin sensed during lockout
01	10	Coinmech input pulse to long (not specified)
01	11	1 HUF Coin input pulse to long
01	12	2 HUF Coin input pulse to long
01	13	5 HUF Coin input pulse to long
01	14	10 HUF Coin input pulse to long
01	15	20 HUF Coin input pulse to long
01	16	50 HUF Coin input pulse to long
01	17	100 HUF Coin input pulse to long
01	18	200 HUF Coin input pulse to long
01	19	500 HUF. Coin input pulse to long
01	1A	1000 HUF. Coin input pulse to long
01	1B	2000 HUF. Coin input pulse to long
01	1C	5000 HUF. Coin input pulse to long
01	20	Coinmech input pulse to short (not specified)
01	21	1 HUF Coin input pulse to short
01	22	2 HUF Coin input pulse to short
01	23	5 HUF Coin input pulse to short
01	24	10 HUF Coin input pulse to short
01	25	20 HUF Coin input pulse to short
01	26	50 HUF Coin input pulse to short
01	27	100 HUF Coin input pulse to short
01	28	200 HUF Coin input pulse to short
01	29	500 HUF. Coin input pulse to short
01	2A	1000 HUF. Coin input pulse to short
01	2B	2000 HUF. Coin input pulse to short
01	2C	5000 HUF. Coin input pulse to short

<b>10</b>	<b>00</b>	<b>Payout unit failure</b>
10	01	Removable payout unit not present
10	02	Coin missed by verification (not specified)
10	03	Payout unit balance alarm (not specified)
10	04	Payout unit overflow alarm (not specified)
10	05	Payout unit empty (not specified)
10	06	Payout unit runaway alarm (not specified)
10	07	Payout unit jammed (not specified)
11	00	1 HUF payout unit fault (not specified)
11	01	1 HUF Coin missed by verification
11	02	1 HUF Payout unit balance alarm
11	03	1 HUF Payout unit overflow alarm
11	04	1 HUF Payout unit empty
11	05	1 HUF Payout unit runaway
11	06	1 HUF Payout unit jammed
12	00	2 HUF payout unit fault (not specified)
12	01	2 HUF Coin missed by verification
12	02	2 HUF Payout unit balance alarm
12	03	2 HUF Payout unit overflow alarm
12	04	2 HUF Payout unit empty
12	05	2 HUF Payout unit runaway
12	06	2 HUF Payout unit jammed
13	00	5 HUF payout unit fault (not specified)
13	01	5 HUF Coin missed by verification
13	02	5 HUF Payout unit balance alarm
13	03	5 HUF Payout unit overflow alarm
13	04	5 HUF Payout unit empty
13	05	5 HUF Payout unit runaway
13	06	5 HUF Payout unit jammed
14	00	10 HUF payout unit fault (not specified)
14	01	10 HUF Coin missed by verification
14	02	10 HUF Payout unit balance alarm
14	03	10 HUF Payout unit overflow alarm
14	04	10 HUF Payout unit empty
14	05	10 HUF Payout unit runaway
14	06	10 HUF Payout unit jammed
15	00	20 HUF payout unit fault (not specified)
15	01	20 HUF Coin missed by verification
15	02	20 HUF Payout unit balance alarm
15	03	20 HUF Payout unit overflow alarm
15	04	20 HUF Payout unit empty
15	05	20 HUF Payout unit runaway
15	06	20 HUF Payout unit jammed
16	00	50 HUF payout unit fault (not specified)
16	01	50 HUF Coin missed by verification
16	02	50 HUF Payout unit balance alarm
16	03	50 HUF Payout unit overflow alarm
16	04	50 HUF Payout unit empty
16	05	50 HUF Payout unit runaway
16	06	50 HUF Payout unit jammed
17	00	100 HUF payout unit fault (not specified)
17	01	100 HUF Coin missed by verification
17	02	100 HUF Payout unit balance alarm
17	03	100 HUF Payout unit overflow alarm
17	04	100 HUF Payout unit empty
17	05	100 HUF Payout unit runaway
17	06	100 HUF Payout unit jammed
18	00	200 HUF payout unit fault (not specified)
18	01	200 HUF Coin missed by verification
18	02	200 HUF Payout unit balance alarm

