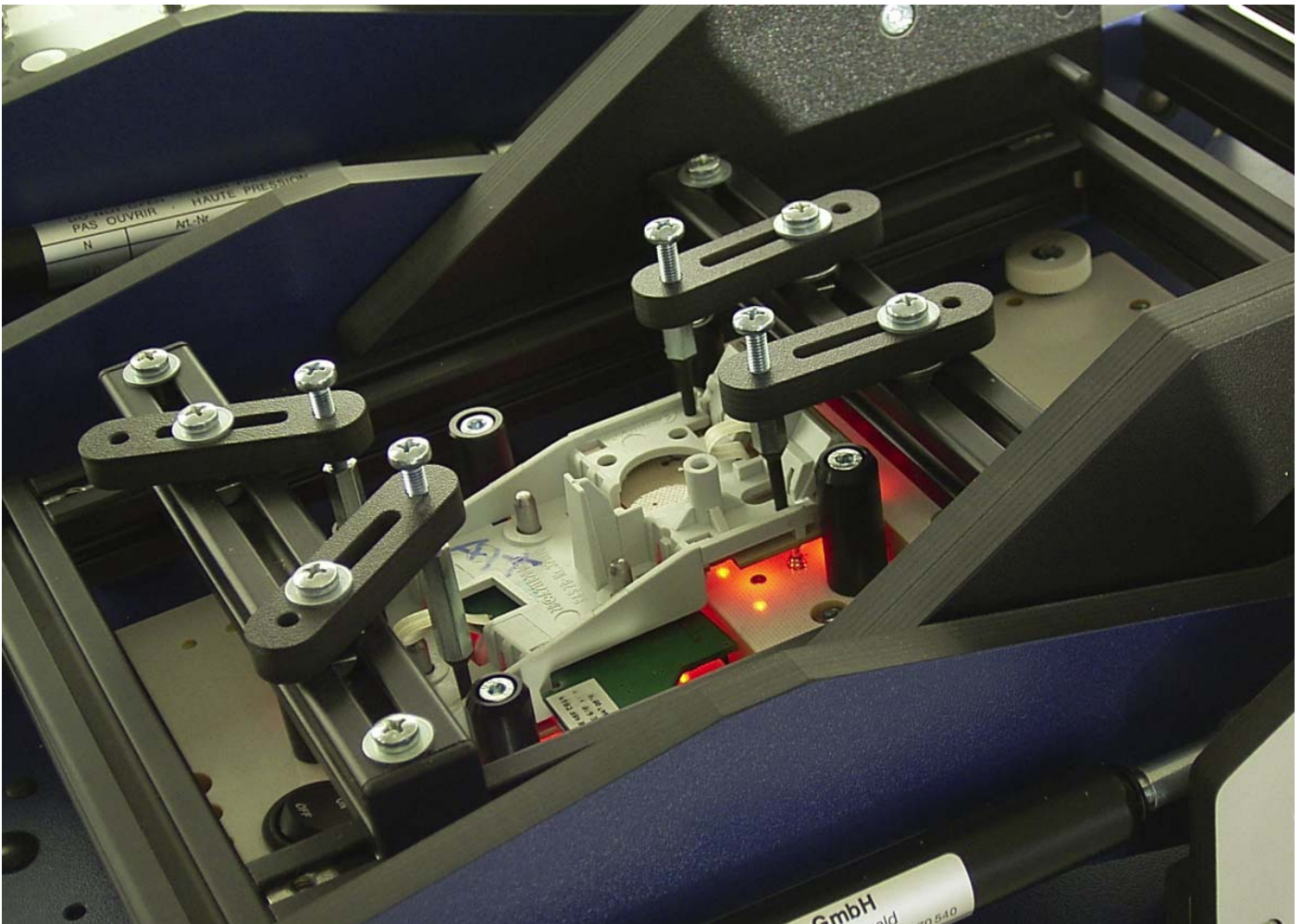




## **Brief instruction for the graphical programming language LabVIEW™ for the GPS Digital Color Analyser**



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## 1. Introduction

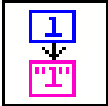
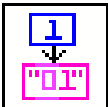

