MCS-64 multi-channel weighing system

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.

applications

Universal Process weighing systems and process automation & control.

options + accessories

3 Firmware versions
Setup software running under MS Windows

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

CE   RoHS compliant   OIML   IP20

flintec

components of MCS-08

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 portExtension Board MB 89.2 with:2 Slots for weighin processor LDM 88.1.

4. Extension Board MB 89.3 with:
   - 4 Slots for weighing processor LDM 88.1.

5. Extension Board MB 89.4 with:
   - 8 Slots for weighing processor LDM 88.1.

LDM 88.1   CGM 85.1   PGM 86.1   EGM 87.1
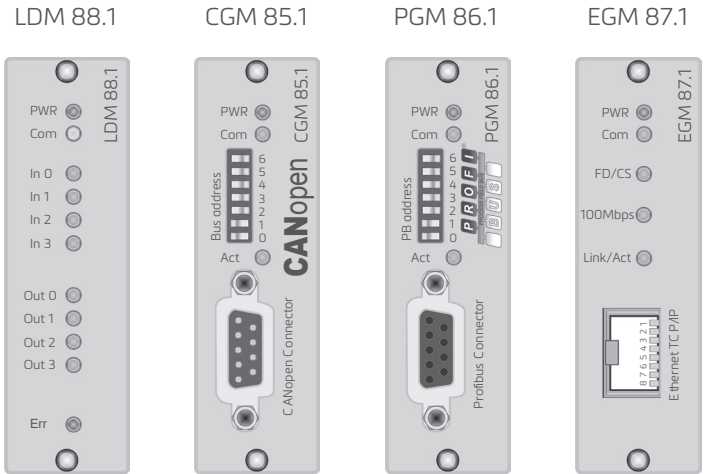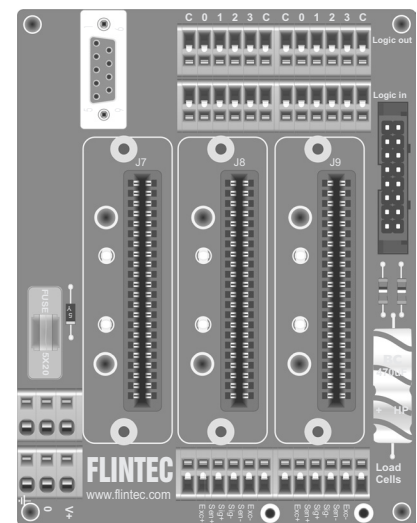

All boards with:
- Spring clips for load cell terminals in 6-wire-technique,
- DI's and 4 DO's via spring clip terminal blocks,
- Header for ribbon cable to next board,
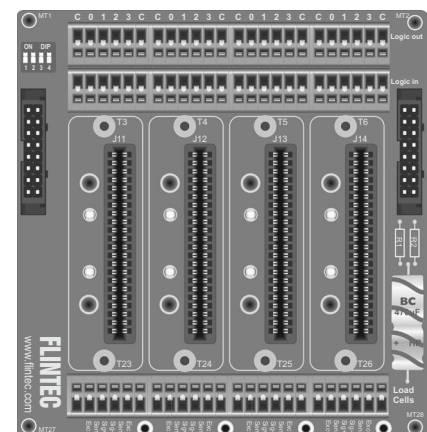- Mounting on DIN rail.

