

DIN RAIL MOUNTED WEIGHING INDICATOR AND HIGH SPEED TRANSMITTER



Incorporating the latest up-to-date electronics, the Model XT1000 is a high performance display indicator and high speed data transmitter suitable for static and dynamic weighing. It is specially designed for process weighing systems, as well as all types of machinery with weighing as part of their function. Because of its DIN rail mount design and versatility of digital input/output and data transmission options, it is ideally suited to connection to PLCs, PCs and remote systems.

Applications include tanks and silos, industrial scales, filling and dosing machinery, dynamic scales and multi-head weighing systems. The new built-in check weigher application, coupled with the high speed data capture rate of 2400 measurements/second, makes the XT1000 ideal for use in check-weighing and other dynamic applications.

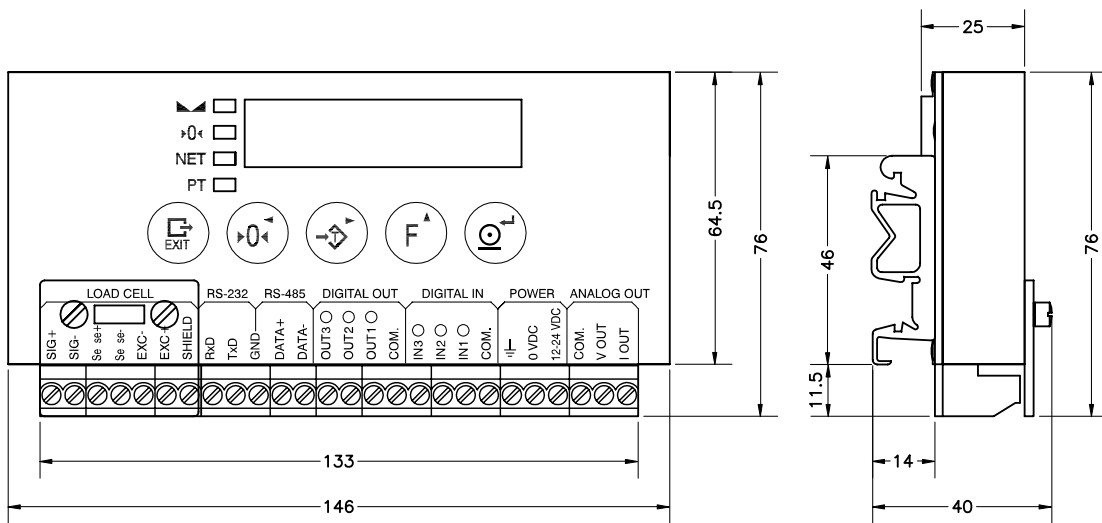
Calibration can be accomplished either by using real weights or by using the load cell sensitivity in mV/V.

Two versions are available: a basic version with serial outputs and a complete version with both serial and analogue outputs.

- 6 digit, 10mm LED display
- High resolution with 24 bits ADC and 16 million internal divisions
- 2400 measurements per second
- Inbuilt membrane keyboard for configuration and calibration
- Selectable digital filters
- Calibration protection by software or mechanically
- Powers up to 6, 350 Ω or 12, 700 Ω load cells
- RS232 and RS 485 (Modbus RTU and ASCII)
- Configurable analogue output : 0-5V, 0-10V, 0-20mA and 4-20mA with galvanic isolation
- 3 digital opto-isolated inputs and 3 digital outputs to relay
- DIN rail mounting
- 10-28 V DC power supply

XT1000

technical specification...



All dimensions in mm

XT1000 Indicator / Transmitter

Load Cell Connection	
Scale input signal range	+/- 3.9 mV/V
Resolution	ADC 24 bits; 16,000,000 internal divisions Display -99 999 to 999 999
Measuring rate	Internal: 2400 readings per second Transmission: 600 readings per second
Linearity error	≤ 0.01% of measuring range
Thermal stability	Zero: 150 nV / °C max. Span: 3.5 ppm / °C max.
Load cell excitation voltage	5.0 V DC
Minimum load cell resistance	58Ω (6 load cells of 350Ω, 12 load cells of 700Ω)

Inputs & Outputs	
Serial communications	RS-232 bi-directional
	RS-485 half-duplex
	Protocol: Own protocol, Modbus (RTU & ASCII) Transmission rates: 4800 to 115200 bauds selectable
Logical inputs	3 opto-isolated inputs with status LED
Logical outputs	3 relay outputs max. 125V AC – 30V DC, 100mA with status LED
Analogue output	Output with galvanic isolation, DAC of 16 bits
	Output voltage: 0-10V
	Output current: 0/4 - 20mA (<500Ω)

Additional Data	
Power supply	10V to 28V DC
Power consumption	4W maximum
Operating temperature range	-20 °C to 50 °C
Storage temperature range	-25 °C to 60 °C
Nominal shipping weight	0.3kg
Mounting	DIN rail, IP40
Operator interface	Keyboard: 5 membrane keys
	Display: 6 digit LED, 10mm high
Options	With serial outputs only (model XT1000-SO)
	With serial and analogue outputs (model XT1000-SO-AN)
Optional Power Supply	DIN rail mount power supply Universal voltage 100-240V AC 50/60Hz 24V DC output Maximum Power 15W capable of driving 3 x XT1000 units (model XT1000-PS)