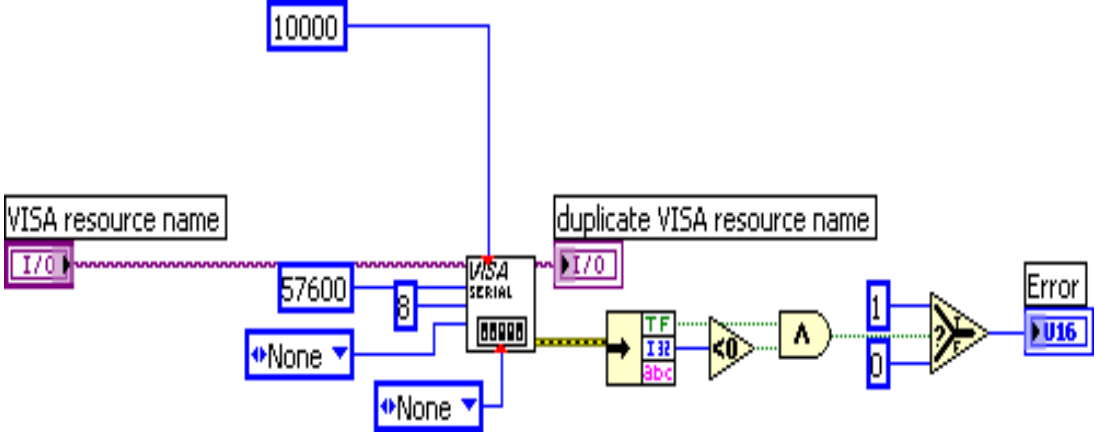
This brief introduction gives supports to programm the GPS Digital Color Analyser with LabVIEW™.

The programming is based on the manual for the Digital Analyser and its command list.

The communication process is activated by RS 232 and USB interface, the presetting of the Digital Color Analysers with the commands „capture“ and the read back of single captures like RGB values, Intensity, Hue, Saturation as well as the X-Y-coordinates of the chromaticity diagram with the commands „get“.

## 2. Subroutines

The subroutines „SUB-VIs“ are presented by its command structure.

<p>Num1NormString.vi</p> 	<p>Converts a 1 or 2 digits number into a 1 or 2 digits string.</p> <p>This is used with capture.vi and capture RGBI.vi to convert the inputted numbers for fibres and boards into strings.</p>
<p>Num2NormString.vi</p> 	<p>Converts a 1 or 2 digits number into a 2 decimal string.</p> <p>This is used with capture.vi to activate the averaging factor for „capturepwm“ with two figures.</p>
<p>opencomm.vi</p> 	<p>Provides the pre-adjustment of the Port with which the Digital Color Analyser is communicating.</p> <p>For the input the attached Comm-Port can be selected by using a VISA resource name.</p> <p>For checking purposes the activated Port and an error flag is provided (0= no error; 1=error).</p> <p>The baud rate for the Color Analyser should be set to 57600.</p> <p>The timeout is presetted to 10 sec (input in ms).</p> 

