

Example of MCS-64 with 4 channels and Profibus-Gateway



Product Description

MCS-64 is a multi channel solution for static and dynamic weighing processes which require communication with industrial bus systems. The basic weighing module is the LDM 88.1 which has 4 digital inputs (DI) and digital outputs (DO).

For bus connections, gateways such as Profibus, CANbus and Ethernet are available. The gateway can communicate via the internal system bus (RS485), with up to 64 LDM 88.1 weighing modules.

All standard weighing functions are available on the LDM 88.1.

In addition 3 special firmware versions are available:

“Automatic Weighing Controller” for dynamic weighing in check weighers or multi head scales.

“Fluid Filling Controller” for dosing processes of fluids, pellets or powder.

“Loss in Weight” for charge dosing with actual flow, trend and totalizing.

The 4 DI’s can read the current state of the weighing process.

The 4 DO’s can control valves, throttles (shut off flap) etc. directly.

Within the LDM 88.1 firmware there are special routines to optimise the weighing and filling processes.

Key Features

- Multi channel system for up to 64 channels
- Profibus-Gateway
- CANopen-Gateway
- Ethernet-Gateway
- Test certificate available
- Calibration with weight or mV/V
- Max. conversion rate 2400 per second
- Digital filters, programmable
- Linearity better than 0.002 %
- 4 Logic inputs per channel (opto-isolated)
- 4 Logic outputs per channel (opto-isolated)
- Get / Set image function
- Firmware download

Options

- 3 Firmware versions

Available Accessory

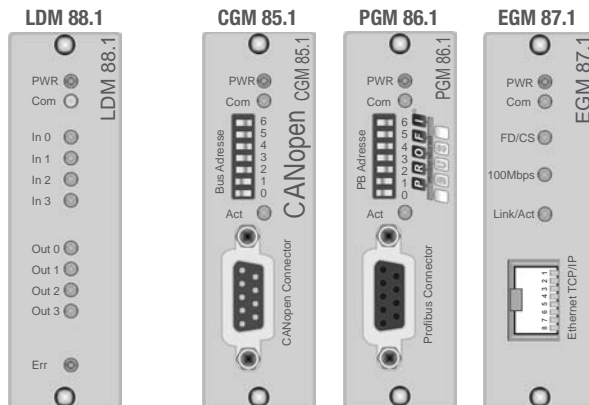
- Setup software running under MS Windows

Components of MCS-64

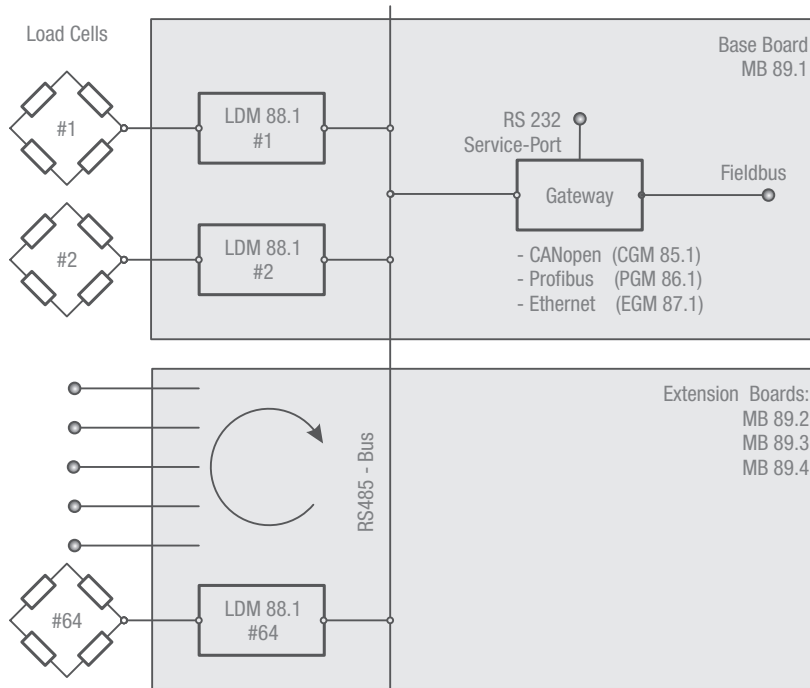
1. Weighing Processors **LDM 88.1** (maximum 64).
2. Gateways: CANbus **CGM 85.1** or Profibus **PGM 86.1** or Ethernet **EGM 87.1**.
3. Base Board **MB 89.1** with:
 - 2 Slots for weighing processor LDM 88.1,
 - Slot for one Gateway CGM 85.1 / PGM 86.1 / EGM 87.1,
 - RS 232 Service port.
4. Extension Board **MB 89.2** with:
 - 2 Slots for weighing processor LDM 88.1.
5. Extension Board **MB 89.3** with:
 - 4 Slots for weighing processor LDM 88.1.
6. Extension Board **MB 89.4** with:
 - 8 Slots for weighing processor LDM 88.1.

