The UDP-TCP Protocol has a simple hexadecimal byte based syntax. Each command string send to, or received from the KissBox consists of a minimum of 1 byte (the command header) and if needed a group of data bytes. Commands send to the KissBox will either evoke a reply or execute an action.

Commands FROM controller TO the IOCC KissBox

WRITE ONE CHANNEL

Sets the status of a specific digital or analog output contact, to a given value. The contact is addressed by the channel-number data byte, and the slot-number data byte.

CommandByte	DataBytes	Comment
0xA5	**sn cn cv**	**sn** = slot-number (0x00 to 0x02 for IO3CC / 0x00 to 0x07 for IO8CC) The slot-number indicates the physical position of the card in the IO3CC or IO8CC cardcage unit. The slot-number count is "zero-based" which means that slot-number 0x00 is the first slot, starting at the left most position of the cardcage. Slot number 0x01 is the second slot, and so on **cn** = channel-number (0x00 to 0x07 depending on card type) The channel-number indicates the actual output contact on the card located in the slot defined by the slot-number. The channel-number count is "zero-based" which means that channel-number 0x00 is the first contact, starting at the top of the contact connector of the card. Channel-number 0x01 is the second contact, and so on. For the correct contact pinning please refer to the relevant card connection diagrams. **cv** = channel-value (0x00 or 0x01 for digital contacts / 0x00 to 0xFF for analog contacts) The channel-value determines the status to be set for the contact. For digital (switching) cards the value is either 0x00 (OFF) or 0x01 (ON). For analog cards a value between 0x00 (OFF) and 0xFF (FULL ON) will set the appropriate level on the given output contact

Examples
Example1 0x**A5** 0x**00** 0x**03** 0x**01** This data sequence will set the value of the 4th channel of the card located in slot 1 to ON **Example2** 0x**A5** 0x**04** 0x**06** 0x**00** This data sequence will set the value of the 7th channel of the card located in slot 5 to OFF

WRITE ALL CHANNELS

Sets the status of all digital or analog output contacts on a given card, to a given value. The card is addressed by the slot-number data byte.

CommandByte	DataBytes	Comment
0x**A4**	**sn cv cv cv cv cv cv cv cv**	**sn** = slot-number (0x00 to 0x02 for IO3CC / 0x00 to 0x07 for IO8CC) The slot-number indicates the physical position of the card in the IO3CC or IO8CC cardcage unit. The slot-number count is "zero-based" which means that slot-number 0x00 is the first slot, starting at the left most position of the cardcage. Slot number 0x01 is the second slot, and so on. **cv** = channel-value (0x00 or 0x01 for digital contacts / 0x00 to 0xFF for analog contacts) The slot-number byte is to be followed by 8 channel-value bytes (cv) indicating the desired status of the card contacts. The channel-value determines the status to be set on the card contacts. For digital (switching) cards the value is either 0x00 (OFF) or 0x01 (ON). For analog cards a value between 0x00 (OFF) and 0xFF will set the appropriate level. For card types with less than 8 contacts also 8 bytes have to be used, the non existing positions will be ignored.

Examples
Example1 0x**A4** 0x**00** 0x**01** 0x**00** 0x**01** 0x**00** 0x**01** 0x**00** 0x**01** 0x**00** This data sequence will set the value of 8 digital contacts of the card located in slot 1 to ON/OFF/ON/OFF/ ON/OFF/ON/OFF **Example2** 0x**A4** 0x**04** 0x**FF** 0x**7F** 0x**3F** 0x**19** 0x**00** 0x**3F** 0x**7F** 0x**FF** This data sequence will set the value of 8 analog contacts of the card located in slot 5 to values 255-127-63-25-0-63-127-255 (100% 50% 25% 10% 0% 25% 50% 100%)

READ ONE CHANNEL

Requests a reply message from the cardcage returning the status of a specific input or output contact, indicated by the channel-number data byte, on the card residing in the slot indicated by the slot-number data byte.

CommandByte	DataBytes	Comment
0x**A2**	**sn cn**	**sn** = slot-number (0x00 to 0x02 for IO3CC / 0x00 to 0x07 for IO8CC) The slot-number indicates the physical position of the card in the IO3CC or IO8CC cardcage unit. The slot-number count is "zero-based" which means that slot-number 0x00 is the first slot, starting at the left most position of the cardcage. Slot number 0x01 is the second slot, and so on. **ch** = channel-number (0x00 to 0x07 depending on card type) The channel-number indicates the actual input or output contact on the card located in the slot defined by the slot-number. The channel-number count is "zero-based" which means that channel-number 0x00 is the first contact, starting at the top of the contact connector of the card. Channel-number 0x01 is the second contact, and so on. For the correct contact pinning please refer to the relevant card connection diagrams.