Optional DIN rail mount power supply

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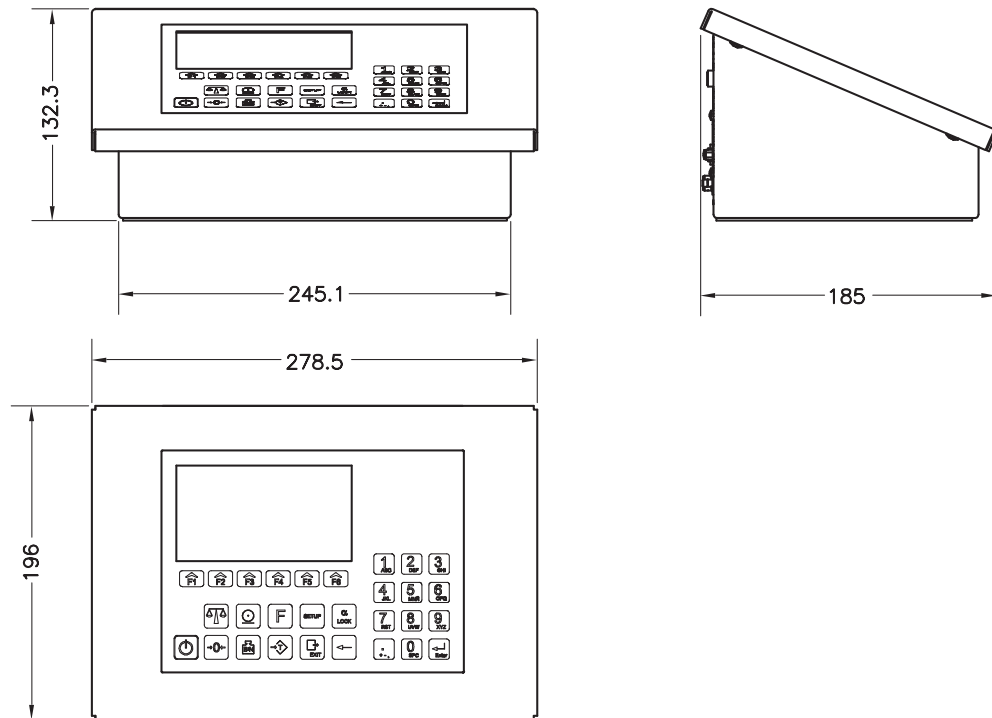
Our policy is one of continuous product enhancement. We therefore reserve the right to incorporate technical modifications without prior notification.

ALPHANUMERIC WEIGHING INDICATOR WITH GRAPHIC DISPLAY



- Alphanumeric Weighing Indicator with graphic monochrome display 240x128 pixels.
- **OIML R76 & EN 45501 Approved**, monorange or Multi-range.
- **Calibration and configuration by keyboard and/or remote** by communication port.
- **Single Scale Connection** for analog load cells (Ref.89400) or digital load cells (Ref.89400D) enlarged to **Double Scale Connection** by additional interface boards.
- **Time & Date.**
- **Several connectivity possibilities:**
 - **Two RS-232 ports:** Bidirectional for PC communications, printer or remote display.
 - **One RS-485 port:** Network communications up to 1200m. Additionally, it's possible to be connected with external dispositives of digital I/O, analog outputs, relay boards, etc.
 - **One additional free port:** to extend the indicator to several fieldbuses.
- Integrated front panel **alphanumeric keyboard** and connector for an external standard PC keyboard (PS/2).
- **Universal power supply** 90-260 V AC 50/60 Hz and 9.5-28 V DC
- **Stainless Steel enclosure.** Desktop or Panel mounting. Optional: Wall mounting kit.
- **Multi-range:** Allows two working ranges for two division sizes.
- **Configurable Ticket.**
- **Linearity correction.**
- **Metrological sealing for easy maintenance:** Software sealing by internal calibration counter, or mechanical sealing for blocking calibration switch.
- **Microprocessor** of 32 bits, with Flash memory that allows the software update through a serial port for loading new applications.
- **Selectable applications:** Weighbridge, industrial, dosing.

MATRIX II



Dimensions in mm.

Transport weight: 3.2 kg

ADDITIONAL CHARACTERISTICS:

89400 MATRIX II Indicator for analog load cells:

- A/D 24 bits, 16 millions internal div.; 100.000 external divisions; 50 reading/sec.
Power up to 8 load cells (350 Ω) or up to 16 load cells (700 Ω), at 6 V DC excitation.
6000 div. at 0,6 μ V/d approval.
- Milivolt pre-calibration: Allows start-up without mass calibration by entering the load cell nominal capacity and nominal sensitivity in mV/V.

89400D MATRIX II DIGITAL Indicator for digital load cells:

- Power up to 16 digital load cells. Distance between the Indicator and the scale up to 1200m.
- Digital pre-calibration: Allows start-up without mass calibration thanks to the pre-calibration of digital load cells. Automatic or manual corner adjustment. Individual load cell diagnostic.

SELECTABLE APPLICATIONS:

Weighbridge: Software for management of vehicle entrance and exit in plants, with first and second weighing control and a database that manages and stores all the information (registration numbers, products, customers/suppliers, entrances/exits, truck pre-fixed tare values, etc.), as well as the printing of its corresponding tickets and listings. Data stored in a permanent internal battery powered RAM memory. Multilingual: English, French, German, Spanish, Portuguese and Czech.

Industrial:

- Weight-Tare.
- Piece counting.
- Weight accumulation.
- Programmable pre-fixed tares.