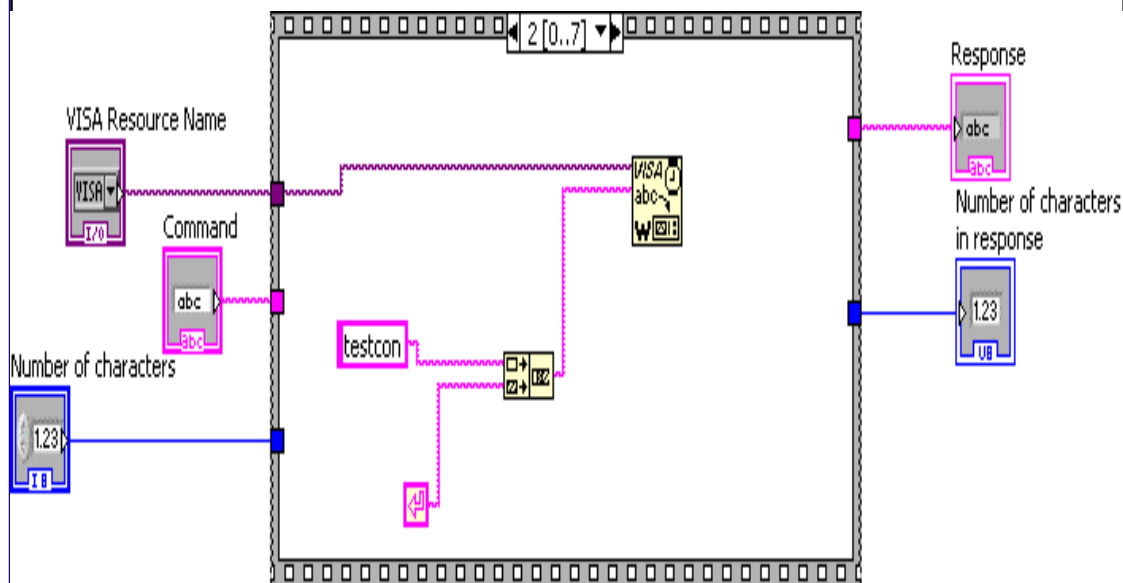
comm.vi



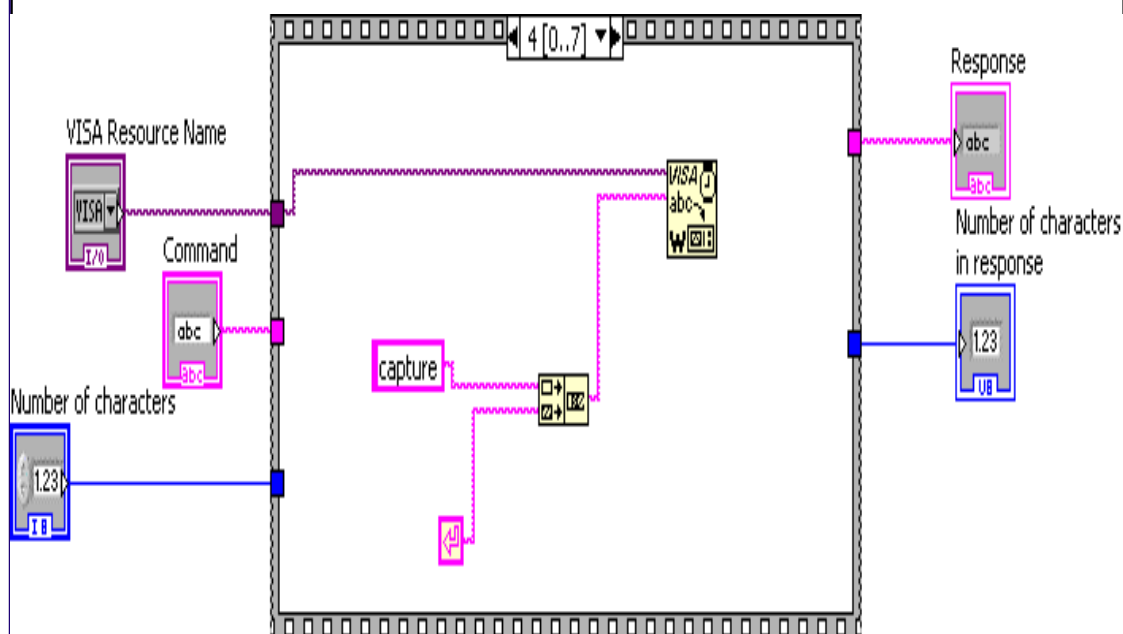
Sends commands of the LED Color Analyser command list.

Input: The port can be activated with VISA Resource name.  
 The command „testcon“ is sent for the connection test.  
 If only one board is attached the LED Analyser returns „OK“.  
 If two or several boards are attached the number of the boards also is shown , e.g. „2OK“.

**Important:** This command has to be sent as first command so that all connected boards can be identified.



If there is more than one board the command „capture“ has to be sent after the command „testcon“.  
 This authorizes the Analyser to capture and store the color and intensity of all connected boards simultaneously.





