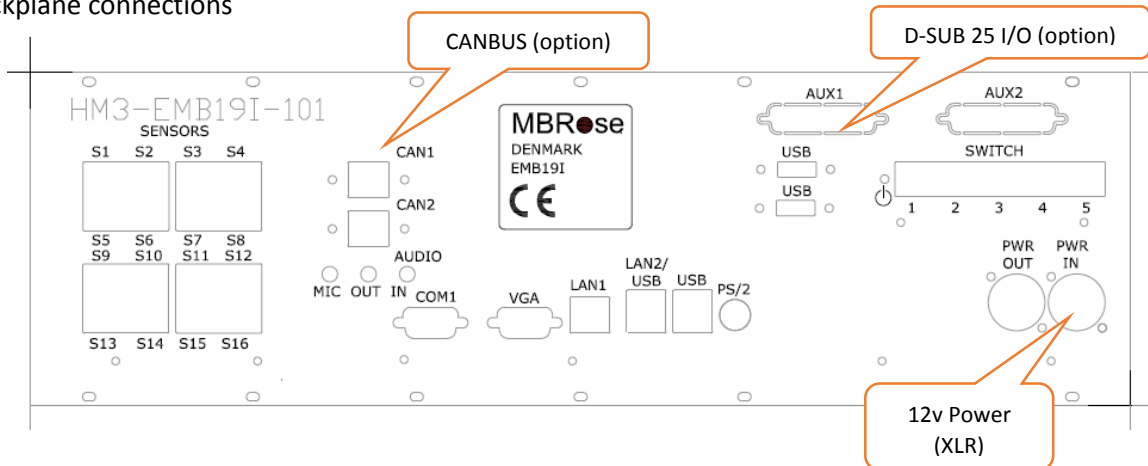# EMB19I Embedded Computer with IO-Connections

HM03EMB hardware configuration

- Main Board
    - IEI NANO-PV-D5251-R10 with 2Gb RAM
    - 120 Gb SSD HD (KINGSTON SSDNOW V300 120GB SATA SSD MLC)
    - Link to vendors website:
        - http://www.ieiworld.com/product_groups/industrial/content.aspx?gid=00001000010000000001&cid=09050664803021477609&id=0A263664535542181625#.U4hZ8_mSy4B

    - 4 COMPORTS (one on back plane)
    - 2 USB direct on NANO mainboard
    - 2 USB **external** connectors
    - Sound **external** connectors

- IO-Boards – PCI-104 modules
    - MOXA CB PC/104-Plus – 8 RS-232 ports
        - http://www.moxa.com/product/CB-108.htm
    - MOXA CB PC/104-Plus – 8 RS-232 ports
    - ADVANTECHPCM-3730I – 32 Channel Isolated Digital I/O
        - http://www.advantech.com/products/1-2MLK6U/PCM-3730I/mod_E33031BC-2A5A-4DEA-8E33-0646E1C1A587.aspx
    - Optional: ICPDAS PCM-CAN200-D, 2 Channel CANBUS (not standard)
        - http://www.icpdas.com/root/product/solutions/industrial_communication/fieldbus/can_bus/communication_board/pcm-can200.html
    - Optional: Moxa PM-1056 PCI-104, 4 channel video capture card (not standard)
        -
- External IO-Connections
    - 5 Ethernet, D-LINK DGS-105
    - 8 RS-232 with 12 volt and 2 Sensor Input (RJ-45 blue cables)
    - 8 RS-232 with 12 volt (RJ-45 blue cables)
    - Optional: 2 CANBUS with power – (RJ-45 green cables)

- Power
    - Standard 12 volt min. 2A

- Miscellaneous
    - SSD disk mount

- Backplane connections

- 19" cabinet front

  o LED 1 blue = 12v
  o LED 2 green
    o ON = EMB-running
    o FAST FLASH = PAUSE
    o OFF = Embedded not running
  o LED 3 red on front - ERROR STATUS:
    o OFF=ALL OK
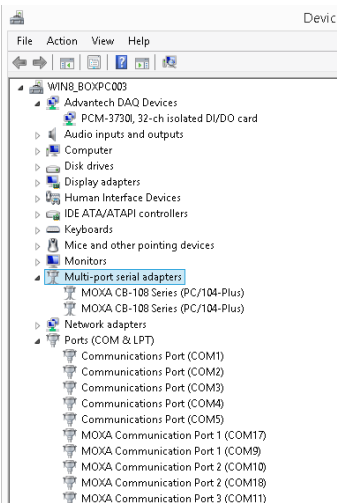   o FAST FLASH = Error

