

serial protocol description

- Valid for F5100IND v1.00
- Serial communication: USB virtual serial port or RS-232 (9600 baud, 8n1)
- Each command must be ended with <CR> (ASCII code 13 decimal) or <LF> (ASCII code 10 decimal) character, or both. Space is not a valid separator between commands.
- There is no receive timeout for serial communications; only <CR> and <LF> are used to end input.
- Commands and parameters are CASE SENSITIVE.
- Numeric parameters and return data are in ASCII decimal representation.
- Most commands are echoed in standard format to confirm execution, if they have been accepted.
- "Error:<reason>"<CR> is returned if a command or parameter is invalid, or the transmission has been disturbed. <reason> is "syntax" for unknown or misspelled commands, "value" for wrong parameter data or "unknown" for any other errors.

Example:

command "B75"<CR> sets brightness to 75%, and returns "B75"<CR>

command "EF?"<CR> returns "EF0"<CR> (no error flags set)

Command-String	Mode	Default value	Notes
Parameter	Function	Data meaning	Examples
B	<i>set get</i>	0	*1
0 .. 100 or ?	Brightness	Brightness in %	"B75" -> set brightness to 75% "B?" -> get current brightness value
S	<i>set get</i>	0	*1
0, 1 or ?	Shutter/Standby	0 = Enable/Light On 1 = Standby/Light Off	"S1" -> turn off light output (standby mode) "S?" -> get shutter status
L	<i>set get</i>	0	*1
0 .. 1 or ?	Panel Lock	1 = Panel Locked 0 = Panel Unlocked	"L1" -> lock panel (user can no longer change brightness with controls at device) "L0" -> unlock panel
LG	<i>get</i>	0	
? only	Checks light-guide insertion status	1 = light-guide is inserted 0 = light-guide is not inserted	"LG?" -> returns "LG1" if a light-guide is inserted into the device, "LG0" otherwise

Command-String	Mode	Default value	Notes
Parameter	Function	Data meaning	Examples
EF 0 .. 255 or ?	set get Error-Flags Convert to binary to get error-flags The flags are only set by the device but never cleared to provide latch functionality (as long as device is supplied with voltage)!	0 VALUE ERROR-MEANING ___ 1 LED overheated ___ 2 PCB overheated ___ 4 FAN1 stalled ___ 8 FAN2 stalled ___ 16 FAN3 stalled ___ 32 LED-temperature-sensor error ___ 64 PCB-temperature-sensor error ___ 128 LED not connected every combination via addition is allowed!	"EF?" -> read error flags eg. if "EF18" is returned, following errors have occurred: 16 FAN3 stalled 2 PCB overheated ----- 18 returned value "EF0" -> Clears error flags. If error is still present the corresponding flags will be set again in a few milliseconds by the device!
MR User: 2 Device: 16Bit unsigned	get Get rotation speed in RPM	2 = rpm of fan	USER _ DEVICE _ COMMENT MR2 __ MR4992 _ fan does 4992 RPM
MT User: 0 or 1 Device: -40 .. 125	get Get temperature in °C	0 = temperature of power-LED 1 = temperature of PCB (led driver circuit)	USER __ DEVICE __ COMMENT MT0 ___ MT28 ___ LED temperature is 28°C MT1 ___ MT33 ___ PCB temperature is 33°C
V ? only	get Device Type and Version	F5000IND v1.00 ASCII String	"V?" or "V" -> returns ASCII string with device name and version

Command-String	Mode	Default value	Notes
Parameter	Function	Data meaning	Examples
EESAV	set get	0	
0, 1, 2 or ?	Trigger eeprom save of all corresponding changed values. ATTENTION: Use this command sparingly to avoid excessive eeprom-writting! However only changed values will schedule an eeprom-write. ("RESET0" command is the only exception here. It will always schedule a (re-)write of all values, regardless they have changed or not!) Thus calling EESAV1 mutliblible times in a row only the first call may trigger an eeprom-writte. The following calls will return "0".	0 = no value was saved or error ocured 1 = save is in progress 2 = save done	USER ____ DEVICE __ COMMENT EESAV1 __ EESAV1 __ eeprom save is triggered EESAV? __ EESAV1 __ save is in progress EESAV? __ EESAV2 __ save done
LO	set get	0	*1
0 .. 100 or ?	Lower limit for brightness settable by the device encoder	0 .. 100 brightness in percent	
SM	set get	1	*1
0 .. 2 or ?	Sets flash mode	0 = FREE RUN 1 = TRIG. (DELAY) 2 = TRIG. (PHASE)	
FB	set get	100	*1
30 .. 100 or ?	Flash brightness level	Brightness in %	
FP	set get	640	*1
160 .. 16000000 or ?	Flash pulse width	160 = 10µs 16000000 = 1s --> resolution: 1/16 µs	
FE	set get	16000	*1
set: 1600 .. 16000000 or ? get: 1 .. 16000000 or 0	Flash period only writeable in "FREE RUN"-mode. In other modes this value will be overwritten.	0 = no period found (readonly) 1600 = 100µs 16000000 = 1s --> resolution: 1/16 µs	