18	03	200 HUF Payout unit overflow alarm
18	04	200 HUF Payout unit empty
18	05	200 HUF Payout unit runaway
18	06	200 HUF Payout unit jammed
19	00	500 HUF. payout unit fault (not specified)
19	01	500 HUF. Coin missed by verification
19	02	500 HUF. Payout unit balance alarm
19	03	500 HUF. Payout unit overflow alarm
19	04	500 HUF. Payout unit empty
19	05	500 HUF. Payout unit runaway
19	06	500 HUF. Payout unit jammed
1A	00	1000 HUF. payout unit fault (not specified)
1A	01	1000 HUF. Coin missed by verification
1A	02	1000 HUF. Payout unit balance alarm
1A	03	1000 HUF. Payout unit overflow alarm
1A	04	1000 HUF. Payout unit empty
1A	05	1000 HUF. Payout unit runaway
1A	06	1000 HUF. Payout unit jammed
1B	00	2000 HUF. payout unit fault (not specified)
1B	01	2000 HUF. Coin missed by verification
1B	02	2000 HUF. Payout unit balance alarm
1B	03	2000 HUF. Payout unit overflow alarm
1B	04	2000 HUF. Payout unit empty
1B	05	2000 HUF. Payout unit runaway
1B	06	2000 HUF. Payout unit jammed
1C	00	5000 HUF. payout unit fault (not specified)
1C	01	5000 HUF. Coin missed by verification
1C	02	5000 HUF. Payout unit balance alarm
1C	03	5000 HUF. Payout unit overflow alarm
1C	04	5000 HUF. Payout unit empty
1C	05	5000 HUF. Payout unit runaway
1C	06	5000 HUF. Payout unit jammed
<b>20</b>	<b>00</b>	<b>Reel set-up failure</b>
20	01	Reel 1 set-up failure
20	02	Reel 2 set-up failure
20	03	Reel 3 set-up failure
20	04	Reel 4 set-up failure
20	05	Reel 5 set-up failure
20	06	Reel 6 set-up failure
20	07	Reel 7 set-up failure
<b>21</b>	<b>00</b>	<b>Reel spin failure</b>
21	01	Reel 1 spin failure
21	02	Reel 2 spin failure
21	03	Reel 3 spin failure
21	04	Reel 4 spin failure
21	05	Reel 5 spin failure
21	06	Reel 6 spin failure
21	07	Reel 7 spin failure

<b>50</b>	00	<b>Hardware failure (not specified)</b>
51	00	Timer module failure
52	00	Multiplexer failure (not specified)
52	01	Multiplexer row failure
52	02	Multiplexer column failure
53	00	Lamp failure (not specified)
54	00	Button failure
55	00	ACIA failure
56	00	PIA failure
57	00	UART failure
<b>58</b>	00	<b>ROM failure</b>
58	01	ROM 1 failure
58	02	ROM 2 failure
58	03	ROM 3 failure
58	04	ROM 4 failure
58	05	ROM 5 failure
58	06	ROM 6 failure
58	07	ROM 7 failure
58	08	ROM 8 failure
58	41	ROM 1 checksum fault
58	42	ROM 2 checksum fault
58	43	ROM 3 checksum fault
58	44	ROM 4 checksum fault
58	45	ROM 5 checksum fault
58	46	ROM 6 checksum fault
58	47	ROM 7 checksum fault
58	48	ROM 8 checksum fault
<b>59</b>	00	<b>RAM failure</b>
59	01	RAM bank 1 fault
59	02	RAM bank 2 fault
59	03	RAM bank 3 fault
59	04	RAM bank 4 fault
59	05	RAM bank 5 fault
59	06	RAM bank 6 fault
59	07	RAM bank 7 fault
59	08	RAM bank 8 fault
59	FF	Battery backup failure
<b>5A</b>	00	<b>PAL failure</b>
5A	01	PAL 1 failure
5A	02	PAL 2 failure
5A	03	PAL 3 failure
5A	04	PAL 4 failure
<b>60</b>	00	<b>Program fault</b>
60	00	Out of stack alarm (not specified)
60	01	Out of stack 1 alarm (Eg. system stack)
60	02	Out of stack 2 alarm (Eg. user stack)
60	03	Out of stack 3 alarm (Eg. alphanumeric stack)
60	04	Out of stack 4 alarm (Eg. RS-232 input stack)
60	05	Out of stack 5 alarm (Eg. Datacapture buffer)
60	06	Out of stack 6 alarm (Eg. input buffer)

