

Device write commands	Nr.	Request format	Request params	Response format	Response fields	Example	Explanation
ACTIVE CHANNELS	10	:10 <Bitmask>\r	Bitmask (2-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:10 0F\r → *00\r\n	Activates selected channels using bitmask (1–8).
AUTO INTEGRATION TIME	26	:26 <0/1>\r	0 = Disable, 1 = Enable	*00\r\n or *FF\r\n	Status (OK/Error)	:26 1\r → *00\r\n	Sets automatic integration time.
LAMP WAITING TIME	27	:27 <Delay>\r	Delay (decimal, 0.1ms steps)	*00\r\n or *FF\r\n	Status (OK/Error)	:27 500\r → *00\r\n	Sets lamp wait time in 0.1 ms steps.
SERIAL NUMBER	41	:41 <Serial number>\r	Serial number (decimal)	*00\r\n or *FF\r\n	Status (OK/Error)	:41 12345\r → *00\r\n	Sets device serial number.
SPECTRUM SMOOTHING	50	:50 <Factor>\r	Factor (decimal, 1–32)	*00\r\n or *FF\r\n	Status (OK/Error)	:50 4\r → *00\r\n	Sets spectrum smoothing factor.
SPECTRUM FITTING	51	:51 <Factor>\r	Factor (decimal, 8–21)	*00\r\n or *FF\r\n	Status (OK/Error)	:51 12\r → *00\r\n	Sets spectrum fitting factor.
SPECTRUM AVERAGE	52	:52 <Factor>\r	Factor (decimal, 1–32)	*00\r\n or *FF\r\n	Status (OK/Error)	:52 5\r → *00\r\n	Sets spectrum averaging factor
DEBUG FLAGS	70	:70 <Flags>\r	Flags (1-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:70 1\r → *00\r\n	Sets debug flags.
CALIBRATION	74	:74 <Channel> <Edge1> <Temp1> ...*\r	Channel (decimal), max. 16 Edge/Temp pairs (4-digit HEX/4-digit HEX signed)	*00\r\n or *FF\r\n	Status (OK/Error)	:74 2 0A1F FFDC ...r → *00\r\n	Programs Edge/Temp calibration points.
ANALOG FORM	83	:83 <0/1>\r	0 = Voltage, 1 = Current	*00\r\n or *FF\r\n	Status (OK/Error)	:83 1\r → *00\r\n	Sets analogue output mode.
RTC DATETIME	90	:90 <YY MM WD DD HH MM SS>\r	Year, Month, Weekday, Day, Hour, Minute, Second (all decimal)	*00\r\n or *FF\r\n	Status (OK/Error)	:90 24 12 1 31 23 59 59\r → *00\r\n	Sets real-time clock.
ERASE SD-CARD	95	:95 <1>\r	1 (Execute)	*00\r\n or *FF\r\n	Status (OK/Error)	:95 1\r → *00\r\n	Erases the entire SD card.
LOGGING CONFIG	97	:97 <Mode> [Interval]\r	Mode (0/1/2), Interval (4-digit HEX, seconds, optional)	*00\r\n or *FF\r\n	Status (OK/Error)	:97 2 12C\r → *00\r\n	Sets logging mode and interval.
REBOOT	C2	:C2 <1>\r	1 (Execute)	*00\r\n or *FF\r\n	Status (OK/Error)	:C2 1\r → *00\r\n	Triggers device reboot.
WATCHDOG REGISTER	C3	:C3 <1>\r	1 (Execute)	*00\r\n or *FF\r\n	Status (OK/Error)	:C3 1\r → *00\r\n	Resets the watchdog register.
MODBUS ADDRESS	D0	:D0 <Address>\r	Address (2-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:D0 A1\r → *00\r\n	Sets Modbus device address.
INTERCOM	D1	:D1 <0/1>\r	0 = Disable, 1 = Enable	*00\r\n or *FF\r\n	Status (OK/Error)	:D1 1\r → *00\r\n	Enables or disables Intercom.