Dosing

OPTIONAL ACCESSORIES:

89312 PC KEYBOARD

89313 MATRIX-PRINTER CABLE (3 Meters)

89314 MATRIX-PC CABLE (3 Meters)

89401 AMPLIATION 2nd SCALE FOR ANALOGUE LOAD CELLS

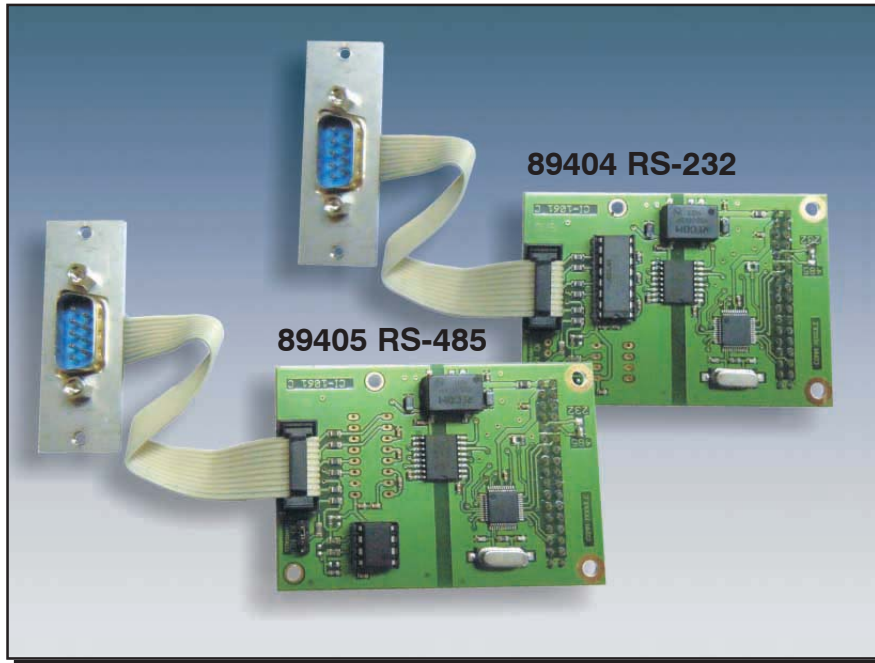
89402 AMPLIATION 2nd SCALE FOR DIGITAL LOAD CELLS

89404 RS232 OPTO-ISOLATED EXPANSION PORT

89405 RS485 OPTO-ISOLATED EXPANSION PORT

89406 DIGITAL INPUTS/OUTPUTS MODULE

89407 ANALOG OUTPUT MODULE: 0-5V, 0-10V, 0-20mA and 4-20mA

ACC. RS-232/RS-485 OPTO-ISOLATED EXPANSION PORT MATRIX II


- 1 additional serial port RS-232 (Acc. **89404**) or RS-485 half-duplex (Acc. **89405**).
- Automatic detection as MATRIX II COM4.
- Galvanic isolation between MATRIX II and peripheral.
- Configurable communication parameters (up to 115200 bps).
- Communication with printer, remote display, computer or other equipments.
- Mounted inside of the MATRIX II without welding.
- Transport weight: 0.06 kg.

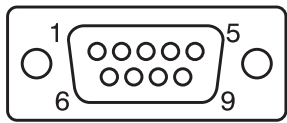
Additional specifications for RS-485

- Specially suitable for installations with long distances between indicator and peripheral or computer.
- Can be used to control external modules.

- 1 zusätzlicher serieller Kommunikationskanal RS-232 (Acc. **89404**) oder RS-485 halbduplex (Acc. **89405**).
- Automatische Detektion als COM4 des Wägeterminals MATRIX II.
- Optische Isolation zwischen MATRIX II und Peripheriegerät.
- Einstellbare Kommunikationsparameter (bis zu 115200 bps).
- Verbindung zu Drucker, Fernanzeige, PC oder anderen Geräten.
- Einfache Montage in Wägeterminal MATRIX II ohne Löten.
- Transportgewicht: 0.06kg.

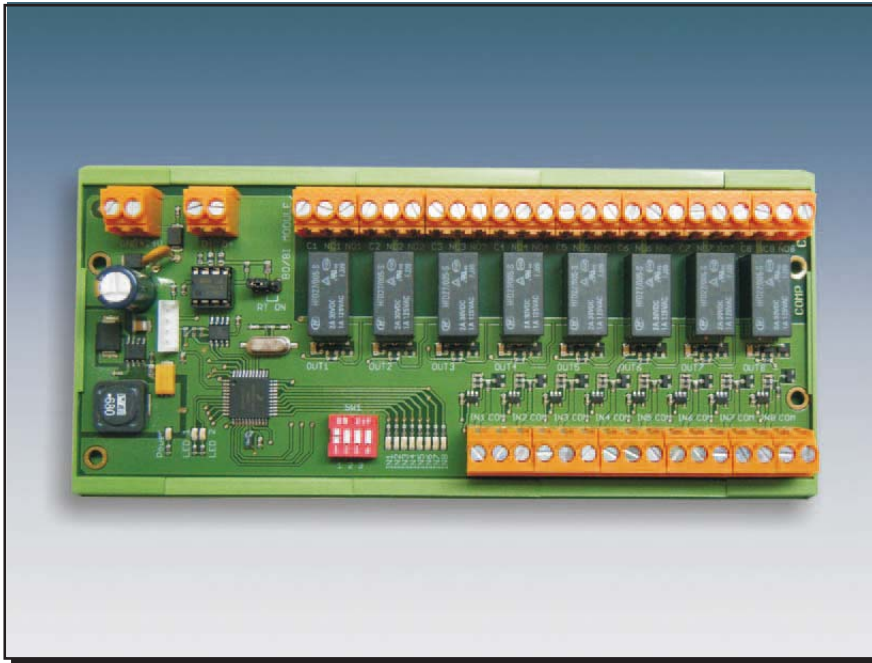
Zusätzliche Daten für RS-485

- Speziell geeignet für Installationen mit grossen Entfernungen zwischen Wägeterminal und PC oder Peripheriegeräten.
- Geeignet für Kontrolle der externen Module.