All boards with:

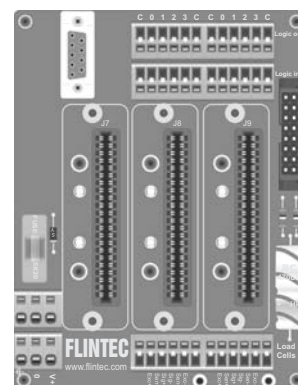
- Spring clips for load cell terminals in 6-wire-technique,
- DI's and 4 DO's via spring clip terminal blocks,
- Header for ribbon cable to next board,
- Mounting on DIN rail.



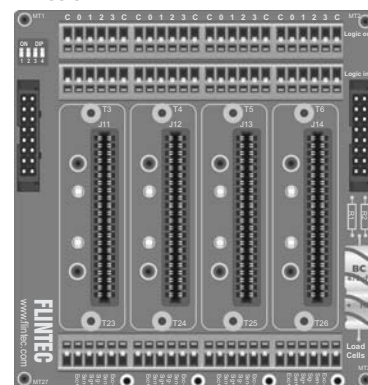
Block Diagram of System MCS-64



MB 89.1



MB 89.3



Dimensions (W x H)

- MB 89.1** 104 x 135 mm
- MB 89.2** 97 x 135 mm
- MB 89.3** 129 x 135 mm
- MB 89.4** 229 x 135 mm