capture.vi



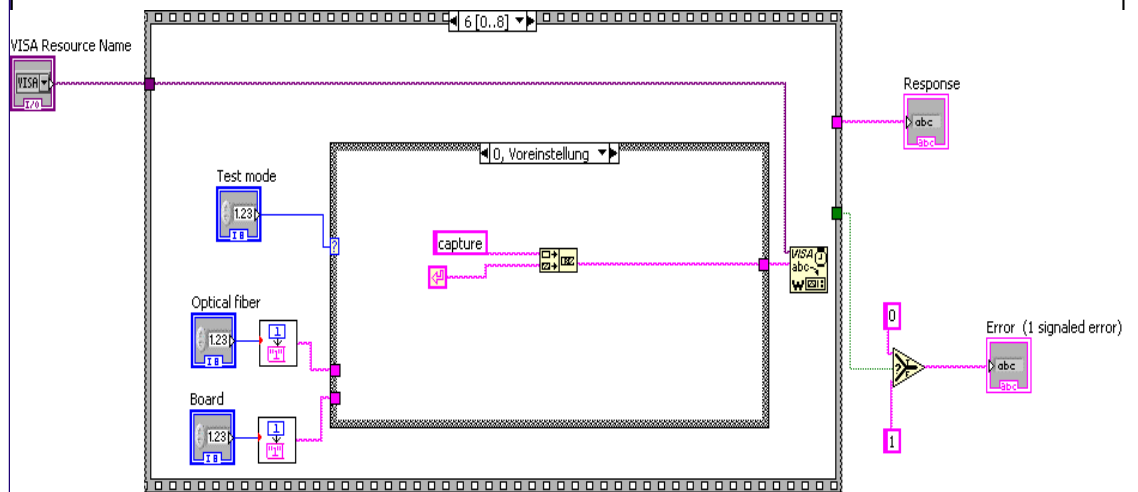
Used as presetting of the Analyser to get usable test results of different bright LEDs.

„LWL“ connects the five fibres of the GPS Color Analyser boards.

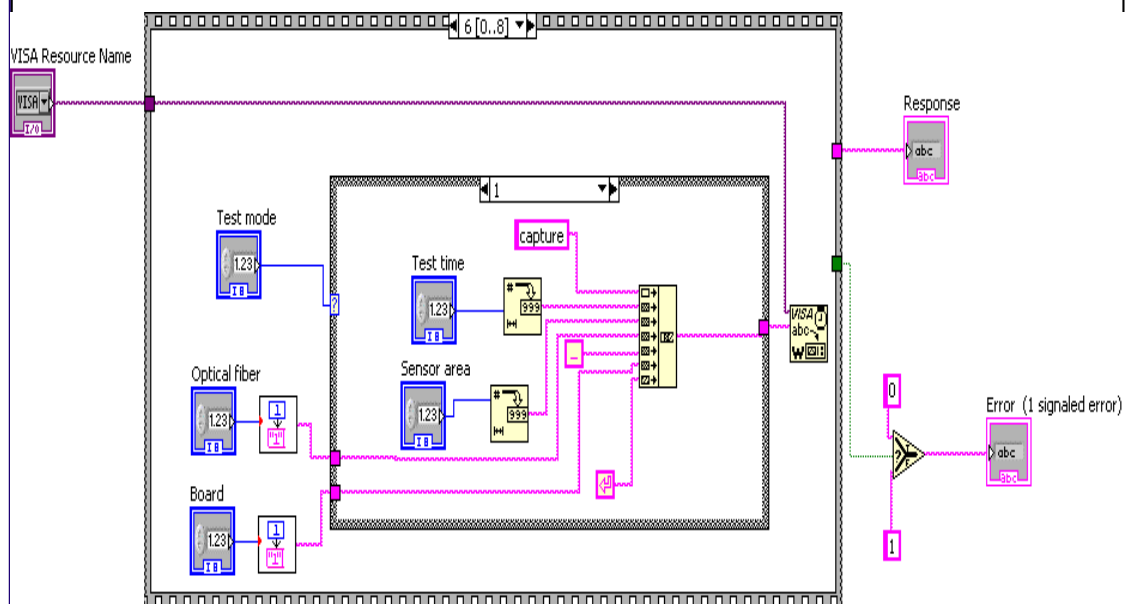
„Board“ selects the connected boards.

„Test Mode“ sets the capture to STANDARD, MANUAL and PWM (Pulse With Modulated) (0=Standard;1=Manual;2=PWM).

STANDARD takes the capture with the actual settings.



MANUAL allows to preset the test time (1=>600ms ...7=>2ms) and the sensor area (0=> 3x3; 1=> 9x9).

