INTERFACE
Lode Ergometer – Nihon Kohden 9320K
V2.00

STEP I **Setting up the hardware**

Read ***always*** first the usermanual of the ergometer and ECG monitor.

1. Switch off the ergometer and the system.
2. You will need the RS-232 cable (part no. 930730) to establish communication between the Lode ergometer and your system. The lay-out of the cable is as follows:

Nihon Kohden ECG-9320-K D-sub 9 pin Male			Ergometer D-sub 9 pin Male	
FG	1			
TxD	2	———	2	TxD
RxD	3	———	3	RxD
RTS	4			
CTS	5			
DSR	6			
SG	7	———	5	GND
HS	8			
DTR	9			

3. Connect the RS232 cable to the ergometer. Note that the connector marked for ergometers side is put here.
4. Connect the RS232 cable to the System. . Note that the connector marked for ECG system side is put here.

STEP II **Setting up the ergometer**

5. Switch on the ergometer.
6. Select the Ergoline P10 protocol on the ergometer:
    a. Select, by using the up/down keys, the menu "SYSTEM PARAMETER" and press enter
    b. Select, by using the up/down keys, the menu "SETTINGS" and press enter
    c. Select, by using the up/down keys, the menu "RS232 PROTOCOL" and press enter
    d. Select, by using the up/down keys, the "ERGOLINE P10" and press enter.
    e. Save the selected RS232 protocol.

7. For controlling the ergometer by the Nihon Kohden 9320K the ergometer should be set in "TERMINAL" mode. The "TERMINAL" mode should be selected as follows. After switching the ergometer on press enter, and select "TERMINAL" and press enter again

   NOTE: You can also let the ergometer startup in "TERMINAL" mode every time you switch on the ergometer, by using the default start menu. To set up the ergometer for starting up in "TERMINAL" mode proceed as follows:
   - Switch on the ergometer and press enter.
   - You will be in the "MAINMENU"
   - Select, by using the up/down keys, the menu "SYSTEM PARAMETER" and press enter
   - Select, by using the up/down keys, the menu "SETTINGS" and press enter
   - Press enter to confirm the menu "DEFAULTSTARTMENU"
   - Select "TERMINAL " and press enter
   - You will be asked to save the changes confirm with "YES"
   - If you switch off the ergometer it will start-up in the "TERMINAL" mode every time when the ergometer is switched on again.

8. The Lode ergometer is now ready for external control

STEP III Setting up the Nihon Kohden 9320K

9. Switch on the line voltage with the main switch at the back side of the NK ECG-9320K. The AC light at the frontpanel lights up.
10. Switch on the NK ECG-9320K with the on key at the frontside NK ECG-9320K
11. You can print the ergometer settings as follows.
12. Press "Menu"
13. Press "System Test"
14. Press "Ergometer test"
15. Select "Print control program version"
16. For setting the correct bautrate you must proceed as follows:
17. Press "Menu"
18. Press "Presettings"
19. Press "Modem Settings"
20. Press "Baudrate"
21. Select a baudrate of "4800 baud"
22. Press "direct connection with modem"
23. Confirm with "OK"
24. NK ECG-9320K settings for connect with the ergometer
25. Press "Menu"
26. Press "system settings"
27. Press "settings system setup" an extra window will open.

28. Select EMG-filter on
29. Select stress test system on
30. Select as stresstesting device Ergoline 800/900
31. Select Auto NIBP monitor on
32. Select Type auto NIBP device In Ergoline ER800/900
33. Confirm the above steps with “OK”
34. Select Stresstesting device
35. Press “Menu”
36. Press “Select stresstesting device”
37. Select “Ergometer”
38. Start a stress test.
39. Press “Menu”
40. Press “Select program”
41. Press “Stress test”
42. An extra window opens, in this window you can enter Testperson data
43. Please do enter the testperson data in here.
44. Press Ergometer as stresstesting device (selectable from menu window)
45. Press ON for stresstesting device connection in the system settings
46. Startup setting from the system setup window.
47. Press Ergoline 800/900 for stresstesting device
48. Startup setting from the system window
49. Start up settings at the system setup window
50. Now the system is ready for use.

Restart the ergometer and ECG device and then your system is ready to be used.

Remarks:

- The installation procedures of the Lode ergometers Corival, Angio and Excalibur (Sport) are all the same. The connection of the cables may be on slightly different places.

For questions and comments, you can contact the Lode service department by e-mail at service@lode.nl or by telephone at +31 50 5712811.

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