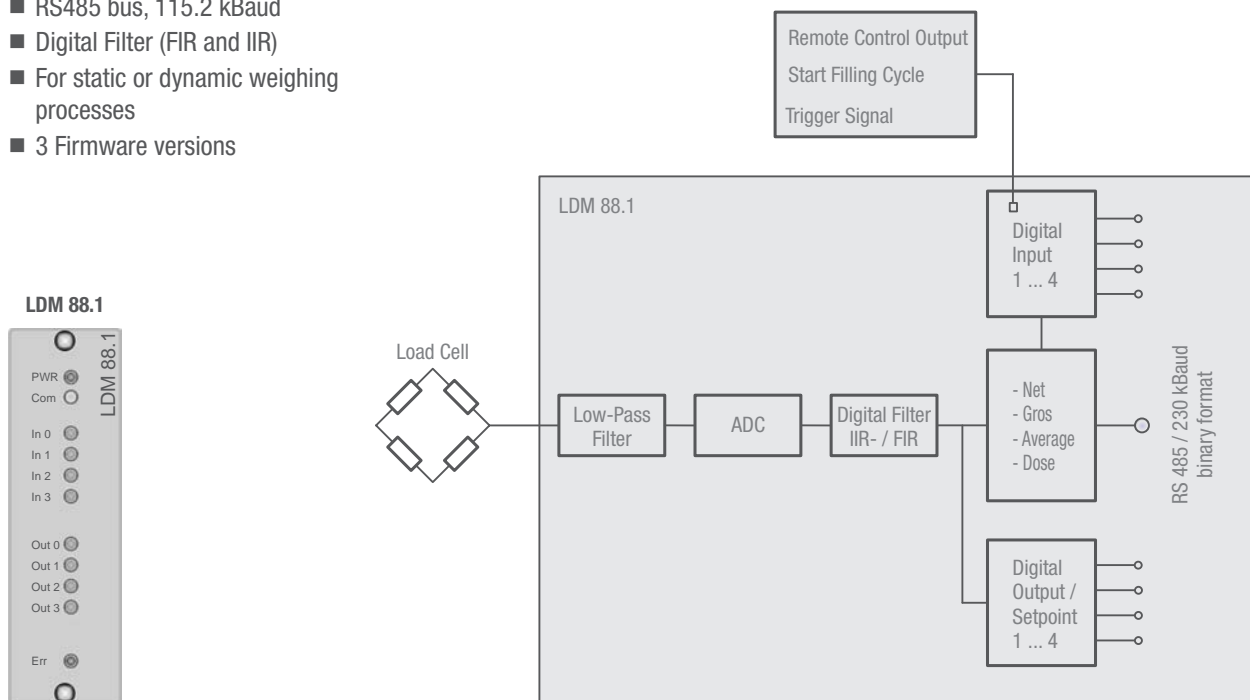
Gateways

CANbus Gateway Module CGM 85.1	Profibus Gateway Module PGM 86.1	Ethernet Gateway Module EGM 87.1
Connection to CANopen network	Connection to Profibus DP network	Connection to Ethernet network
CANopen V 2.0	Profibus DP-V0 and DP-V1	TCP/IP
Address range 0 – 126	Address range 0 – 126	
Up to 1 Mbit/s (automatic)	9.6 kbit/s to 12 Mbit/s (automatic)	10 /100 Mbit/s (automatic)
Profile "Weighing and Dosing" (June 2004)		
Transfer rate weighing processor / gateway 115.2 kB binary		
Communication with up to 64 weighing processors LDM 88.1		
Via service port (Base Board MB 89.1) communication to each connected LDM 88.1		
Dimensions: 80 x 23 x 100 mm (LxWxH)		

Weighing Processor LDM 88.1

- The digital weighing processor LDM 88.1 is a load cell digitizing unit for precise measuring of loads in motion.
- $\pm 260\,000$ d
- Excitation 5 V DC / 50 mA
- 2 400 measurement values/s internal, 600 measurement values/s external
- mV/V calibration
- 4 DI's
- 4 DO's
- RS485 bus, 115.2 kBaud
- Digital Filter (FIR and IIR)
- For static or dynamic weighing processes
- 3 Firmware versions

Block Diagram LDM 88.1



Specifications

Accuracy Class	III
Test certificate according OIML R76	Single range scale; 10 000 d
Other certificates	According OIML R61 and OIML R107 (MID directive - 2004/22/EC)
Linearity	< 0.002 % FS
Excitation	5 V DC / 60 mA, load cells 87.5-1 200 Ω , 4 or 6 wire technique, cable length 2739 m/mm ² for 6 wire connection
Analogue input range	± 11.0 mV/V (bipolar)
Minimum input per vsi	0.45 μ V per interval legal for trade / 0.05 μ V per interval non approved
Resolution	$\pm 260\,000$ counts , ± 20 -Bit-A/D converter
Conversion rate	internal: 2 400 measurement values per second; external: 600 measurement values per second
Digital Filter	FIR Filter 2.5 ... 19.7 Hz or IIR Filter 0.25 ... 18 Hz; programmable in 8 steps each
Calibration	software calibration and set up
Computer interface intern	RS485/RS422, full duplex, 115 200 Baud, bus capability up to 64 devices
Weighing functions	zero, gross, tare, net, filter etc.
Inputs	4 opto-isolated inputs, 10 ... 30 V DC max. 3 mA
Outputs	4 open collector outputs, < 35 V DC, 500 mA
Temperature effects	on zero: max. < 1.4 ppm/ $^{\circ}$ C on span: max. < 0.2 ppm/ $^{\circ}$ C
Temperature range	-15 $^{\circ}$ C to +55 $^{\circ}$ C (operating); -20 $^{\circ}$ C to +70 $^{\circ}$ C (storage)
Enclosure	Aluminium, protection IP20
Dimensions	80 x 23 x 100 mm, with two M3 fixing screws for mounting on boards MB89.1/2/3/4
Power supply	12 ... 24 V DC ± 10 %, < 60 mA, (reversed voltage, burst and ESD protected)
Power consumption	1.5 W max.
EMC	CE 73/23/EEC; 93/98/EEC and 89/336/EEC
Computer interface via Service Port MB 89.1	RS232C, 115 200 Baud
Vibration	withstands 1.0 G operational; 2.5 G non-operational

