

Package content

References: _____

Master module firmware version: _____

Slave module firmware version: _____

Accessories: _____

Customer feedbacks

We would be grateful if you could take the time to fill the online 'customer feedback' form.
Please connect to: <http://web08-coval.coval.com/quiz/> (5 minutes needed).

Thanks for your time and help.



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LEMCOM – CANopen® Quick start guide

This guide provides first-time users with information on wiring the different modules of a CANopen® LEMCOM bank and on setting-up the LEMCOM.

Wiring instructions

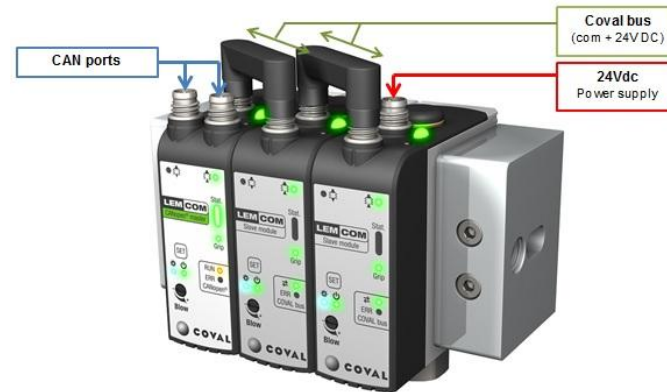


Figure 1 - LEMCOM bank

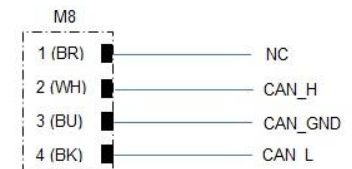
Connect the factory fieldbus (CAN) to one of the 2 ports of the embedded high speed CAN transceiver.

To connect the 'Coval bus', please use the provided M8/M8 female jumpers or standard M8/M8 shielded cables for remote slave modules.

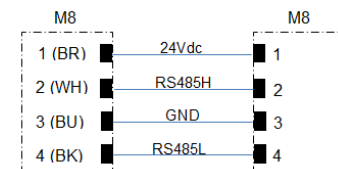
24V DC power supply is connected to the back connector of the last slave module of the bank (or to the back connector of master module if used as standalone LEMCOM).

Do not connect power supply to one of the two fieldbus ports, this may cause irreversible damages.

Fieldbus connectors



Coval bus connectors



Power supply
Back connector



NC = Not Connected

Figure 2 - Detailed wiring instructions

Master module setup – Using SDO messages (recommended)

The CANopen® master module is factory set with the following parameters:

- CAN address: 32 **NODE-ID**
- Baudrate: 125 Kbps **CANBDR**

The following steps describe how to modify these parameters.

- Follow wiring instructions given in the previous section.
- Configure the baudrate of the NMT master to 125 Kbps.
- Once powered on, LEMCOM is in pre-operational mode, CAN-RUN led blinks.
- Write **NODE-ID** value into object **3001h** – sub-index 00h by sending a SDO message as shown below * :

CAN-ID (600h+ID)	Command (write)	Object Low	Object High	Sub index	Byte 0	Byte 1	Byte 2	Byte 3
620h	2Fh	01h	30h	00h	NODE-ID	00h	00h	00h

- Write **CANBDR** value into object **3002h** – sub-index 00h sending a SDO message as shown below * :

CAN-ID	Command	Object	Object	Sub	Byte 0	Byte 1	Byte 2	Byte 3
	(write)	Low	High	index				
600h+ID	2Fh	02h	30h	00h	CANBDR	00h	00h	00h

* New node's ID will take effect only upon you restart the module.

Baudrate	Value (CANBDR)
1000 Kbps	0
800 Kbps	Not available
500 Kbps	2
250 Kbps	3
125 Kbps (default)	4
Reserved	Not available
50 Kbps	6
20 Kbps	7
10 Kbps	Not available

Table 1 - Baudrate table

Master module setup – Using front panel switch

- The module address can be configured using the **SET** button (BP) of the master front panel and leds shown here opposite.

All the procedure must be completed to update settings. At any time, power OFF and ON the module to restart the procedure.

- Enter 'Set-up mode':

Before power up, press BP, plug the power supply and hold the button until B1 blinks fast.

- Module address setup:

- Release BP → B1 turns OFF.
- 7 bits word address is then entered in sequence:
 - > each time B1 ON (blink frequency ~0,2Hz), enter a bit with BP, from LSB to MSB (bit #6).

