

KCD-ON420 Operation Manual

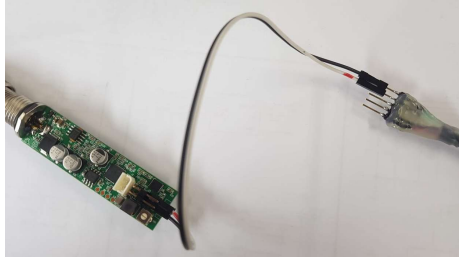
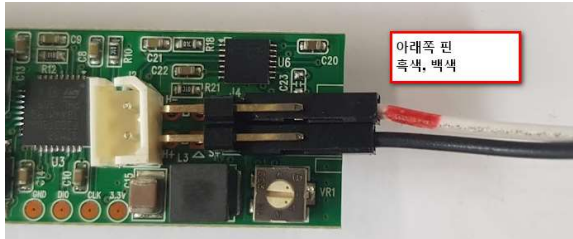
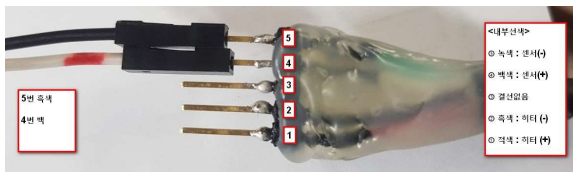


VER.A0
2023.10.23

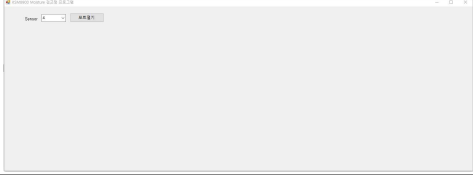
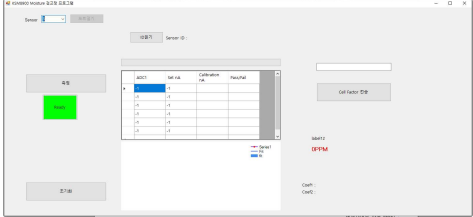


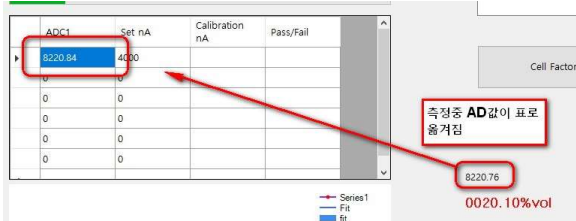



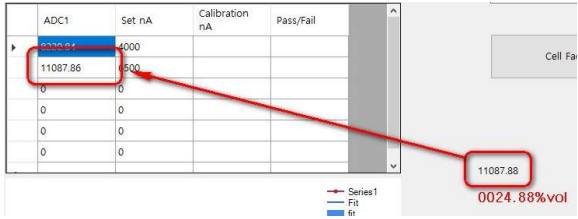

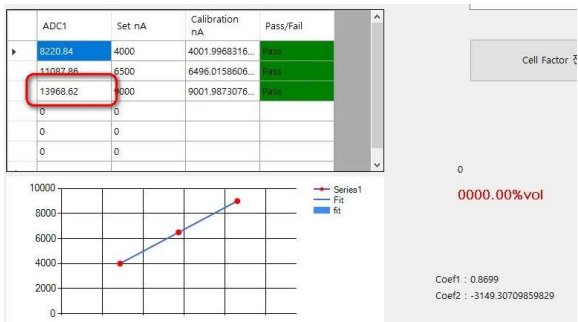
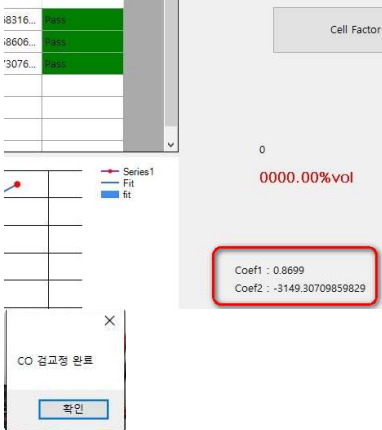
Specification

	contents	Remark
Power	Working power SMPS : 12.3VDC Recommended	
	RS485 communication: 38400bps Analog output : Current output 4~20mA (Option) Voltage output 0~5V	
Required Equipment	Downloader(ST-LINK) O2Cell calibration jig KCD-TK100 & PC	