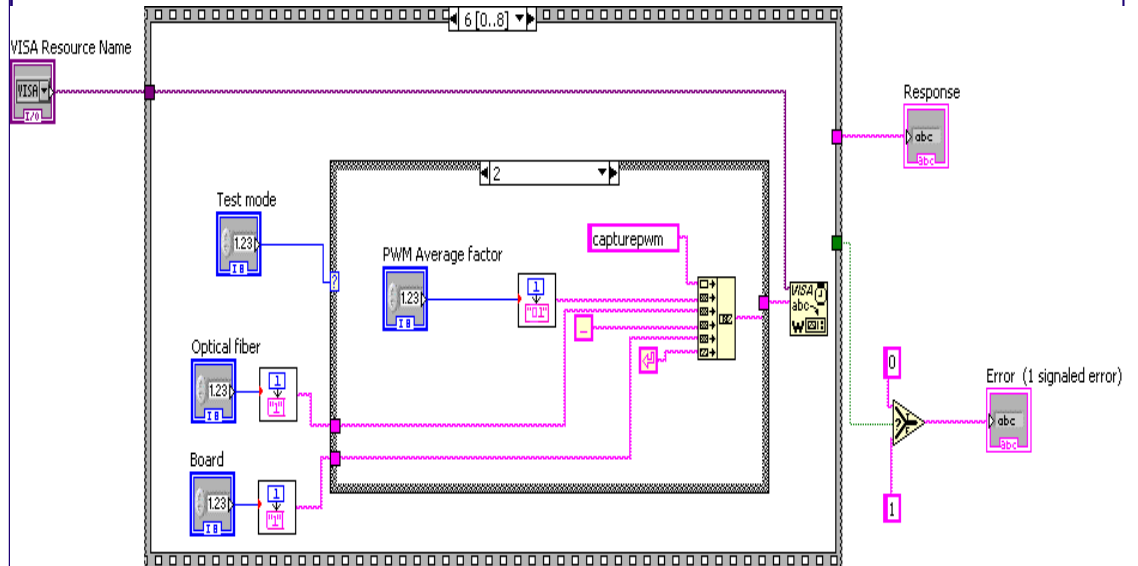


capture.vi



„PWM „ allows to capture pulsed LEDs , the averaging factor (0=5captures... 15=80 captures) defines the number of the captures.

**The higher the factor, the longer the capture time!**



At a high averaging factor (factor 15=> ca. 13 sec) the timeout of the opencomm.vi should be raised.



