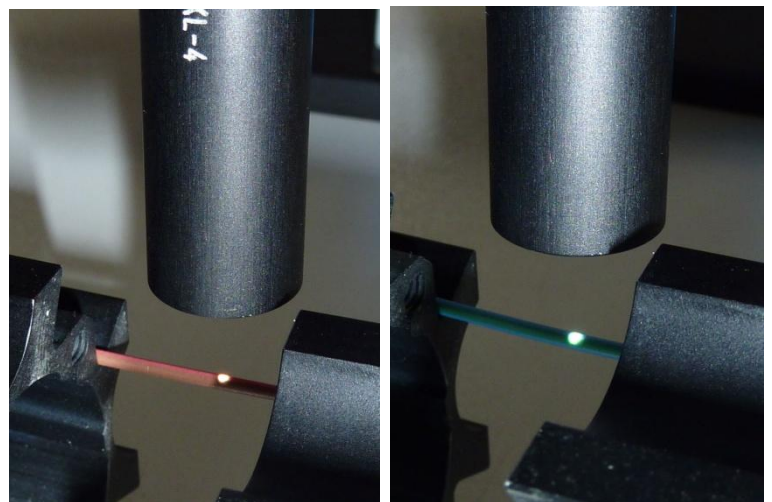
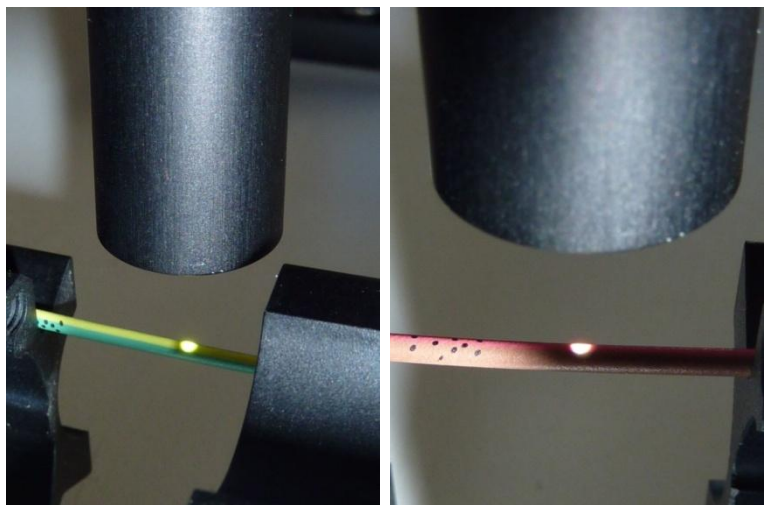
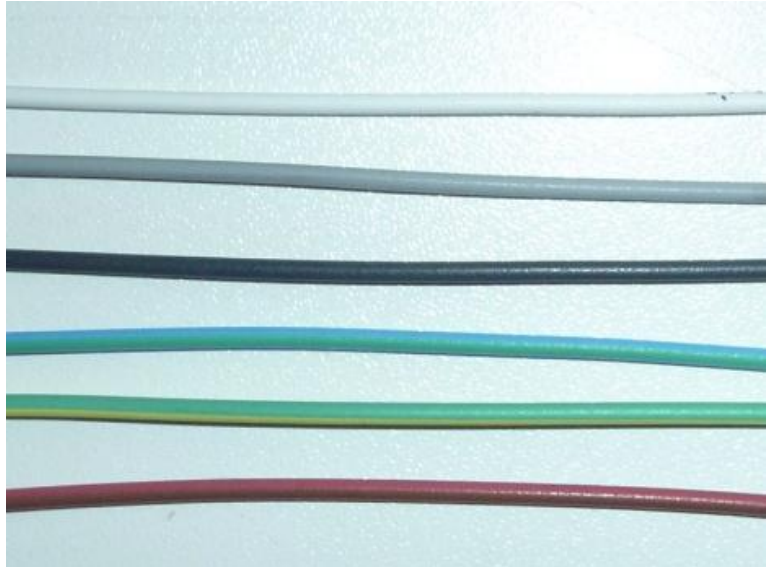




1. Differentiation between single-colored and two-colored cables

During the coiling process of cables it has to be checked, whether monochromatic or dichromatic cables will be wound. At this the cables will be transported with a speed of 15 m/s and the cable will be turned 360° in 0.5 seconds around the axis. This turn around its axis can be used for color control. The smallest diameter of the cables is \varnothing 1.35 mm and the biggest diameter is around \varnothing 3mm. To produce a two-colored cable, a single-colored cable is used and a line with a width of approximately 0.8mm will be painted onto the cable, hence a white light spot with a diameter of \varnothing 0.7mm is used for color control. The optical front end **KL-4**

in connection with an optical fiber type **R-S-A1.1-(1.5)-1200-67°** comes with a spot size of around 0.7 mm in diameter at a distance of 11 mm to the object. A color sensor type **SPECTRO-3-FIO-CL** is used, the basic color of the cable as well as the color of the paint must be taught. To consider this, a proper differentiation between single-colored and two-colored cables is possible, as shown in the screen shots. The screenshots shows the result of three color sensors before and after software calibration (reference: white cable). Nearly all of the effects (changing the fiber, changing the optical front end and even the color sensor can be compensated in using the software calibration mode).