Acc. 89404 (RS-232)			Acc. 89405 (RS-485)	
PIN	SIGNAL		PIN	SIGNAL
2	RxD	1	A (DATA+)	
3	TxD	5	GND	
5	GND	6	B (DATA-)	

ACC. DIGITAL INPUTS/OUTPUTS MODULE MATRIX II

ACC. MODUL DIGITALE EIN-/AUSGÄNGE MATRIX II



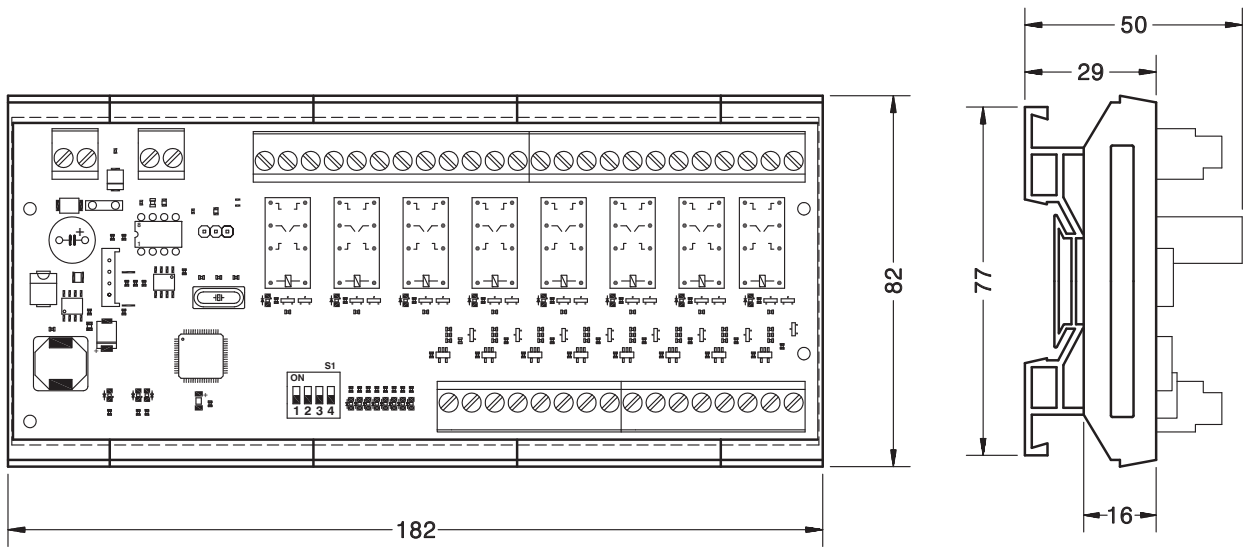
This module is an external board assembled on a DIN rail with:

- 8 digital contact relay outputs, with several functions like: level indication or alarms (setpoints), barriers and traffic lights control at weighbridge, valve control for dosing, etc.
- 8 digital inputs: for connection to external panels of push buttons or to plc, to activate functions such as zero, tare, printing, and the external signals needed for a dosing control.
- 8 relays 125 V AC/1 A or 30 V DC/1 A, with LEDs to indicate the state.
- 8 inputs (max. 24 V DC) with LEDs to indicate the state.
- Power supply: 12 - 28 V DC / 2.5 W.
- Connection to Matrix II (COM3 or COM4) by a high speed RS-485 bus (115200 bps) with communication status LEDs.
- MATRIX II indicator admits up to 15 modules in the same RS-485 bus.
- Assembly on standard 35 mm DIN rail.

Externes Modul zur Montage auf DIN Hutschiene:

- 8 digitale Relaiskontakte mit verschiedenen Funktionen: Füllstandshöhe oder Alarme (Schaltpunkte), Schrankenkontrolle und Lichtzeichen bei Fahrzeugwaagen, Füllstandskontrolle bei Dosierungen, etc.
- 8 digitale Eingänge für externe Schalter oder programmierbare Steuerungen zur Aktivierung von Funktionen wie Nullpunkt, Tara, Drucken und der externen Signale zur Steuerung der Dosierungen.
- 8 Relais 125 V AC/1 A oder 30 V DC/1 A, mit LED zur Zustandsanzeige.
- 8 Eingänge (max. 24 V DC) mit LED zur Zustandsanzeige.
- Spannungsversorgung 12 - 28 V DC / 2.5 W.
- Schnelle RS-485 Schnittstelle für Matrix II COM3 oder COM4 (115200 Bit/Sek) mit LED zur Zustandsanzeige.
- Bis zu 15 Module können über die RS-485 am MATRIX II angeschlossen werden.
- Auf 35 mm DIN Hutschiene aufsteckbar.