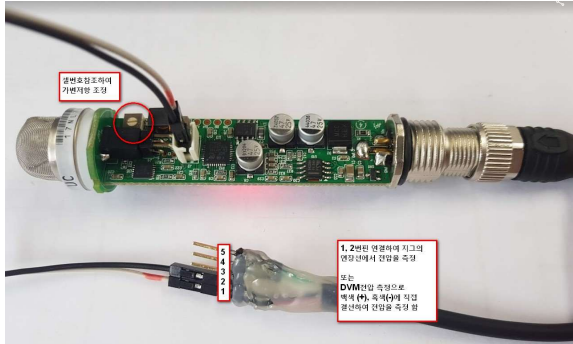
1. Board Calibration


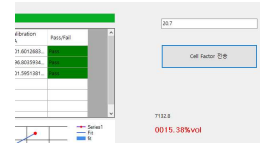
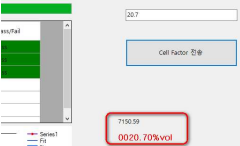
work detail	Picture	Precautions and Others
Wiring and Cell		
① Attaching the sensor connection wire	  	 <p>Current Calibration Jig</p>
② Power and communication line wiring		<p><KCD-HS series wiring same> Power 12~12.5VDC KCD-TK100 USBtoRS485 converter</p>

work detail	Picture	Precautions and Others
Cell correction program		
③ PC program		Open port
④ PC program		
⑤ 0uA calibarion	 <p>Switch 0uA select</p>  <p>Click Reset – Click Reset</p> 	0uA AD value : about 8192


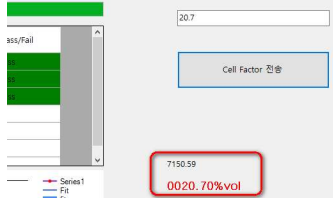
work detail	Picture	Precautions and Others
Cell correction program		
⑥ 50uA calibration	 <p>50uA select</p>  <p>The screenshot shows a table with columns: ADC1, Set nA, Calibration nA, and Pass/Fail. The 'ADC1' column has values 11087.86, 0, 0, 0, 0. The 'Set nA' column has values 4000, 500, 0, 0, 0. The 'Calibration nA' column has values 4000, 500, 0, 0, 0. The 'Pass/Fail' column has values 'Pass', 'Fail', 'Pass', 'Pass', 'Pass'. A red box highlights the value 11087.86 in the 'ADC1' column. A red arrow points from this box to a red box containing the value 11087.88. Below the table, there is a legend for 'Series1' (red line with dots), 'Fit' (blue line), and 'fit' (blue line). To the right of the table, there is a 'Cell Factor' button and a display showing '0024.88%vol'.</p>	50uA AD value : about 11000
⑦ 100uA calibration	 <p>100uA선택</p>  <p>The screenshot shows a table with columns: ADC1, Set nA, Calibration nA, and Pass/Fail. The 'ADC1' column has values 9220.84, 11087.86, 13968.62, 0, 0. The 'Set nA' column has values 4000, 500, 1000, 0, 0. The 'Calibration nA' column has values 4001.9958316..., 6496.0158606..., 9001.9873076..., 0, 0. The 'Pass/Fail' column has values 'Pass', 'Pass', 'Pass', 'Pass', 'Pass'. A red box highlights the value 13968.62 in the 'ADC1' column. Below the table, there is a graph showing 'Series1' (red line with dots), 'Fit' (blue line), and 'fit' (blue line). To the right of the table, there is a 'Cell Factor' button and a display showing '0000.00%vol'. Below the display, there are coefficients: 'Coef1 : 0.8699' and 'Coef2 : -3149.30709859829'.</p>	100uA AD value : about 14000
⑧ Calibration completed	 <p>The screenshot shows a table with columns: ADC1, Set nA, Calibration nA, and Pass/Fail. The 'ADC1' column has values 8316..., 8606..., 3076..., 0, 0. The 'Set nA' column has values 4000, 500, 1000, 0, 0. The 'Calibration nA' column has values 4001.9958316..., 6496.0158606..., 9001.9873076..., 0, 0. The 'Pass/Fail' column has values 'Pass', 'Pass', 'Pass', 'Pass', 'Pass'. A red box highlights the value 8316... in the 'ADC1' column. Below the table, there is a legend for 'Series1' (red line with dots), 'Fit' (blue line), and 'fit' (blue line). To the right of the table, there is a 'Cell Factor' button and a display showing '0000.00%vol'. Below the display, there are coefficients: 'Coef1 : 0.8699' and 'Coef2 : -3149.30709859829'. At the bottom left, there is a small window titled 'CO 감도 보정 완료' (CO Sensitivity Calibration Complete) with a '확인' (Check) button.</p>	<p>Coef1: 0.8699 Coef2 : -3149.3070</p> <p>After the calibration value is transmitted to the sensor,</p> <p>the Calibration Complete button appears in a new window.</p>