Command-String	Mode	Default value	Notes
Parameter	Function	Data meaning	Examples
FA 160 .. 16000000 or ?	Flash delay only writeable in "TRIG. (DELAY)"- mode. In other modes this value may be overwritten.	160 160 = 10µs 16000000 = 1s --> resolution: 1/16 µs	*1
FO 0, 1 or ?	Flash slope	0 = "HIGH TO LOW" 1 = "LOW TO HIGH"	*1
FD 1 .. 255 or ?	Frequency divider	1 divider for trigger frequency	*1
FK 0 .. 255 or ?	Trigger skip	0 number of trigger slopes to skip (once)	
FH 0 .. 120 or ?	Flash phase	0 0 = 0° 120 = 360° resolution: 3°	*1
IFM 0 .. 5 or ?	Footswitch mode	0 0 = TOGGLE+DIM 1 = TOGGLE 2 = PUSH ON 3 = PUSH OFF 4 = PRESETS 5 = DUAL KEY	*1
IFS 1 .. 100 or ?	Footswitch dim speed	50 value is inversely proportional to tick time	*1
IFT 1 .. 100 or ?	Footswitch dim step	5 percent per tick	*1

Command-String	Mode	Default value	Notes
Parameter	Function	Data meaning	Examples
SECL	set get	0	
User: 0, 1 or ? Device: 0 .. 100	Self Calibration Does trigger eeprom writes! ATTENTION: Use this command sparingly to avoid excessive eeprom-writing!	0 = idle, device is not calibrated 1 = self calibration started / in progress 2 .. 99 = self calibration in progress 100 = idle, device is calibrated	USER ___ DEVICE ___ COMMENT SECL1 ___ SECL1 ___ self calibration started SECL? ___ SECL1 ___ self calibration in progress SECL? ___ SECL36 ___ self calibration in progress SECL? ___ SECL98 ___ self calibration in progress SECL? ___ SECL100 ___ self calibration done
DSP	set get	100	*1
0 .. 100 or ?	Display brightness	brightness of OLED-display	
ICAL	set get	3993	*1
ICALMIN ... ICALMAX or ?	set current for 1% brightness	native value according to physical current of the led driver output, negative proportional ICALMIN accords approximately 1A (=30% value) ICALMAX accords approximately 0A	Following example trims the led current for 1% brightness to approx. 0.1A: USER _____ DEVICE _____ COMMENT ICALMIN? ___ ICALMIN3816 ___ 3816 accords to ~1A ICALMAX? ___ ICALMAX4012 ___ 4012 accords to ~0A ICAL3970 ___ ICAL3970 ___ allowed range: 3816 <= value <= 4012 EESAV1 ___ EESAV1 ___ save new ical value
ICALMAX	get	4012	
? only	Read constant	16 Bit unsigned, see ICAL	see ICAL
ICALMIN	get	3816	
? only	Read constant	16 Bit unsigned, see ICAL	see ICAL
LU	set get	0	*1
0 .. 100 or ?	Upper limit for brightness settable by the device encoder	0 .. 100 brightness in percent	
NU	set get	0	
0, 1..4 or ?	Sets active menu page	0 = menu off 1 = FLASH menu 2 = ROOT menu 3 = SETTINGS menu 4 = SYSTEM menu	NU1 -> shows flash menu (thus this command "activates" flash mode)

Command-String	Mode	Default value	Notes
Parameter	Function	Data meaning	Examples
PRI 0 .. 9 or ?	set get Preset index, determines preset read and written by "PRV" command	0 0 .. 9 = Preset 1 .. 10	
PRV -1, 0 .. 100 or ?	set get Sets preset configuration of the preset determined by "PRI" command	-1 = Skip 0 .. 100 = Preset value	*1
PU 0, 1 or ?	set get Push-button configuration	0 = Shutter 1 = Presets	*1
RESET 0 only	set Reset all values to default. Does not trigger eeprom-write.	0 0 = reset all values to default	*1 USER ____ DEVICE __ COMMENT RESETO __ RESETO __ reset all values to default EESAV1 __ EESAV1 __ eeprom save is triggered (optional) EESAV? __ EESAV1 __ save is in progress (optional) EESAV? __ EESAV2 __ save done (optional)
SUB -1, 0 .. 100 or ?	set get Sets startup value for brightness ("B")	-1 -1 = Last brightnss setting restored on startup 0 .. 100 = Brightness value on startup	*1 If "SUB" is setted to -1 "B" value is not written automatically to eeprom on change. In this case you also have to send "EESAV1" after each change of "B" (and of course "SUB") to ensure restoring the last value of "B".
SUS -1, 0, 1 or ?	set get Sets startup value for shutter ("S")	0 -1 = Last shutter setting 0 = Enable/Light On 1 = Standby/Light Off	*1 If "SUS" is setted to -1 "S" value is not written automatically to eeprom on change. In this case you also have to send "EESAV1" after each change of "S" (and of course "SUS") to ensure restoring the last value of "S".
SZ 0, 1 ... 100 or ?	set get Sets the step size of the device encoder (in brightness chage mode = menu off)	0 0 = AUTO 1 .. 100 = brightness change per encoder detent	*1

NOTES:

*1

Use "EESAV1" command to write changed value to EEPROM. This is a safety mechanism to prevent frequently eeprom writes thus maximising lifetime of the device.