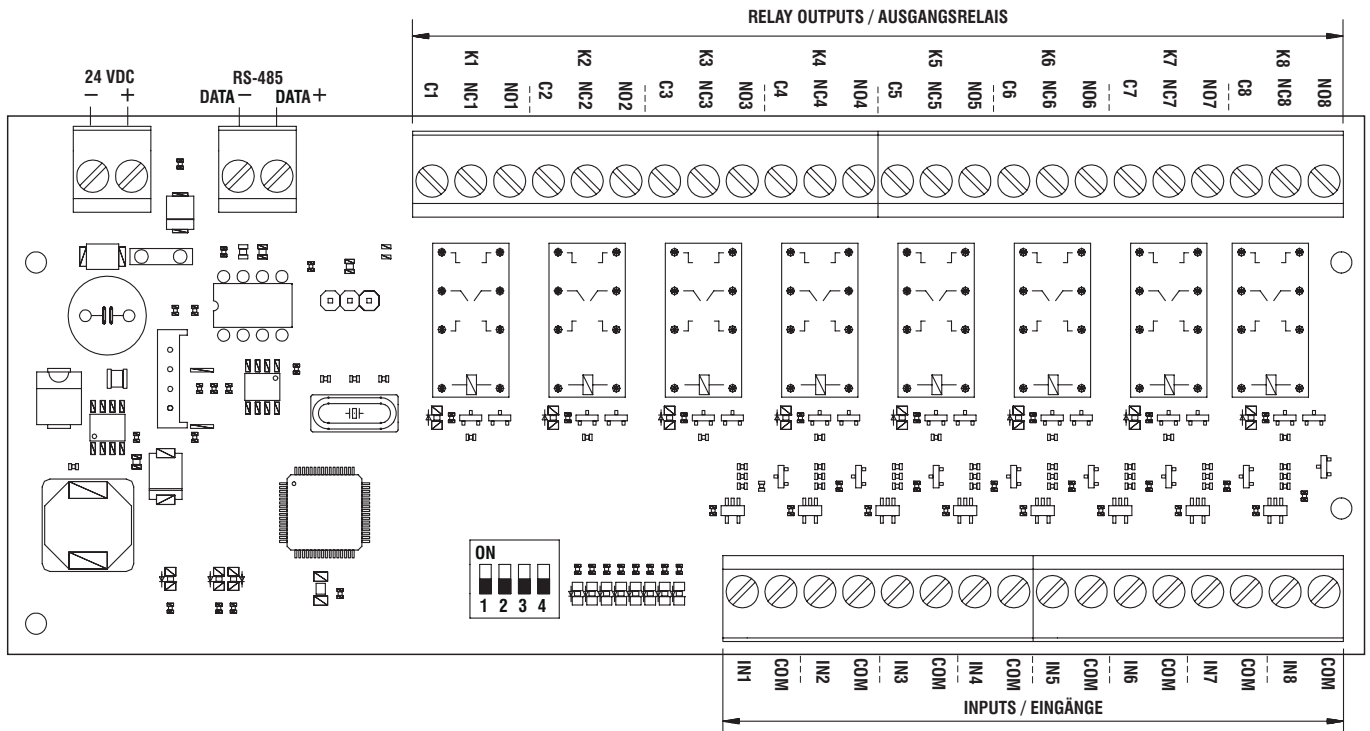
ACC. 89406



Dimensions in mm. Abmessungen in mm.

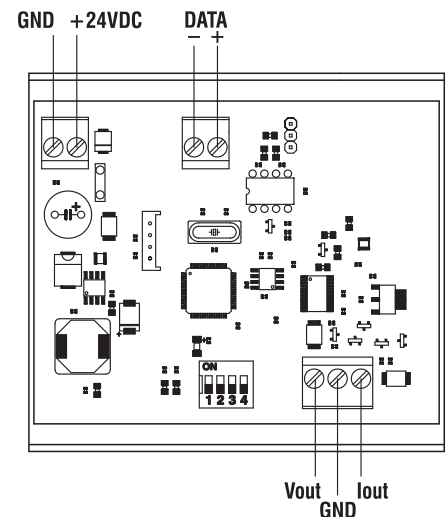
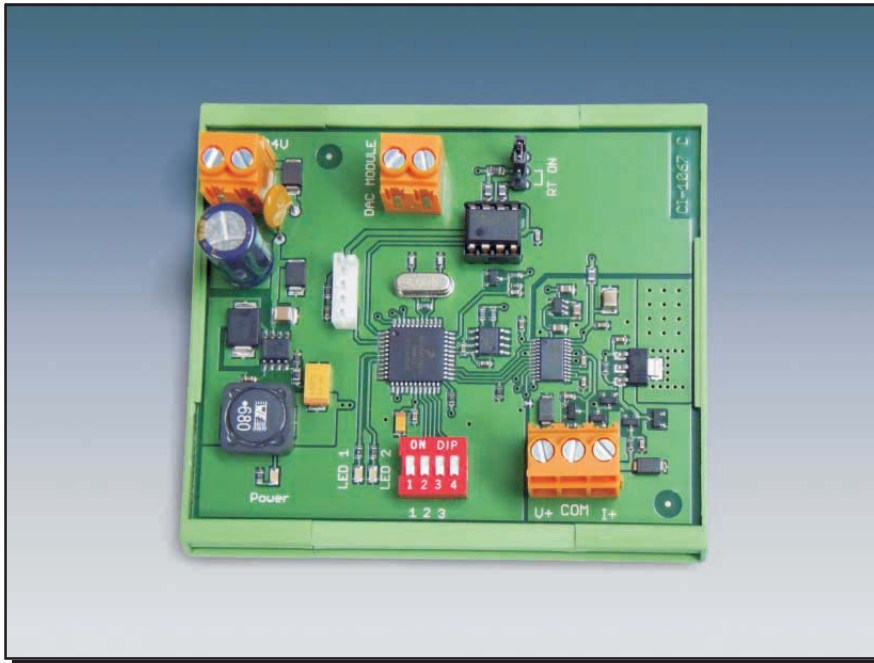
Transport weight - Transportgewicht: 0.36 kg