19" cabinet back side

Software installation

Operation system: Windows Embedded 8.1 Industry Enterprise (32BIT)

- Ethernet connections: FIXED IP or DHCP
- Computer name: WIN8_BOXPCxxx
- Default user: BoxPCUser
- Password: "blank"

Standard image includes following device drivers and applications

- MOXA CB PC/104-Plus – device driver
- ADVANTECHPCM-3730I – device driver
- Aten USB to RS-232 – device driver
- ISMM V2.0 – device driver and system utility
- AED-Panel32_v362 – HBM Load cell utility
- Firebird 2.5.x 32 bit

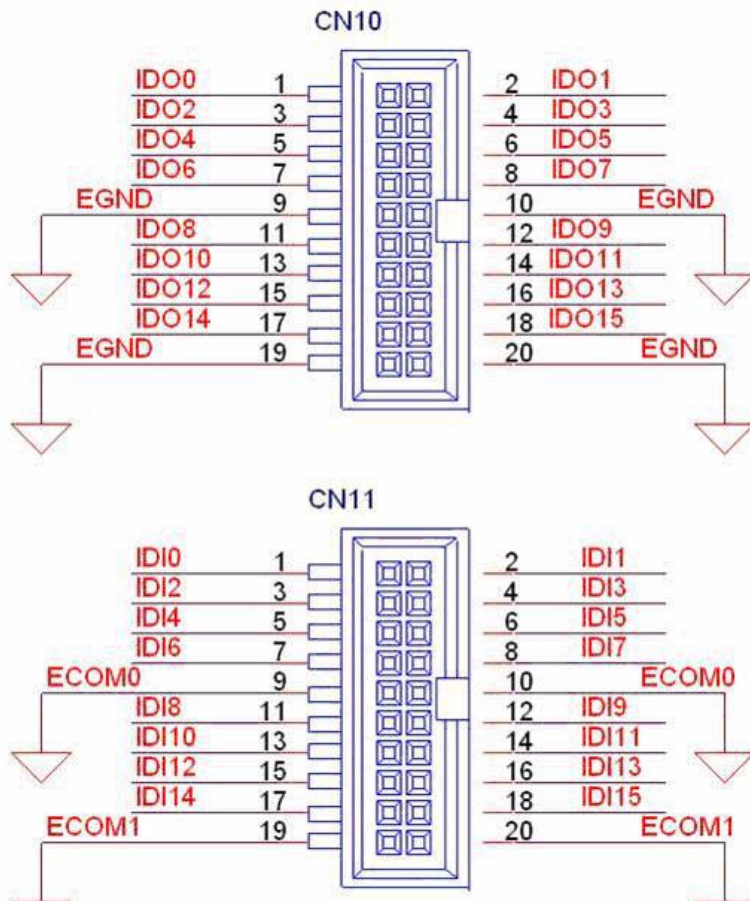WIN8_BOXPCxxx, Device driver overview.   Basic information

IO connections

EMB-IO

- 8 INPUT Standard configuration PNP (Optional NPN)
- 3 OUTPUT Standard open collector – sink 2A

ADVANTECHPCM-3730I, 32 Channel Isolated Digital I/O

- INPUT: 16 opto isolated
- OUTPUT: 16 opto isolated

HM-3 Connection

Sensor connection overview

Standard configuration with 2 MOXA CB PC/104-Plus - each 8 comports connected to backplane with RJ-45 connectors. Digital inputs connected to RJ-45 1-8.