  

Channel write commands	Nr.	Request Format	Request Params	Response Format	Response Fields	Example	Explanation
INTEGRATION TIME	23	:23 <Channel> <Time>\r	Channel (0 = all, 1..N), Time (decimal, 0.1ms units)	*00\r\n or *FF\r\n	Status (OK/Error)	:23 3 400\r → *00\r\n	Sets integration time.
TEMPERATURE AVERAGING OFFSET	53	:53 <Channel> <Count>\r	Channel (0 = all, 1..N), Count (2–10)	*00\r\n or *FF\r\n	Status (OK/Error)	:53 2 6\r → *00\r\n	Sets the averaging number of temperature values.
ANALOG RANGE	75	:75 <Channel> <Offset>\r	Channel (0 = all, 1..N), Offset (4-digit HEX signed)	*00\r\n or *FF\r\n	Status (OK/Error)	:75 3 0014\r → *00\r\n	Sets temperature offset.
RELAIS RANGE	81	:81 <Channel> <Low> <High>\r	Channel (0 = all, 1..N), Low/High Temp (4-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:81 2 00FA 012C\r → *00\r\n	Sets analogue output temperature range.
RELAIS CONFIGURATON	82	:82 <Channel> <Low> <High>\r	Channel (0 = all, 1..N), Low/High Temp (4-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:82 2 00FA 012C\r → *00\r\n	Sets relay output temperature range.
RELAIS LOGIC	84	:84 <Channel> <Configuration>\r	Channel (0 = all, 1..N), Config (1-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:84 2 1\r → *00\r\n	Sets relay configuration.
RELAIS STATE	85	:85 <Relais> <Logic> <Bitmask>\r	Relais (0 = all, 1..N), Logic (2-digit HEX), Mask (2-digit HEX)	*00\r\n or *FF\r\n	Status (OK/Error)	:85 3 0F 0F\r → *00\r\n	Sets the logic and bitmask for a relay.
	87	:87 <Relais> <0/1>\r	Relais (0 = all, 1..N), 0=OFF/1=ON	*00\r\n or *FF\r\n	Status (OK/Error)	:87 0 1\r → *00\r\n	Sets external relay states.