block diagram of system MCS-64
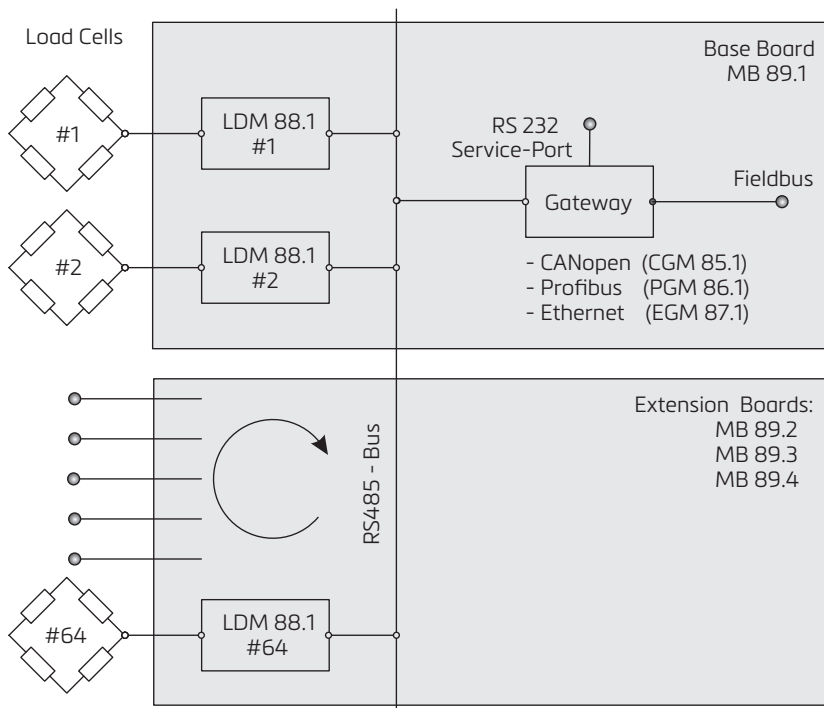
MB 89.1

MB 89.3

W x H dimensions (mm)	
MB 89.1	104 x 135
MB 89.2	97 x 135
MB 89.3	129 x 135
MB 89.4	229 x 135

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	Modbus TCP, Modbus UDP, Telnet
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.

±260,000 d

Excitation 5VDC / max. 60mA

2,400 measurement values/s internal, 600 measurement values/s external
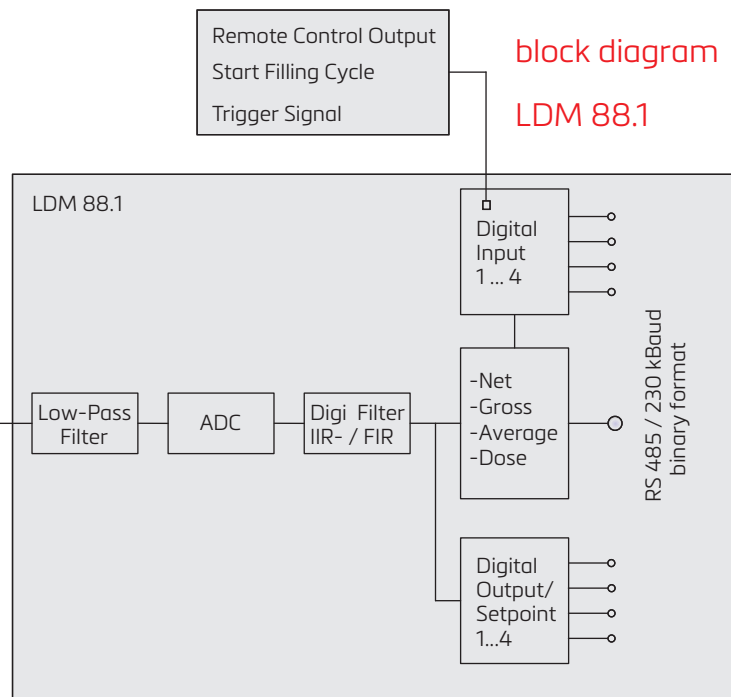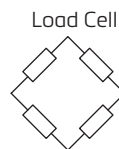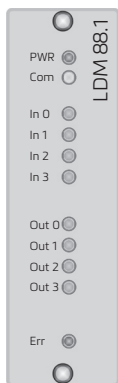
mV/V calibration

