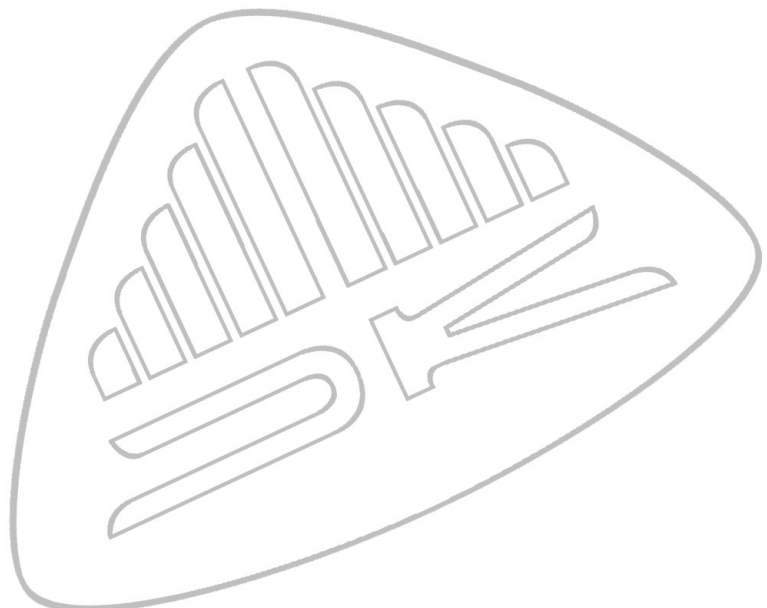


[Pin-out & Protocol]

Applies to the following models:

PM5639/92 & PM5639/94

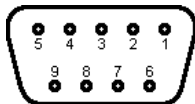


This section is only intended for software developers who wish to develop software to control the PM5639/92 & PM5639/94.

The sensor can be connected to any PC with a RS-232 port. (or use a USB to RS-232 converter)
The default baud rate is 4800 baud but can be changed. Please, note the the baud rate need to be 4800 if the hand-held display unit is used. The default set-up of the comport is 4800 baud, 8 data bit, 2 stop bit, no parity and no flow control.

Pin Configuration for PM5639/92 & PM5639/94:

9 Pin D-Sub:

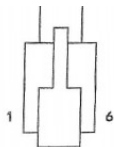


View from solder side of the 9 pin MALE D-Sub connector.

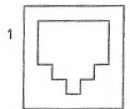
Signal Name.		Pin number.
RS232	RX	2
RS232	TX	3
Power Ground	GND	5
Power +VCC	5 volt DC.	9
	NC	1, 4, 6, 7 & 8

Pin Configuration for PM5639/90 & PM5639/91:

RJ11:



Cable part, male



Chassis part, female, outer view

Signal Name.		Pin number.	Colour.
Power Ground	GND	1,2	White, Yellow
RS232	TX	3	Green
RS232	RX	4	Red
Power +VCC	5 volt DC.	5,6	Black, Blue

Protocol:

Command description	Syntax	Remarks
Take measurement	TM	<p>Transmit one set of measurement data:</p> <p>Return format in XY mode:</p> <p>X,Y,Z<CR> where X, Y & Z are CIE 1931 XYZ-values</p> <p>Return format in MB mode:</p> <p>RGB*XX.XX*YY.YY*ZZ.ZZ*<CR><LF> or RGB*XXXX*YYYY*ZZZZ*<CR><LF> or RGB* 0* 0* 0*<CR><LF> where X, Y & Z are CIE 1931 XYZ-values</p> <p>Return format in MX mode:</p> <p>nX,nY,nZ,INT_TIME<CR></p> <p>where nX, nY & nZ are measured values directly from the sensor (Compensated for errors in the DC offset etc.) INT_TIME is a value between 2.5 and 25 and specifies the integration time in units of 2ms. (This integration time can also be obtained by issuing the command "F?")</p>
Measure continuously	MC	Transmit data continuously in present measuring mode. See command TM above for return formats.
Measure stop	MS	Stops transmission of data immediately.
Select CIE XYZ mode	XY	Select transmission of CIE 1931 XYZ values.
Select CIE XYZ mode*	MB	Select transmission of CIE 1931 XYZ values in Barco/Thoma output format.
Select sensor mode	MX	Select transmission of unmodified sensor output
Set integration time	SI n	<p>SI n specifies the number of measurements the sensor handles per second. The parameter n is expressed in units of 0.2ms where n = 250 gives app. 3 measurements/second, while n = 25 gives app. 10 measurements/second, (25 <= n <= 250)</p> <p>Default value is 250.</p> <p>To calculate the number of measurements/second the equation below can be used as a guideline:</p> $\text{measurements/second} = 1000 / (1.2 * n + 60)$
Get integration time	F?	<p>Return format:</p> <p>n<CR></p> <p>Get integration time gets the actual integration time in the sensor. The integration time is a value between 2.5 and 25, ie. The return value is specified in units of 2ms. (Note that this number is 10 times smaller than the value used to set the integration time with, see above)</p>

Command description	Syntax	Remarks
Identity request	I?	The ID-string of the sensor. Return format: CP,NO,KU,SW<CR> where CP is company name NO is the type number KU is the serial number SW is the software version eg. "PTV,400810979300,KU040001,02.1"
Memory address	MA n	Select the address for read/write of serial EEPROM data.
Read memory	RM	Read EEPROM-data, where address is specified by command MA . Address is auto incremented.
Store memory	SM	Write EEPROM-data, where address is specified by command MA . Address is auto incremented.
Read binary numbers	RN n	Reads n+1 bytes from EEPROM, in binary form, where address is specified by command MA. Address is auto incremented by n. The transmission is ended by sendign a checksum-byte. (low byte of addition of n bytes). For n: 0 < n <= 255.
Fix Gain	FG n	Select gain ie. one of 6 gain-areas to be used to "amplify" the signal from the sensor. (n: 0 <= n <= 5) Setting n = 255 will release the fixed gain area.
Measure DC offset	MO	Measure DC-offset in sensor. Values will always be calculated when this command is issued. The result however will only be stored if write protection is off. The 6 DC offset values will also be transmitted to the software controlling the sensor.
Show DC offset	SO	Shows the DC offset count to be subtracted in present gain. To get back to normal mode use command NR .
Show true sensor count	ST	Shows the direct count from the AD-converter. To get back to normal mode use command NR .
Normal mode	NR	Force the sensor in "normal mode" ie. MX-mode
Calculate Checksum	CS	Calculate the program checksum.
Set Baurate	SB n	Change baurate to n: 48 (4800 baud), 96 (9600 baud), 192 (19200 baud). Default 4800 baud.