**FOTEMP ASCII COMMANDS V1.1**

Read device commands	Nr.	Request format	Request params	Response format	Response fields	Example	Explanation
AVAILABLE CHANNELS	0F	?0Fr	None	*0F <Count>\r\n	Count (decimal)	?0Fr → *0F 8\r\n	Reports available channels.
ACTIVE CHANNELS	10	?10r	None	*10 <Bitmask>\r\n	Bitmask (2-digit HEX)	?10r → *10 0Fr\n	Reports active channels.
DISTURBED CHANNELS	11	?11r	None	*11 <Bitmask>\r\n	Bitmask (2-digit HEX)	?11r → *11 04r\n	Reports channels with errors.
ACTUAL CHANNEL	12	?12r	None	*12 <Channel>\r\n	Channel number (decimal)	?12r → *12 3\r\n	Returns currently selected channel.
AUTO INTEGRATION TIME	26	?26r	None	*26 <0/1>\r\n	1=Enabled, 0=Disabled	?26r → *26 1\r\n	Reports automatic integration time status.
LAMP WAITING TIME	27	?27r	None	*27 <Delay>\r\n	Delay (decimal, 0.1ms units)	?27r → *27 500\r\n	Reports lamp wait time.
SERIAL NUMBER	41	?41r	None	*41 <ASCII-Hex>\r\n	Serial number (ASCII HEX)	?41r → *41 30 30 31 32 33\r\n	Returns serial number.
MODEL NAME	40	?40r	None	*40 <ASCII-Hex>\r\n	Model name (ASCII HEX)	?40r → *40 4F50544Fr\n	Returns model name.
FW VERSION	42	?42r	None	*42 <ASCII-Hex>\r\n	Firmware version (ASCII HEX)	?42r → *42 312E3032\r\n	Returns firmware version.
FWLIB VERSION	43	?43r	None	*43 <ASCII-Hex>\r\n	Library version (ASCII HEX)	?43r → *43 312E3032\r\n	Returns library version.
HW CONFIGURATION	46	?46r	None	*46 <5-digit>\r\n	5-digit decimal	?46r → *46 00042\r\n	Returns hardware configuration.
SPECTRUM SMOOTHING	50	?50r	None	*50 <Factor>\r\n	Factor (decimal)	?50r → *50 4\r\n	Reports smoothing factor.
SPECTRUM FITTING	51	?51r	None	*51 <Factor>\r\n	Factor (decimal)	?51r → *51 12\r\n	Reports fitting factor.
SPECTRUM AVERAGE	52	?52r	None	*52 <Factor>\r\n	Count (decimal)	?52r → *52 5\r\n	Reports averaging frame count.
DEBUG FLAGS	70	?70r	None	*70 <Flags>\r\n	Flags (1-digit HEX)	?70r → *70 3\r\n	Reports debug flags.
SPECTRUM	71	?71 <Type> <Index>r	Type (1=smooth, 2=derive), Index (decimal)	*71 <Value>*\r\n	*136-character (Base64)	?71 1 0r → *71 wA0Z... \r\n	Returns 68 spectral values.
DEBUG VARIABLES	72	?72r	None	*72 <Var>*\r\n	*16 Variables (decimal)	?72r → *72 0 42 0 -7 1023 0\r\n	Returns debug variables.
CALIBRATION	74	?74 <Channel>r	Channel (decimal)	*74 <Edge1> <Temp1>*\r\n	*max. 16 Edge/Temp pairs (4-digit HEX/4-digit Hex signed)	?74 2r → *74 07C1 00FA ... \r\n	Returns calibration points.
ANALOG	83	?83r	None	*83 <0/1>\r\n	0=Voltage, 1=Current	?83r → *83 1\r\n	Reports analogue output mode.
RELAIS STATE	87	?87r	None	*87 <State>\r\n	Bitmask (1-digit HEX)	?87r → *87 Fr\n	Reads external relay states.
RTC DATETIME	90	?90 <0/1>r	0 = Numeric, 1 = Formatted	Numeric: *90 <YY> <MM> <WD> <DD> <HH> <MM> <SS>\r\n Formatted: *90 DD.MM.YY HH:MM:SS\r\n	Date/Time fields	?90 0r → *90 24 12 01 31 23 59 59\r\n n ?90 1r → *90 31.12.24 23:59:59\r\n	Reads RTC date and time.
RTC TEMPERATURE	94	?94r	None	*94 <Temp>\r\n	Temp (decimal, °C)	?94r → *94 25\r\n	Reads RTC chip temperature.
SD CARDSIZE	96	?96 <0/1>r	0 = Numeric, 1 = Formatted	*96 <Used> <Total>\r\n or *96 Usage: <Used> / <Total> KiB\r\n	Used and Total size (KiB)	?96r → *96 12345 65536\r\n ?96 1r → *96 Usage: 12345 / 65536 KiB\r\n	Reads SD card space usage.
LOGGING CONFIG	97	?97r	None	*97 <Mode> <Interval>\r\n	Mode (decimal), Interval (HEX seconds)	?97r → *97 2 012C\r\n	Reads logging mode and interval.
REF TEMPERATURE	99	?99r	None	*99 <Temp>\r\n	Temp (decimal, 0.1 °C)	?99r → *99 193\r\n	Reads reference sensor temperature.
WATCHDOG REGISTER	C3	?C3r	None	*C3 <Status>\r\n	Status (decimal)	?C3r → *C3 1\r\n	Reports watchdogs register value.
MODBUS ADDRESS	D0	?D0r	None	*D0 <Address>\r\n	Address (2-digit HEX)	?D0r → *D0 A1\r\n	Reads Modbus device address.
INTERCOM	D1	?D1r	None	*D1 <0/1>\r\n	0=Disabled, 1=Enabled	?D1r → *D1 1\r\n	Reports Modbus Intercom status.
BUS NUMBER	D2	?D2r	None	*D2 <Address>\r\n	Address (2-digit HEX)	?D2r → *D2 0A\r\n	Reads bus address.

Valid from firmware version 3.300 and library version 1.600 - This is the complete list of all ASCII commands for all FOTEMP devices of COMEM optocon. Also the optional analogue output, relays and logging commands are listed. If your device does not have a certain feature, use of the respective commands will fail.