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

LDM 88.1

block diagram
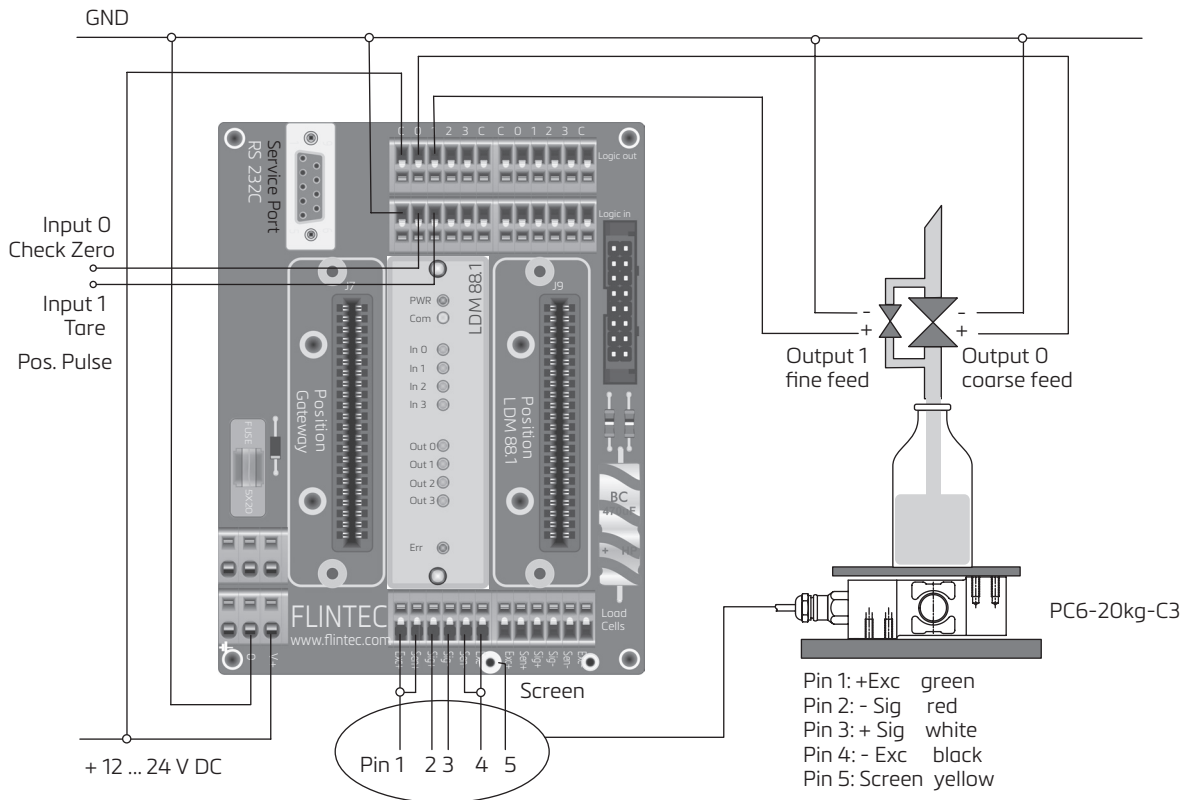LDM 88.1

specifications

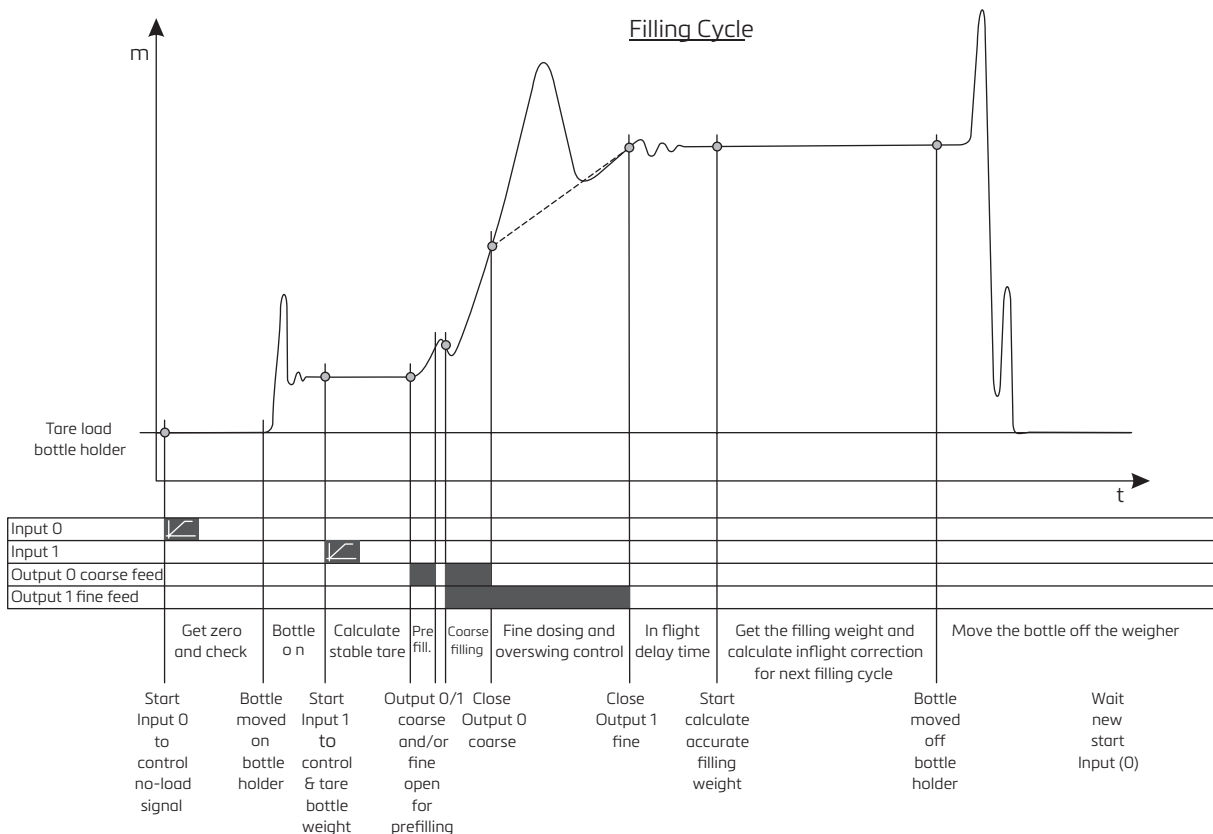|	
Accuracy Class	III
Test certificate according OIML R76	10,000 vsi (verification scale intervals)
Other certificates	According OIML R61 and OIML R107 (MID directive - 2004/22/EC)
Linearity	< 0.002 % FS
Excitation	5VDC / 60mA, load cells 87.5-1,200Ω, 4 or 6 wire technique, cable length 2,739 m/mm² for 6 wire connection
Analogue input range	±11.0 mV (bipolar)
Minimum input sensitivity	0.05 µV/count
Certified accuracy according OIML R76	0.45 µV/vsi
Resolution internal / external	±260,000 counts / ±100,000 counts
Conversion rate internal / external	2,400 measurement values per second / 600 measurement values per second
Digital Filter	FIR Filter 2.5 ... 19.7Hz or IIR Filter 0.25 ... 18Hz; programmable in 8 steps each
Calibration	software calibration and setup
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 ... 30VDC max. 3mA
Outputs	4 open collector outputs, < 35VDC, 500mA
Temperature effects on zero	typical: < 2 ppm/°C / max.: < 4 ppm/°C
Temperature effects on span	typical: < 1 ppm/°C / max.: < 2 ppm/°C
Temperature range	−15°C to +55°C (operating); −20°C to +70°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 ... 24VDC ±10 %, < 60mA, (reversed voltage, burst and ESD protected)