If BP pressed, bit = 1, otherwise bit = 0.

If input word address is 0x00 (BP always released), then CAN address is automatically set to 32 (default value).

Example: If BP=0 for T0 to T5 and BP=1 for T6, then CAN address =64.

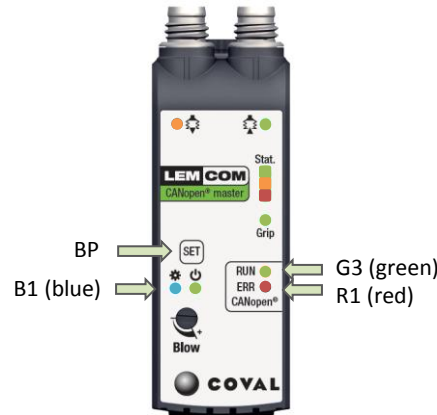
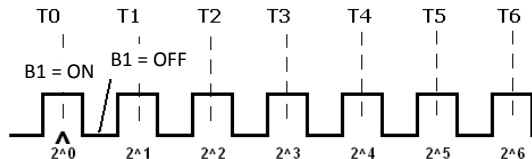


Figure 3 - Master front panel



CAN address :
 $BP(@T0)*2^0 + BP(@T1)*2^1 + \dots + BP(@T6)*2^6$

Figure 4 – NODE-ID configuration sequence

- After setting up the node ID, B1 blinks fast.

Press BP and wait until B1 is ON permanently and G3 blinks.

If not already done, plug the CAN cable and power OFF and ON the LEMCOM bank. It is now ready to use.

If default baudrate (125 Kbps) is not compatible with your network configuration, please refer to baudrate setup process via SDO (cf. previous page).

Node status

After power up the LEMCOM, a self-test sequence is done and the G3 led blinks at "high frequency".

→ The node is in **pre-operational** mode.

RUN and ERR CANopen® leds give the node status:

Led status	Node status	Allowed communication
RUN blinking « high frequency »	Pre-operational	SDO / NMT
RUN ON	Operational	SDO / PDO / NMT
RUN blinking « low frequency »	Stopped	NMT
ERR ON	CAN error	NMT

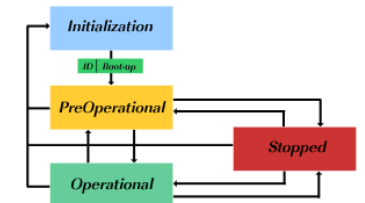


Figure 6 - CANopen NMT slave state machine
Source: CiA

CANopen® functionalities

Manufacturer specific objects

The table here opposite gives the list of all data and settings accessible through CANopen® SDO and/or PDO.

Process Data Object mapping

PDO-RX 1 / 1400h (Vacuum and blow-off control):

→ 1 object mapped: 2000h/00h (32 bits)

PDO-TX 1 / 1800h (Vacuum level – Module #0 to #7):

→ 8 object mapped: 2020h/01h to /08h (64 bits)

PDO-TX 2 / 1801h (Vacuum level – Module #8 to #16):

→ 8 object mapped: 2020h/09h to /10h (64 bits)

PDO-TX 3 / 1803h (Gripping status – Module #0 to #16):

→ 1 object mapped: 2001h/00h to /10h (16 bits)

Index	Description	Available via	Access
2000h	Vacuum/Blow-off control	SDO / PDO	rw
2001h	Gripping status	SDO / PDO	ro
2010h	Blow-off cycles counter	SDO	ro
2011h	Vacuum cycles counter	SDO	ro
2020h	Vacuum level	SDO / PDO	ro
2100h	V1 threshold (gripping)	SDO	rw
2101h	h1 hysteresis	SDO	rw
2102h	V2 threshold (regulation)	SDO	rw
2103h	h2 hysteresis	SDO	rw
3000h	Restart modules	SDO	rw
3001h	NODE-ID	SDO	rw
3002h	Baudrate	SDO	rw
3010h	Add/Remove module	SDO	rw
3011h	Bank composition	SDO	ro
3020h	Firmware version	SDO	ro
3100h	PDO-TX transmission threshold	SDO	rw
4000h	Power supply measurement	SDO	ro

Table 2 – Manufacturer specific object

Please refer to main user manual for more information: LMCO-UK-x-1155UM0032