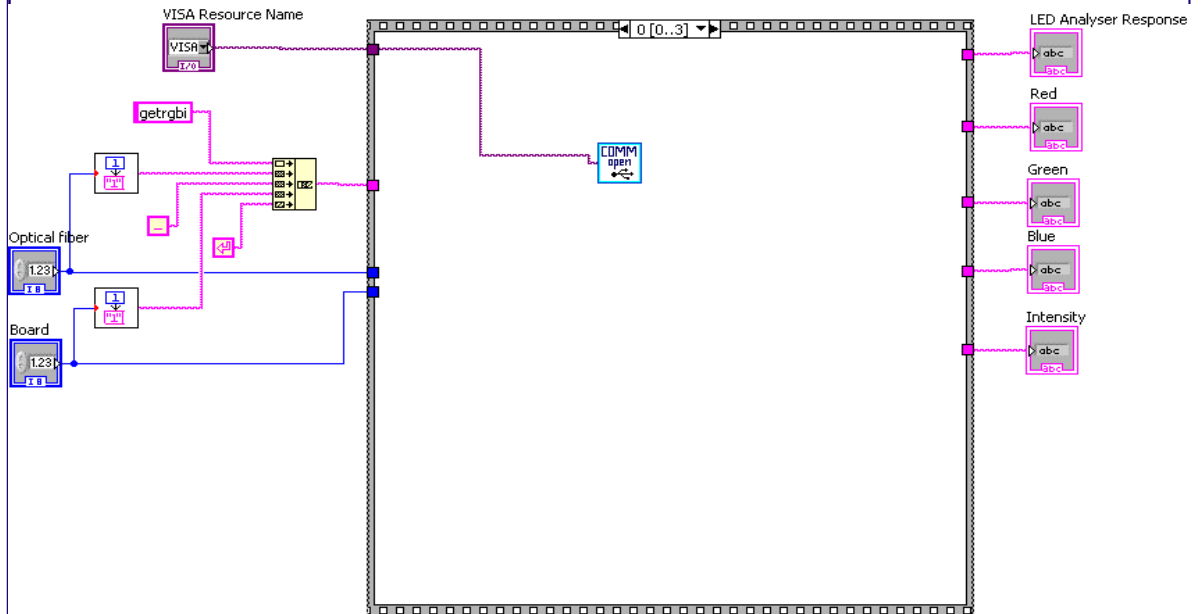
capture RGBI.vi



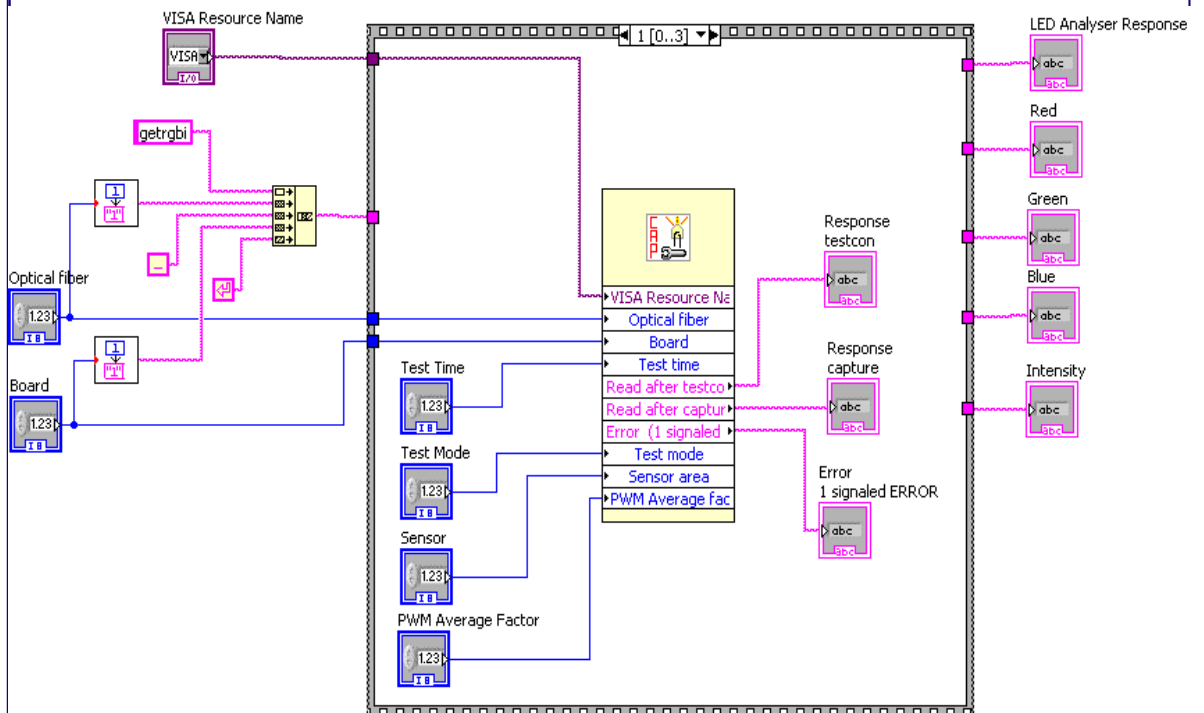
### 3. Reading the RGB values and Intensity

Reading the data of RED, GREEN, BLUE und INTENSITY of the fibre of the connected boards.