non-calibrated

software calibrated

SPECTRO3-Scope V3.3
Sensor Instruments GmbH
Tel. ++49 (0) 8544-9719-0
http://www.sensorinstruments.de

CONNECT | PARA1 | PARA2 | TEACH TABLE

RECORDER | CALIBRATE | TABLE ATTRIBUTES

X	Y	INT	TOL
0	1494	1453	3265
1	1500	1404	3175
2	1536	1364	3489
3	1536	1354	1787
4	1494	1401	1637
5	1491	1450	1686
6	1478	1441	592
7	1484	1394	572
8	1523	1350	624
9	1160	1127	2122
10	1136	1202	1974
11	1133	1159	1800
12	1336	1588	1492
13	1336	1632	1520
14	1365	1555	1598
15	1724	1746	2940
16	1702	1837	2801
17	1730	1792	2745
18	1934	1266	851
19	1924	1317	887
20	1979	1194	906

TEACH DATA TO: No. | Inc: 20

TEACH MEAN VAL | TEACH REC VAL

APPLY FROM ALL | RESET TABLE

RAM | SEND | GO
EEPROM | FILE | GET | STOP

COMMUNICATION PORT: 30 | SPECTRO3 V3.3 | RT.KW35/10

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http://www.sensorinstruments.de

CONNECT | PARA1 | PARA2 | TEACH TABLE

RECORDER | CALIBRATE | TABLE ATTRIBUTES

X	Y	INT	TOL
0	1364	1363	3319
1	1365	1364	3335
2	1365	1365	3268
3	1344	1341	1796
4	1345	1341	1810
5	1339	1347	1813
6	1352	1350	684
7	1332	1321	612
8	1363	1341	639
9	1009	1120	1753
10	1014	1102	1781
11	1011	1111	1766
12	1223	1546	1601
13	1220	1536	1587
14	1221	1557	1562
15	1622	1781	2925
16	1635	1724	2668
17	1615	1778	2923
18	1787	1243	990
19	1778	1257	999
20	1791	1230	943

TEACH DATA TO: No. | Inc: 8

TEACH MEAN VAL | TEACH REC VAL

APPLY FROM ALL | RESET TABLE

RAM | SEND | GO
EEPROM | FILE | GET | STOP

COMMUNICATION PORT: 30 | SPECTRO3 V3.3 | RT.KW35/10

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CONNECT | PARA1 | PARA2 | TEACH TABLE

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CONNECT | PARA1 | PARA2 | TEACH TABLE

RECORDER | CALIBRATE | TABLE ATTRIBUTES

SET ROW COLORS | MANUALLY

SELECT ROW: 20 | ROW COLOR: [Red]

ASSIGN TO ROW | GET FROM FILE

SAVE TO FILE | SET AS STARTUP FILE

SPECIFICATION

- 0: 0541 white
- 1: 0542 white
- 2: 0540 white
- 3: 0540 gray
- 4: 0542 gray
- 5: 0541 gray
- 6: 0541 dark gray
- 7: 0542 dark gray
- 8: 0540 dark gray
- 9: 0540 blue
- 10: 0541 blue

TEACH DATA TO: No. | Inc: 20

TEACH MEAN VAL | TEACH REC VAL

APPLY FROM ALL | RESET TABLE

RAM | SEND | GO
EEPROM | FILE | GET | STOP

COMMUNICATION PORT: 30 | SPECTRO3 V3.3 | RT.KW35/10

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CONNECT | PARA1 | PARA2 | TEACH TABLE

RECORDER | CALIBRATE | TABLE ATTRIBUTES

SET ROW COLORS | MANUALLY

SELECT ROW: 20 | ROW COLOR: [Red]

ASSIGN TO ROW | GET FROM FILE

SAVE TO FILE | SET AS STARTUP FILE

SPECIFICATION

- 10: 0541 blue
- 11: 0542 blue
- 12: 0542 green
- 13: 0541 green
- 14: 0540 green
- 15: 0540 yellow
- 16: 0541 yellow
- 17: 0542 yellow
- 18: 0542 red
- 19: 0541 red
- 20: 0540 red

TEACH DATA TO: No. | Inc: 8

TEACH MEAN VAL | TEACH REC VAL

APPLY FROM ALL | RESET TABLE

RAM | SEND | GO
EEPROM | FILE | GET | STOP

COMMUNICATION PORT: 30 | SPECTRO3 V3.3 | RT.KW35/10

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CONNECT | PARA1 | PARA2 | TEACH TABLE

RECORDER | CALIBRATE | TABLE ATTRIBUTES

POWER MODE: STATIC

POWER (pm): 650

LED MODE: AC | DYNWIN HI: 3300

GAIN: AMPS | DYNWIN LO: 3200

AVERAGE: 64

INTEGRAL: 1

MAXCOOL-No.: 31

OUTMODE: BINARY

INTLIM: 0

EVALUATION MODE: BEST HIT

CALCULATION MODE: XYINT

EXTTEACH: OFF | TRIGGER: CONT

TEACH DATA TO: No. | Inc: 20

TEACH MEAN VAL | TEACH REC VAL

APPLY FROM ALL | RESET TABLE

RAM | SEND | GO
EEPROM | FILE | GET | STOP

COMMUNICATION PORT: 30 | SPECTRO3 V3.3 | RT.KW35/10

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COMMUNICATION PORT: 30 | SPECTRO3 V3.3 | RT.KW35/10