Examples
Example1 0x**A2** 0x**00** 0x**03** This data sequence will return the value of the 4th channel of the card located in slot 1 See : **SINGLE CHANNEL STATUS** reply command. **Example2** 0x**A2** 0x**04** 0x**06** This data sequence will return the value of the 7th channel of the card located in slot 5 See : SINGLE CHANNEL STATUS reply command.

READ ALL CHANNELS

Requests a reply message from the cardcage returning the status of all the input or output contacts on the card residing in the slot indicated by the slot-number data byte.

CommandByte	DataBytes	Comment
0x**A0**	**sn**	**sn** = slot-number (0x00 to 0x02 for IO3CC / 0x00 to 0x07 for IO8CC The slot-number indicates the physical position of the card in the IO3CC or IO8CC cardcage unit. The slot-number count is "zero-based" which means that slot number 0x00 is the first slot, starting at the left most position of the cardcage. Slot number 0x01 is the second slot, and so on.

Examples
Example1 0x**A0** 0x**00** This data sequence will return all channel values of the card located in slot 1 See : **ALL CHANNEL STATUS** reply command **Example2** 0x**A0** 0x**04** This data sequence will return all channel values of the card located in slot 5 See : **ALL CHANNEL STATUS** reply command.

Responses FROM the IOCC KissBox TO the controller

SINGLE CHANNEL STATUS (reply)

Response message to the READ ONE CHANNEL command. The message indicates the current value of the requested channel in the given card slot.

CommandByte	DataBytes	Comment
0x**A3**	**sn cn cv**	**sn** = *slot-number* (0x00 to 0x02 for IO3CC / 0x00 to 0x07 for IO8CC) The slot-number indicates the physical position of the card in the IO3CC or IO8CC cardcage unit. The slot-number count is "zero-based" which means that slot-number 0x00 is the first slot, starting at the left most position of the cardcage. Slot number 0x01 is the second slot, and so on. **ch** = channel-number (0x00 to 0x07 depending on card type) The channel-number indicates the actual input or output contact on the card located in the slot defined by the slot-number. The channel-number count is "zero-based" which means that channel-number 0x00 is the first contact, starting at the top of the contact connector of the card. Channel-number 0x01 is the second contact, and so on. **cv** = channel-value (0x00 or 0x01 for digital contacts / 0x00 to 0xFF for analog contacts) The channel-value indicates the current status of the requested the card contact. For digital (switching) cards the value is either 0x00 (OFF) or 0x01 (ON). For analog cards it will be a value between 0x00 (OFF) and and 0xFF (FULL ON)

Examples
Example1 0x**A3** 0x**00** 0x**02** 0x**01** This data sequence indicates that the 3th channel on the first card has the status ON **Example2** 0x**A3** 0x**04** 0x**03** 0x**7F** This data sequence indicates that the 4th channel on the fifth card has the value of 127 (50%)

ALL CHANNEL STATUS (reply)

Response message to the READ ALL CHANNELS command. The message indicates the current value of all 8 channels on the card in the given card slot

CommandByte	DataBytes	Comment
0x**A1**	**sn cv cv cv cv cv cv cv cv**	**sn** = slot-number (0x00 to 0x02 for IO3CC / 0x00 to 0x07 for IO8CC) The slot-number indicates the physical position of the card in the IO3CC or IO8CC cardcage unit. The slot-number count is "zero-based" which means that slot-number 0x00 is the first slot, starting at the left most position of the cardcage. Slot number 0x01 is the second slot, and so on. **cv** = channel-value (0x00 or 0x01 for digital contacts / 0x00 to 0xFF for analog contacts) The 8 channel-values indicate the current status of the 8 contacts on the card located in the requested slot. For digital (switching) cards the value is either 0x00 (OFF) or 0x01 (ON). For analog cards it will be a value between 0x00 (OFF) and and 0xFF (FULL ON)

Examples
Example 1 0x**A4** 0x**00** 0x**01** 0x**00** 0x**01** 0x**00** 0x**01** 0x**00** 0x**01** 0x**00** This data sequence indicates the status ON-OFF-ON-OFF-ON-OFF-ON-OFF on the digital card in the first slot **Example 2** 0x**A4** 0x**04** 0x**FF** 0x**7F** 0x**3F** 0x**19** 0x**00** 0x**3F** 0x**7F** 0x**FF** This data sequence indicates the level values of 255-127-63-25-0-63-127-255 (100% 50% 25% 10% 0% 25% 50% 100%) of the analog card in slot 5