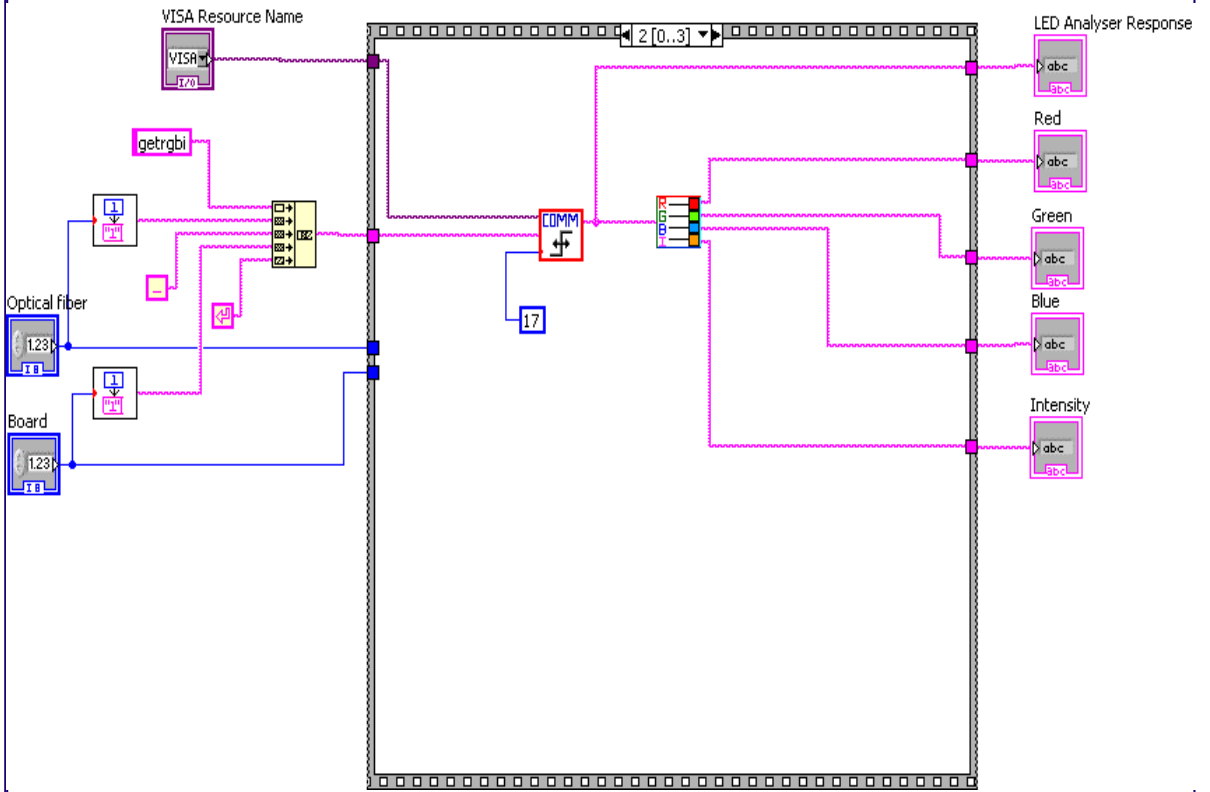
Communication with COMM-Interface.



„SUB-vi capture“ takes the presets.



„GetrgbI“ is sent with the presettings to the Color Analyser and is read out.



SplitRGBI.vi



Splits up the returned data of the Color Analyser into its sectors RED, GREEN, BLUE and Intensity.