<b>70</b>	00	<b>Invalid DIL-switch setting</b>
70	01	Invalid DIL-switch 1
70	02	Invalid DIL-switch 2
70	03	Invalid DIL-switch 3
70	04	Invalid DIL-switch 4
<b>80</b>	00	<b>Tamper alarm (not specified)</b>
80	01	Sparking detected
80	02	Restart during game (power off/on)
<b>90</b>	00	<b>Datacapture fault (not specified)</b>
90	01	Waiting for dataport
<b>A0</b>	00	<b>Linked-Jackpot fault (not specified)</b>
<b>FF</b>		<b>Not used</b>

**Appendix D – Minimal Requirements to Fulfil Official Hungarian ICU Specification****Transmission mode is restricted to:**

9600 Bps. (see appendix B).  
1 Start bit  
8 Data bits  
1 ODD parity bit  
1 Stop bit

**Header only messages:**

05h ENQ  
Synchronisation request.

06h ACK  
Positive acknowledge.

15h NAK  
Negative acknowledge.

1Bh ESC  
Command not implemented. The game machine can continue the game.

**Coin Table:**

1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000, 5000 Ft

20h - 2Bh CASH IN  
The appropriate CASH IN message should be sent every time a coin is thrown is for credits.

44h - 4Fh CASH OUT  
If a coin is paid to the player, the appropriate CASH OUT message should be sent.

**One byte messages:**

62h TAKE n CREDITS  
1. 62h Header.  
2. ?? 1 byte number of credits to take.  
3. ?? Checksum.

This message transmitted on Multi-stake machines if there are more than 1 credits taken at once. The number of credits taken is transmitted as binary value.

**Two byte messages:**

69h                    STAKES  
1. 69h    Header.  
2. ??     1st byte of Stake-value(MSB).  
3. ??     2nd byte of Stake-value(LSB).  
4. ??     Checksum.

This message is sent at the start of each game. The stake value is presented in binary and represents the value of stakes which apply to the new game.

6Bh                    VALUE OF ONE CREDIT  
1. 6Bh    Header.  
2. ??     1st byte of value of one credit (MSB).  
3. ??     2nd byte of value of one credit (LSB).  
4. ??     Checksum.

This message is sent to indicate a change in the value for 1 credit. This value is transmitted as a binary value.

6Ch                    TOTAL WINVALUE  
1. 6Ch    Header.  
2. ??     1st byte of Win-value (MSB).  
3. ??     2nd byte of Win-value (LSB).  
4. ??     Checksum.

This message is sent at the end of each game. The win value is presented in binary and represent the number of credits won (if no win occurred it is not necessary to send this message).

**Variable length messages**

These messages can contain up to 20 data bytes to hold information and are defined as follows:

1st byte	header byte	defines message type
2nd byte	message length	defines number of data bytes in this message
3rd byte	data byte 1	
4th byte	data byte 2	
...		
...		
checksum	1-byte checksum of header, length and data bytes.	

70h

**POWER ON**

The first message sent after power-on is the Power-On message that includes the door switch status at power on time. If any of the flags in the door/switch status are changed, after the gaming machine completed the power on sequence, this door/switch status is sent again (message 60 hex) to monitor any changes during power on.

1	70h	1 byte	Header.
2	14h	1 byte	number of data bytes in this message.
3-5	a)	3 bytes	manufacturer code.
6-9	b)	4 bytes	reserved.
10-12	c)	3 bytes	Version number.
13-14	d)	2 bytes	Supported Arcade management command flags.
15	e)	1 byte	Supported options flags.
16-17	f)	2 bytes	Value of one credit.
18	g)	1 byte	Target percentage.
19-20	h)	2 bytes	Door/switch status at power on.
21	i)	1 byte	Protocol version number.
22	j)	1 byte	Mode settings
23	??	1 byte	Checksum

a) 3 bytes Manufacturer code to indicate manufacturer. (Exact format to be defined by manufacturer)

b) reserved

c) 3 bytes Machine version number to indicate Software version and/or revision number. (Exact format to be defined by manufacturer)

d) 2 Bytes Supported Arcade management command flags.

These flags reflect the Arcade management command capabilities of the machine. The two bytes reflect the Arcade Management command and are 1 if a command is supported. eg.

