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FLUKE Biomedical
IDA-5 User Communication Interface

Revision 1.0 05/06/2020

The IDA-5 user virtual COM port over USB. Set Com port to 115200, No parity, 8 data, 1 Stop, no handshake,

GENERAL FORMAT

All commands have the following general format.

`[COMMAND,param 1,param 2,…,param n]<CR><LF>`

where the opening `[` and closing `]` are mandatory

COMMAND	is one of the commands described in the table below.
,param 1 - ,param n	are parameters required by some commands and must be separated by commas.
<CR>	is the ASCII carriage return character.
<LF>	is the ASCII line feed character.

If any command is not interpreted correctly by the IDA-5 the instrument will respond with **[BADCMD]<CR><LF>**.

COMMAND	**Param number**	**Purpose**	
BYE		Terminates computer control	NONE
POLL		Set the IDA into poling mode in which it will send data when requested by the host	A string that indicates the channels fitted as follows: [POLL,1,2,3,4] <CR><LF> Where each digit represents a channel. Functioning channels will be represented by the channel number. If a channel is not functioning then a 0 (zero) will replace the channel number: [POLL,1,2,0,4] <CR><LF> means that channels 1, 2, and 4 are functioning but channel 3 is not.
LOG		Set the IDA into logging mode in which it will sends data as it is generated by the measuring modules.	A string that indicates the channels fitted as follows: [LOG,1,2,3,4] <CR><LF> Where represents a functioning channel. If a channel is not functioning then a 0 (zero) will replace the channel number: [LOG,1,2,0,4] <CR><LF> means that channels 1, 2, and 4 are functioning but channel 3 is not. **After this:** as data becomes available, it is transmitted in the format described following this table.
CnF CnV C1FA		Start a flow test. where n is the channel number.	[OK] <CR><LF>
	1	Control Number.	
	2	Operator (name or initials).	
	3	Set Flow rate.	
CnO CnP		Start an occlusion test. where n is the channel number.	[OK] <CR><LF>
	1	Control Number.	
	2	Operator.	
	3	Set Flow Rate.	
CnPCA		Start a PCA test	[OK] <CR><LF>
	1	Control Number	
	2	Operator	
	3	Set Flow Rate	
	4 to 10	Reserved – not implemented	

COMMAND	Param number	Purpose	
END		End a test	[OK] <CR><LF>
	1	Channel number to end test on.	
FLOW		Request for current flow rate	[FLOW,nnnn.nn,hh:mm:ss.mmm]<CR><LF> where: nnn.nn Is the flow rate in ml/h. hh:mm:ss.mmm Time since start of test formats as: hh Hours mm Minutes ss Seconds mmm Milliseconds.
	1	The channel to retrieve the result from.	
VOL		Request for current Volume	[VOL,vvvv.vv,hh:mm:ss.mmm]<CR><LF> where: vvv.vv Is the volume in ml. hh:mm:ss.mmm Time since start of test formats as: hh Hours mm Minutes ss Seconds mmm Milliseconds
	1	The channel to retrieve the result from.	
PRES		Request for current pressure	[PRES,pppp,hh:mm:ss.mmm]<CR><LF> where: pppp Is the pressure in mmHg. hh:mm:ss.mmm Time since start of test formats as: hh Hours mm Minutes ss Seconds mmm Milliseconds
	1	The channel to retrieve the result from.	
RECS		Request number of records saved in flash memory.	[RECS,nn]<CR><LF> Where **nn** is the number of records (0 to 999) decimal.
GETREC		Request a record from the flash memory.	The header information followed by a series of strings in the same format as LOG mode.
	1	The record number to retrieve.	
DELREC		Delete single record from flash	
	1	The record number to delete.	
DELALL		Delete all records from flash.	[ERASED]<CR><LF> when finished.
STATUS		Request status string.	[STAT,ccccmmmmssss] where: c last command sent measuring module m current mode for channel s last status from measuring module

COMMAND	Param number	Purpose	
GETSN		Request serial number and firmware version	
	1	Channel selector 0 Main board 1 - 4 Measuring module	
GETHEAD		Request the report heading.	[HEAD,line 1,line2,line3]
SETHEAD		Send a new heading.	[OK] <CR><LF>
	1	Line 1 of the new heading.	
	2	Line 2 of the new heading.	
	3	Line 3 of the new heading.	
GETPARAMS		Get parameters and calibration factors.	
	1	Channel number to get parameters from. 0 Main instrument parameters 1 - 4 Measuring module parameters for the appropriate channel..	.
STATUS		To return the current status of all channels.	
GETTMPLTCOUNT		Get the number of templates saved in the IDA-5	
GETTMPLT		Retrieve a template from the IDA-5	
	1	The template number to retrieve	
SETTMPLT	Send template to IDA-5. This requires a sequence of SETTMPLT commands. e.g. [SETTMPLT,0,*TemplateName,Comment*] [SETTMPLT,n,*Type,Rate,VolPress,unit,hh,mm,tol%*] where n is template step number (1 to 6) type is FLOW, OCCL, PCA, BOLUS VOLPress, unit, hh, mm, tol% are values for step [SETTMPLT,END]		

FORMAT OF DATA IN LOG MODE.

When in logging mode data is sent to the host computer as it becomes available. The format of the data string is described below.

`nftttttttttvvvvvvvvvpppp<CR><LF>`

Where

n is the channel number (zero based i.e. 0 to 3)

f is a status flag that can have the following values

- **:** (colon) normal result
- b bubble detected
- a air lock detected - the test must be restarted
- o over pressure (on occlusion test).

ttttttttt elapsed time since test started in mili-seconds formatted as eight hexadecimal digits.

vvvvvvvvv volume delivered since test started in 1000/ml formatted as eight hexadecimal digits.

pppp pressure in mmHg formatted as four hexadecimal digits. This is a two's complement signed value.

Additional characters are reserved fields.

<CR><LF> Terminator.

FORMAT OF RECORDS RETURNED BY GETREC,N

GETREC returns heading information followed by data records.

Heading records have the general format

`Hn,value 1,value 2,…, value n<CR><LF>`

Where:

H indicates this is a heading record

N is the heading number - followed by a comma

value 1 Heading values separated by commas.
|
value n

Heading Number	Parameter Number	Meaning
1	1	Serial number of IDA-5 followed by firmware version number.
2	1	Channel number test was performed on.
	2	Serial number of measuring module followed by firmware version number of measuring module.
3	1	Report heading line 1
4	1	Report heading line 2
5	1	Report heading line 3
6	1	Control Number
7	1	Operator
8	1	Manufacturer of device under test.
9	1	Model of device under test
10	1	Serial number of device under test
11	1	Location of device under test
12	1	Type of test (Flow, Occlusion, PCA)
13	1	Selected flow rate
14	1	Selected volume to deliver
15	1	Selected Basal Rate
16	1	Selected infusion volume (PCA)
17	1	Selected infusion time (PCA)
18	1	Start date of test
	2	Start time of test
19		reserved
20		reserved