Tracking connection

MOXA CB PC/104-Plus Card #/Com port #	ADVANTECH PCM-3730I Digital input	Connection Section #	#RJ-45 Connector	Sensor Name	Comments
1/COM9	IDI0, IDI 1	1	S5	TP1	Tracking Point
1/COM10	IDI 2, IDI 3	1	S6	TP2	-
1/COM11	IDI 4, IDI 5	1	S7	JP1	Jump Hole
1/COM12	IDI 6, IDI 7	1	S8	JP2	-
1/COM13	IDI 8, IDI 9	1	S1	BW1/RFID	RFID Reader
1/COM14	IDI 10, IDI 11	1	S2	BW1/WEIGH	Body Weight, balance
1/COM15	IDI 12, IDI 13	1	S3	BW2/RFID	RFID Reader
1/COM16	IDI 14, IDI 15	1	S4	BW2/WEIGH	Body Weight, balance
2/COM17	N/A	2	S13	Not used	
2/COM18	N/A	2	S14	Not used	
2/COM19	N/A	2	S15	Not used	
2/COM20	N/A	2	S16	Not used	
2/COM21	N/A	2	S9	Not used	
2/COM22	N/A	2	S10	Not used	
2/COM23	N/A	2	S11	Not used	
2/COM24	N/A	2	S12	Not used	

Output to LED front on EMB-cabinet

FRONT Panel LED, Text	Connect	Digital output	Comments
POWER, blue	+12 volt direct	N/A	
STATUS, green	PCM-3730I, OUTPUT 0	IDO0	INACTIVE, READY, ACTIVE, PAUSE
ERROR, red	PCM-3730I, OUTPUT 1	IDO1	FLASHING = FATAL ERROR

Address

Card	Address	Switch and Settings
PCM-3730I	0	SW2 / 0000
CB-108	1	C1/ 1
CB-108	2	C1/ 2

Example – 8 stations, each with BW & RFID connected to one EMB-Computer.

MOXA CB PC/104-Plus Card #/Com port #	ADVANTECH PCM-3730I Digital input	Connection Section #	#RJ-45 Connector	Sensor Name	Comments
1/COM9	IDI0, IDI 1	1	S5	BW1	Body Weight, (balance)
1/COM10	IDI 2, IDI 3	1	S6	RFID1	RFID Reader
1/COM11	IDI 4, IDI 5	1	S7	BW2	Body Weight, (balance)
1/COM12	IDI 6, IDI 7	1	S8	RFID2	RFID Reader
1/COM13	IDI 8, IDI 9	1	S1	BW3	Body Weight, (balance)
1/COM14	IDI 10, IDI 11	1	S2	RFID3	RFID Reader
1/COM15	IDI 12, IDI 13	1	S3	BW4	Body Weight, (balance)
1/COM16	IDI 14, IDI 15	1	S4	RFID4	RFID Reader
2/COM17	N/A	2	S13	BW5	Body Weight, (balance)
2/COM18	N/A	2	S14	RFID5	RFID Reader
2/COM19	N/A	2	S15	BW6	Body Weight, (balance)
2/COM20	N/A	2	S16	RFI6	RFID Reader
2/COM21	N/A	2	S9	BW7	Body Weight, (balance)
2/COM22	N/A	2	S10	RFID7	RFID Reader
2/COM23	N/A	2	S11	BW8	Body Weight, (balance)
2/COM24	N/A	2	S12	RFID8	RFID Reader

Internal Connection

Mainboard and EMBIO

Description	EMBIO	NANO D5251-R10
Power 5V and GND	J56	Com 3, pin 1-2
Power 12V and GND	J56	CPU12V, pin 1-3
2 mm connector 2 x 5 pol, Parallel a	J1, pin 1-10	LTP1, pin 1-10
2 mm connector 2 x 5 pol, Parallel b	J1, pin 11-20	LTP1, pin 11-20
2 mm connector 2 x 5 pol, Winbond I/O	J2, pin 3-10	DIO1, pin 3-10
2 mm connector 2 x 5 pol, Com 2	J20	Com 2
2 mm connector 2 x 5 pol, Com 3	J23	Com 3, pin 1-10
2 mm connector 2 x 5 pol, Com 4	J26	Com 4
SOUND/MIC		AUDIO1
USB		USB1