Second byte (LSB):

- Bit 0 Enter Coin reject mode Reject coins, don't accept credits anymore.
- Bit 1 Enter Payout-mode Convert all points to credits and pay all credits.
- Bit 2 Enter Refill mode Refill the Payout-unit.
- Bit 3 Enter Book keeping mode Handle book keeping features.
- Bit 4 Enter 'Sleep' mode In this mode the machine is 'disabled'.
- Bit 5 Enter Alarm mode Generate a alarm sound and a lamp flash.
- Bit 6 Enter Dump mode Empty the Payout-unit (all coins).
- Bit 7 Reserved for future use

First byte (MSB):

- Bit 8 Reserved for future use
- Bit 9 Reserved for future use
- Bit 10 Reserved for future use
- Bit 11 Reserved for future use
- Bit 12 Reserved for future use
- Bit 13 Reserved for future use
- Bit 14 Reserved for future use

- Bit 15      Cancel all commands      Cancel all commands, return to normal mode.
- e) 1 byte Supported options flags.  
These flags reflect the supported options capabilities of the machine. eg.
- Bit 0    Machine display messages.
  - Bit 1    Linked-Jackpots.
  - Bit 2    Cash to Cashbox.
  - Bit 3    Cash dumps.
  - Bit 4    Payout errors.
  - Bit 5    Error reports.
  - Bit 6    Payout level reports.
  - Bit 7    Refill required reports.
- f) 2 byte Value of one credit (same as header 6B hex).
- g) 1 byte Target percentage (same as header 60 hex).
- h) 2 bytes Door/switch status at power on (same as header 6E hex).
- i) 1 byte Protocol version number. This to enable future protocol updates.
- j) 1 bytes Mode settings.
- Bit 0      0 BCD mode, 1 binary mode to Variable Length Messages (BCD is default)
  - Bit 1      Reserved for future use
  - Bit 2      Reserved for future use
  - Bit 3      Reserved for future use
  - Bit 4      Reserved for future use
  - Bit 5      Reserved for future use
  - Bit 6      Reserved for future use
  - Bit 7      Reserved for future use

On Power on all arcade management commands and display messages are cancelled.

74h

#### CANCELLED CREDITS

If a big win is paid by the attendant (cash by hand), The amount cancelled from the machine is sent to the Datacapture-unit using this message.

1. 74h 1 byte Header.
2. 04h 1 byte Number of data bytes in this message.
3. ?? 1 byte MSB byte of BCD/BINARY Cancelled amount.
4. ?? 1 byte Middle byte of BCD/BINARY Cancelled amount.
5. ?? 1 byte Middle byte of BCD/BINARY Cancelled amount.
6. ?? 1 byte LSB byte of BCD/BINARY Cancelled amount.
7. ?? 1 byte Checksum.

The cancelled amount is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

Attention!

This message is not vital to fulfil minimal official ICU requirements, but kept for compatibility purposes.

77h            SEND DATA  
This is message send data value, the data type defined by 3<sup>rd</sup> byte.

1. 77h    1 byte Header.
  2. 05h    1 byte Number of data bytes in this message.
  3. a)     1 byte Type of data
  4. ??     1 byte MSB byte of BCD data value.
  5. ??     1 byte Middle byte of BCD data value.
  6. ??     1 byte Middle byte of BCD data value.
  7. ??     1 byte LSB byte of BCD data value.
  8. ??     1 byte Checksum.
- a) 1 byte Type of data. This is define type of 4 bytes data.
- |           |                       |
|-----------|-----------------------|
| 00h       | Cash In               |
| 01h       | Cash Out              |
| 02h       | Stake (start of game) |
| 03h       | Win (end of game)     |
| 04h – FFh | Reserved              |

The data value is fixed in size to 4 BCD/BINARY bytes and represents a monetary currency value.

### Recommendation

For different applications it is recommended to use different sets of commands:

#### Coin operated slot machines

- 20h - 2Bh    CASH IN
- 44h - 4Fh    CASH OUT
- 69h           STAKES
- 6Ch           TOTAL WINVALUE

#### Credit key operated slot machines with higher key values

- 20h - 2Bh    CASH IN
- 44h - 4Fh    CASH OUT
- 70h           POWER ON
- or
- 6Bh           VALUE OF ONE CREDIT
- 62h           TAKE n CREDITS
- 6Ch           TOTAL WINVALUE

#### Multi-player machines, or miscellaneous types with very high stakes

- 77h           SEND DATA