INSTALLATION / ANSCHLUSSPLAN:



ACC. ANALOG OUTPUT MODULE MATRIX II

ACC. MODUL ANALOGAUSGANG MATRIX II

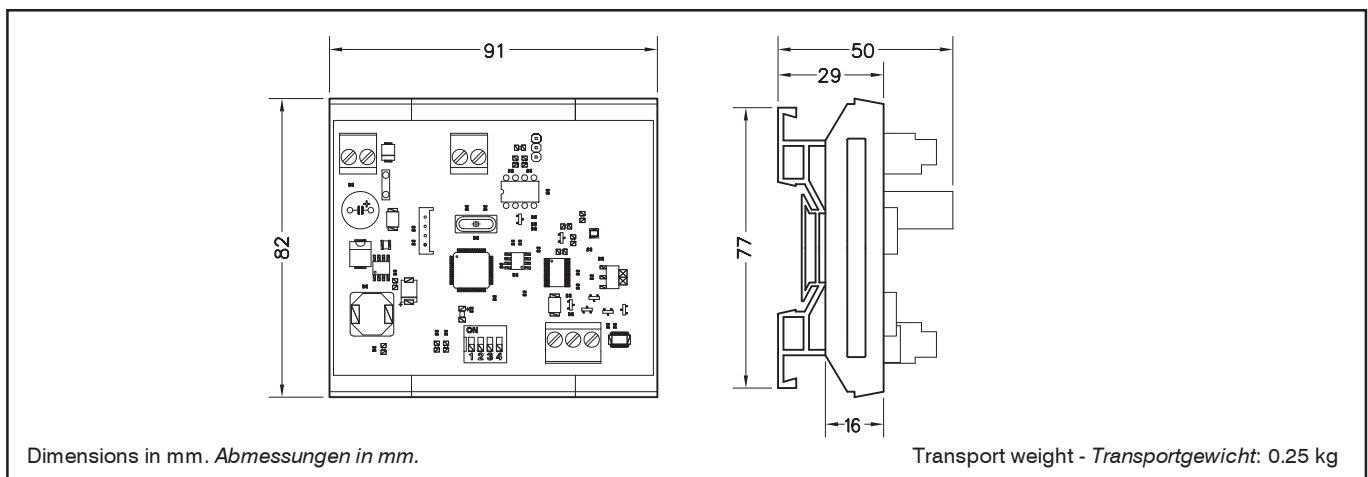


This module is an external board assembled on a DIN rail with:

- Analog output:
0-5V, 0-10V, 0-20mA or 4-20mA
- Power supply: 12 - 28 V DC / 2.5 W.
- Connection to Matrix II (COM3 or COM4) by a high speed RS-485 bus (115200 bps) with communication status LEDs.
- MATRIX II indicator admits up to 2 modules in the same RS-485 bus (one per installed scale).
- Assembly on standard 35 mm DIN rail.

Externes Modul zur Montage auf DIN Hutschiene:

- Analogausgang:
0-5V, 0-10V, 0-20mA oder 4-20mA
- Stromversorgung: 12 - 28 V DC / 2.5 W.
- Schnelle RS-485 Schnittstelle für Matrix II COM3 oder COM4 (115200 Bit/Sek) mit LED zur Zustandsanzeige.
- Das Wägeterminal MATRIX II unterstützt bis zu 2 Module im RS-458-Bus (eins pro Waage).
- Auf 35 mm DIN Hutschiene aufsteckbar.



DIGITAL WEIGHT INDICATOR FOR SILO, TANK AND VESSEL WEIGHING



Vessel weight indication problems solved simply and cost effectively.

The Smart range of digital indicators provides a simple solution where a local display of weight is required.

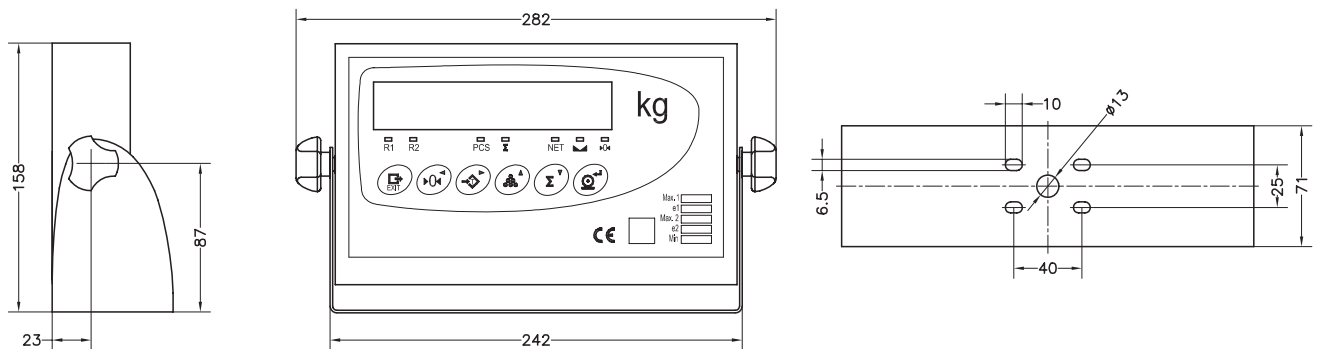
Three models are available at different price points to cover most requirements.