1. Adjust the O2 cell heater voltage

work detail	Picture	Precautions and Others																																								
Heater voltage adjustment																																										
① Cell S/N check		★ The corrected main and sensor pcb must be reassembled with the original ones (not mixed). Cell no. 17NL61																																								
② Refer to heater voltage	Find the heater voltage from the manufacturer's chart. <table border="1" data-bbox="430 804 879 1032"><tr><td>852</td><td>17NL54</td><td>2.202</td><td>68.53</td></tr><tr><td>853</td><td>17NL55</td><td>2.229</td><td>70.27</td></tr><tr><td>854</td><td>17NL56</td><td>2.227</td><td>65.69</td></tr><tr><td>855</td><td>17NL57</td><td>2.192</td><td>67.64</td></tr><tr><td>856</td><td>17NL58</td><td>2.246</td><td>69.01</td></tr><tr><td>857</td><td>17NL59</td><td>2.186</td><td>66.40</td></tr><tr><td>858</td><td>17NL60</td><td>2.232</td><td>67.57</td></tr><tr><td>859</td><td>17NL61</td><td>2.198</td><td>66.21</td></tr><tr><td>860</td><td>17NL62</td><td>2.261</td><td>69.86</td></tr><tr><td>861</td><td>17NL63</td><td>2.203</td><td>64.31</td></tr></table>	852	17NL54	2.202	68.53	853	17NL55	2.229	70.27	854	17NL56	2.227	65.69	855	17NL57	2.192	67.64	856	17NL58	2.246	69.01	857	17NL59	2.186	66.40	858	17NL60	2.232	67.57	859	17NL61	2.198	66.21	860	17NL62	2.261	69.86	861	17NL63	2.203	64.31	Heater adjustment voltage 2.198V After cell assembly, it cannot be confirmed, so it needs to be written on the pcb
852	17NL54	2.202	68.53																																							
853	17NL55	2.229	70.27																																							
854	17NL56	2.227	65.69																																							
855	17NL57	2.192	67.64																																							
856	17NL58	2.246	69.01																																							
857	17NL59	2.186	66.40																																							
858	17NL60	2.232	67.57																																							
859	17NL61	2.198	66.21																																							
860	17NL62	2.261	69.86																																							
861	17NL63	2.203	64.31																																							
③ Attaching the cell pcb		★ The corrected main and sensor pcb must be reassembled with the original ones (not mixed).																																								

work detail	Picture	Precautions and Others
Heater voltage adjustment		
④ Jig connection		Power terminal connection Communication terminal connection Calibration terminal connection DVM connection
⑤ Heater voltage adjustment and fixation	After adjusting the VR, apply locking paint.	VR error : ± 0.001
⑥ Cell correction		After entering 20.7 in atmosphere, click on Cell Factor Transfer.
⑦ Temporary correction		Shipment correction must be performed

2. Shipping correction and inspection

work detail	Picture	Precautions and Others
Shipment calibration and signal output inspection		
① Wiring		
② Shipment calibration		After entering 20.7, send cell factor
③ Check control output (1)	Not applicable	
Not applicableCheck control output (2)	Not applicable	
④ Check current output [R27 0R-basic]	<p>DVM current mA [4~20mA signal ouput]</p> $25\%/16\text{mA} \times 20.7\% = 13.248\text{mA}$ $13.248\text{mA} + 4\text{mA} = 17.248\text{mA}$ <p>20.7%에서 about 17.248mA</p>	<p>IOUT Check output</p> <p>DVM measuring current</p> <p>Power cord white(+)</p> <p>Power cord black (-)</p>
⑤ Check voltage output [R26 0R When attached]	<p>DVM voltage [0~5V signal ouput]</p> $25\%/5\text{V} \times 20.7\% = 4.14\text{V}$ <p>20.7%에서 about 4.14V</p>	<p>VOUT Check output</p> <p>DVM measuring current</p> <p>Power cord white(+)</p> <p>Power cord black (-)</p>