**FOTEMP ASCII COMMANDS V1.1**

Read channel commands	Nr.	Request format	Request params	Response format	Response fields	Example	Explanation
TEMPERATURE	01	?01 <Channel> <Form>\r	Channel (0 = all, 1..N), Form (0=actual, 1=average)	*01 <Flag> <Temp> (single) *01 <Temp1> <Temp2> ... (all)	Flag: 1=new value, 0=no new Temp: decimal, 0.1 °C	?01 2 0\r → *01 1 190\r\n ?01 0 1\r → *01 193 189 195\r\n	Reads current or averaged temperature(s). Single channel or all channels.
ERROR	07	?07 <Channel>\r	Channel (0 = all, 1..N)	*07 <Channel> <Error> (single) *07 <Error1> <Error2> ... (all)	Error code (decimal)	?07 2\r → *07 2 0\r\n ?07 0\r → *07 0 1 0\r\n	Returns error codes for channels.
INTEGRATION TIME	23	?23 <Channel>\r	Channel (0 = all, 1..N)	*23 <Channel> <Time> (single) *23 <Time1> <Time2> ... (all)	Time in 0.1 ms (decimal)	?23 2\r → *23 2 400\r\n ?23 0\r → *23 400 400 400\r\n	Reads integration time for channels.
TEMPERATURE AVERAGING	53	?53 <Channel>\r	Channel (0 = all, 1..N)	*53 <Channel> <Count> (single) *53 <Count1> <Count2> ... (all)	Count (decimal)	?53 2\r → *53 2 8\r\n ?53 0\r → *53 8 8 8\r\n	Reads temperature averaging count.
OFFSET	75	?75 <Channel>\r	Channel (0 = all, 1..N)	*75 <Channel> <Offset> (single) *75 <Offset1> <Offset2> ... (all)	Offset (4-digit HEX signed)	?75 2\r → *75 2 FFEA\r\n ?75 0\r → *75 FFEA FFEA FFEA\r\n	Reads offset(s) for channels.
EDGE	76	?76 <Channel>\r	Channel (0 = all, 1..N)	*76 <Flag> <Edge> (single) *76 <Edge1> <Edge2> ... (all)	Flag (1=new) and Edge (4-digit HEX)	?76 2\r → *76 1 07C1\r\n ?76 0\r → *76 07C1 ---- 0000\r\n	Returns edge detection positions.
SIGNAL STRENGTH	77	?77 <Channel>\r	Channel (0 = all, 1..N)	*77 <Channel> <Strength> (single) *77 <Strength1> <Strength2> ... (all)	Strength (decimal)	?77 2\r → *77 2 40\r\n ?77 0\r → *77 40 ---- 0\r\n	Reads signal strength of channels.
ANALOG RANGE	81	?81 <Channel>\r	Channel (0 = all, 1..N)	*81 <Channel> <Low> <High> (single) *81 <Low1> <High1> ... (all)	Low/High Temp (4-digit HEX)	?81 2\r → *81 2 00FA 012C\r\n	Reads analogue output temperature range.
RELAIS RANGE	82	?82 <Channel>\r	Channel (0 = all, 1..N)	*82 <Channel> <Low> <High> (single) *82 <Low1> <High1> ... (all)	Low/High Temp (4-digit HEX)	?82 2\r → *82 2 00FA 012C\r\n	Reads relay output temperature range.
RELAIS CONFIGURATION	84	?84 <Channel>\r	Channel (0 = all, 1..N)	*84 <Channel> <Config> (single) *84 <Config1> <Config2> ... (all)	Config (1-digit HEX)	?84 2\r → *84 2 1\r\n ?84 0\r → *84 1 7 3\r\n	Reads relay configuration.
RELAIS LOGIC	85	?85 <Relais>\r	Relais (0 = all, 1..N)	*85 <Relais> <Logic> <Bitmask> (single) *85 <Logic1> <Bitmask1> ... (all)	Logic/Bitmask (2-digit HEX)	?85 2\r → *85 2 07 02\r\n ?85 0\r → *85 0F 01 03 01 02 0F\r\n	Reads logic and bitmask channels for Relais.

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