capture HSI.vi

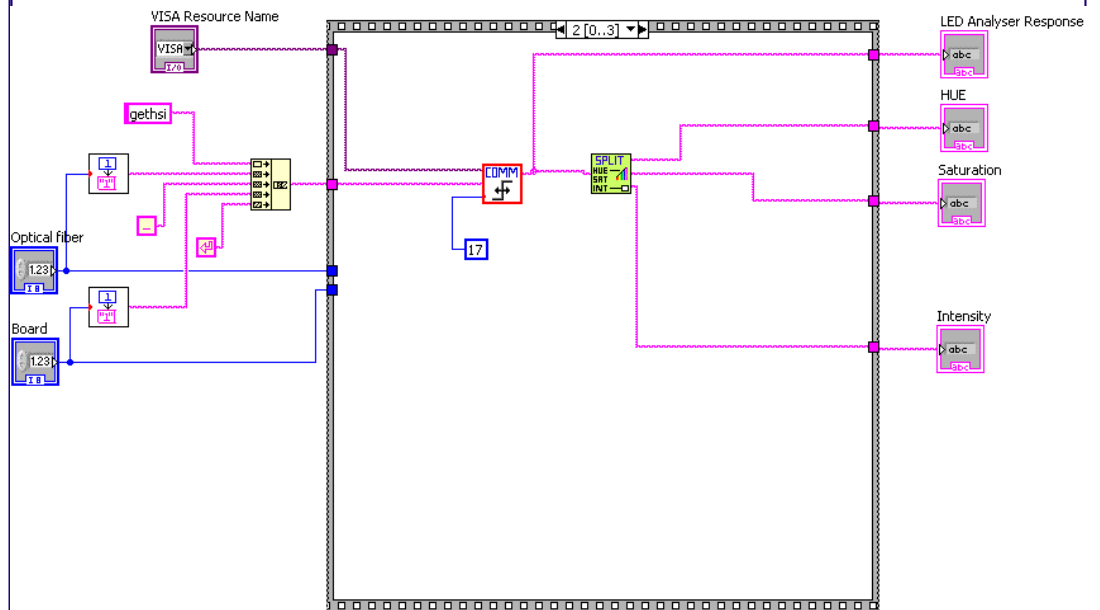


#### 4. Reading HUE, Saturation and Intensity values

Reading the data of HUE, SATURATION und INTENSITY of each fibre of the connected boards.

The communication process is activated by the COMM – interface, „SUB-vi Capture“does the presettings.

The command „gethsi“ gets the values from theColor Analyser which are shown in three displays.



splithuesatint.vi



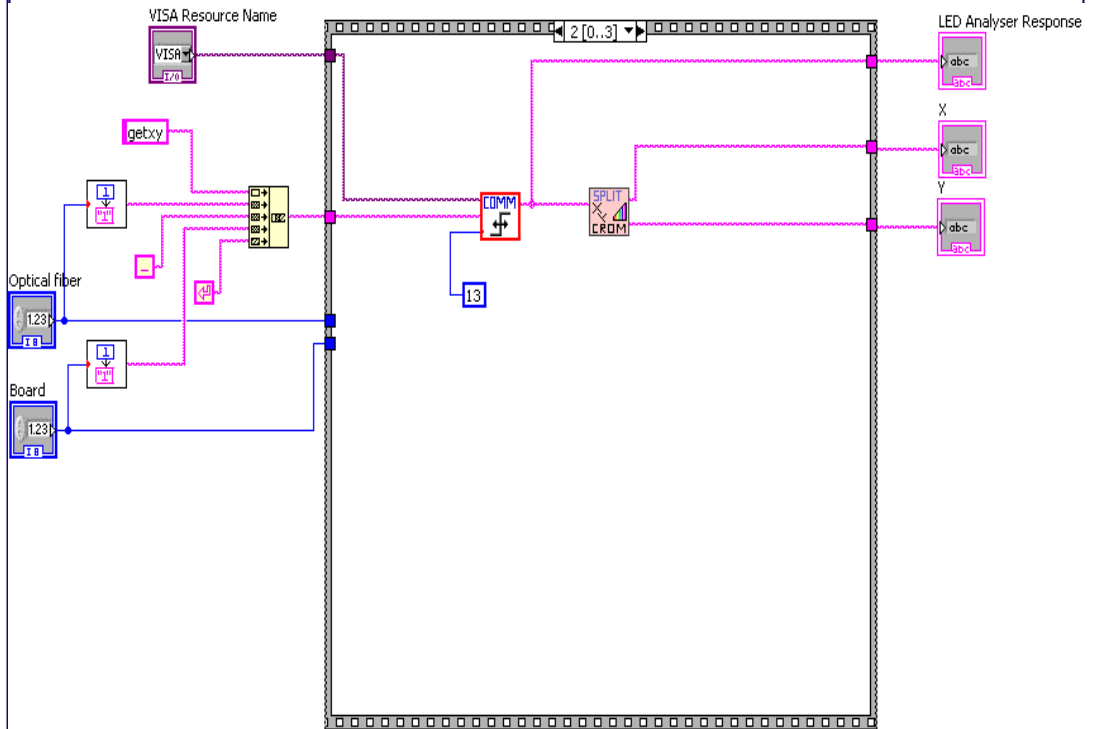
Splits up the values of HUE, SATURATION and INTENSITY into three displays.

capture XYchromaticity.vi

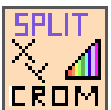


## 5. Reading the X - and Y - Chromaticity values

Reading the values of X - and Y - Chromaticity.  
The command „getxy“ gets the XY-values.  
These are shown in two displays.



splitXYchromaticity.vi



Splits up the X - and Y - Chromaticity values into two displays.



If you need further support for programming our Digital Color Analyser please give us a call or send an e-mail to [info@gps-prueftechnik.de](mailto:info@gps-prueftechnik.de).

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