ATEX versions for use in zones 2, 21 and 22 are also available.

- User friendly configuration and calibration menu
- High resolution; 100,000 external divisions
- 7 digit, high brightness, LED display
- OIML R76 and EN 45501 approved
- Digital communications
- Excitation for up to 4x350Ω or 8x700Ω load cells
- Lineariser function
- IP65 stainless steel enclosure with mounting kit
- Multi-range for dual range and dual division
- Configurable as a remote display

SMART

technical specification...



		Versions		
		SMART-IP65	SMART-IP65-MULTI-1	SMART-IP65-MULTI-2
		SMART-IP65-ATEX	SMART-IP65-MULTI-1-ATEX	SMART-IP65-MULTI-2-ATEX
Resolution	24 bit A/D	✓	✓	✓
Internal divisions	16 million	✓	✓	✓
External divisions	100,000	✓	✓	✓
Excitation	6 V DC	✓	✓	✓
AC Power Supply	230 +/- 10% V AC 50/60 Hz, 6W	✓	✓	✓
DC Power Supply	12 V DC (9-18V DC) 600 mA	✓	✓	✓
Approval	OIML R76, EN 45501, single or multi-range	✓	✓	✓
Analogue outputs	0-5V, 0-10V, 0-20mA, 4-20mA; Opto-isolated			✓
Digital inputs	4		✓	✓
Digital Outputs	4		✓	✓
Network Comms	RS485 and RS232T		✓	✓
Serial Comms	RS232	✓	✓	✓
Enclosure	stainless steel	✓	✓	✓
Display digits	7 x 20mm	✓	✓	✓
Readings per second	50	✓	✓	✓
Linearity Correction		✓	✓	✓
Clock	Date - Time		✓	✓
Cable gland & terminal connections	Hermetically sealed	✓	✓	✓
Environmental Protection	IP65	✓	✓	✓
Pre-calibration mV facility		✓	✓	✓
Piece counting facility		✓	✓	✓

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Issue: SMART.07.13

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DIGITAL/ANALOG LOAD CELL TRANSMITTER



Digital / Analog Load Cell Transmitter Series based on last generation of A/D converters and microprocessors, obtaining a modern, compact and reliable design. Its fully configuration and calibration by front panel keyboard avoids adjustment with potentiometers, reducing the difficulty of start-up, calibration and maintenance. It's ideal for industrial installations with load cells.

- Configuration and calibration by computer interface or via front panel keyboard.
- High resolution.
- Display 6 digit 14mm LED.
- 2 optically-isolated logic Inputs.
- 2 optically-isolated logic Outputs.
- Selectable Digital filtering.
- Auto zero and zero-tracking functions.
- 10 point linearity compensation.
- Peak Hold function for dynamic measurement.
- Analog outputs: 0-5V DC, 0-10V DC, 0/20mA and 4/20mA selectable over the entire measuring range.
- Serial Outputs: RS-232, RS-422 or RS-485 with MODBUS RTU protocol. Option: PROFIBUS or DEVICENET (replace analog output).
- Up to 32 addressable units can be connected point to point by using the RS-485 serial output.
- Protection RFI / EMI
- Enclosure: ABS plastic.

■ VERSIONS:

DIN rail mount:

- 89076 DAT400**
- 89076P DAT400 PROFIBUS**
- 89076D DAT400 DEVICENET**

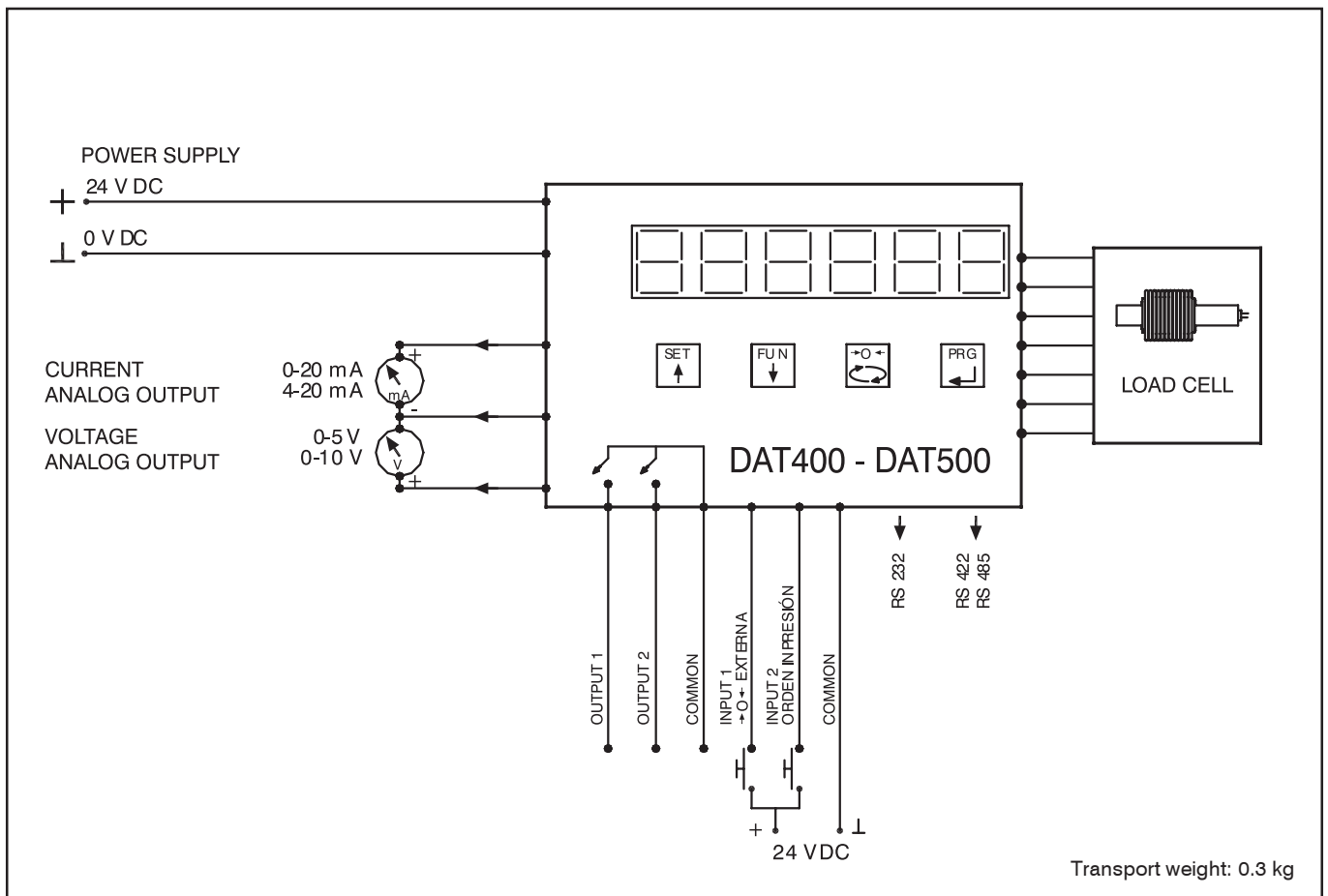
Panel mount:

- 89079 DAT500**
- 89079P DAT500 PROFIBUS**
- 89079D DAT500 DEVICENET**

■ ACCESORY:

- 89077 Mod. 121** Power supply 230V AC to 24V DC, DIN Rail mount.





TECHNICAL SPECIFICATIONS

Power requirements:

Input voltage 24V DC \pm 15%
 Power consumption 7,5 W
 Isolation Class II
 Category Category II

Environmental:

Operating Temperature -10 to +40 °C (+14 to +104 °F)
 Storage Temperature -20 to +50 °C (-4 to +122 °F)
 Relative Humidity 85% non-condensing

Display:

Type 6-digit red LED,
 7 segment of 14 mm (0,55") high
 Status LED's 4 Red LED's
 Keyboard 4 Keys (tactile feedback)

Analog Output (Isolated):

Type 16 bit D/A conversion
 Voltage 0-5 and 0-10 V DC (10 K Ω min load)
 Current 0-20 and 4-20 mA (300 Ω max load)
 Linearity < 0,012% of full scale
 Temperature Creep < 0,001 % of FS / °C

Inputs & Outputs:

2 Logic Inputs Opto-isolated, 24V DC PNP
 (requires ext. power supply)
 2 Logic Outputs Solid-state Opto-relays,
 (maximum load 24 V DC/100 mA each)
 Serial Output RS-232, RS-422 or RS-485
 Max. Cable Length . 15m RS-232, 1000m RS-422 and RS-485
 Standard Protocols ASCII, MODBUS RTU according
 PI-Mbus-300* MODICON guide
 Baud Rate ... 2400, 9600, 19200, 38400 or 115200 selectable

Performance:

Excitation Voltage 5 V DC, short circuit proof
 Load Current 85 mA (six 350 Ω load cells)
 Conversion Rate 50 updates/second (no filtering)
 Resolution 60.000 counts
 Sensitivity 0,2 μ V / count
 Linearity < 0,01 % of full scale
 Temperature Creep < 0,001% of FS / °C
 A/D Converter 24 bits
 Signal Input Range -0,5mV/V to +3,5 mV/V
 Filter 0,1 Hz to 25 Hz selectable
 Increment Size x1, x2, x5, x10, x20, x50
 Decimal Point 0.0, 0.00, 0.000
 Calibration Methods Computer interface or via front panel

Enclosure:

	DAT400	DAT500
Overall Dimensions	106 x 90 x 58 mm (LxHxD)	96 x 48 x 139 mm (LxHxD)
Mounting	DIN Rail	Panel
Enclosure	ABS	ABS
Protection (front)	IP20	IP20
Wiring Connections	Terminal blocks (pitch = 5mm)	Terminal blocks (pitch=5mm)
Panel drill		92 x44 mm

*DAT transmitter are configured according PI-Mbus-300 Modicon guide
 (owner of Modbus technology)

REMOTE DISPLAY FOR WEIGHING



- Remote display for SMART and MATRIX.
- 7 digit weight LED 57 mm and 8 status LED. High bright.
- Stainless Steel enclosure IP65.
- Communication RS232 and RS 485.
- External Power supply: 230 ±10% V AC 50/60 Hz 12W.
- Mounting hardware included.