Power consumption	1.5 W max.
EMC	OIML R-76-1:2006 and DIN EN 45501:1992/AC1993
Computer interface via Service Port MB 89.1	RS232C, 115,200 Baud
Vibration	withstands 1.0 G operational; 2.5 G non-operational

example bottle filling

The example shows a typical Bottle Filling Station.
As visible in the cycle diagram all filling controls are controlled by the LDM 88.1.

Pin 1: +Exc   green
Pin 2: - Sig   red
Pin 3: + Sig   white
Pin 4: - Exc   black
Pin 5: Screen   yellow

PC6-20kg-C3

cycle diagram for bottle filling

Filling Cycle

Input 0									
Input 1									
Output 0 coarse feed									
Output 1 fine feed									

Get zero and check	Bottle o n	Calculate stable tare	Pre fill.	Coarse filling	Fine dosing and overswing control	In flight delay time	Get the filling weight and calculate inflight correction for next filling cycle	Move the bottle off the weigher
Start Input 0 to control no-load signal	Bottle moved on bottle holder	Start Input 1 to control & tare bottle weight	Output 0/1 coarse and/or fine open for prefilling	Close Output 0 coarse	Close Output 1 fine	Start calculate accurate filling weight	Bottle moved off bottle holder	Wait new start Input (0)

Dimensions and specifications are subject to change without notice.