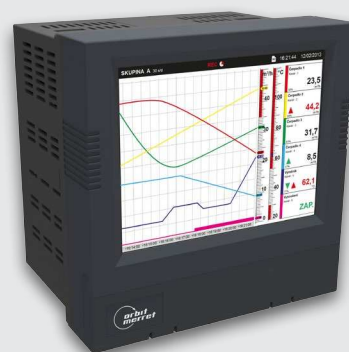
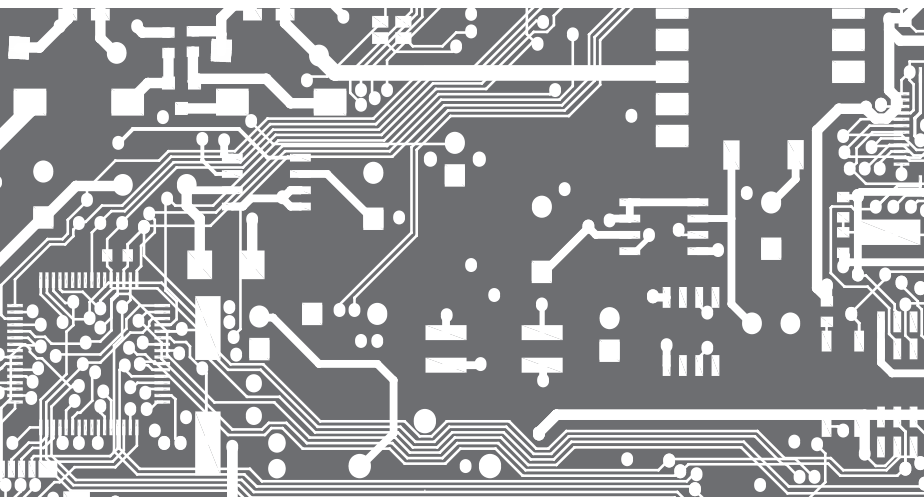
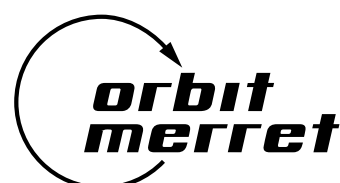
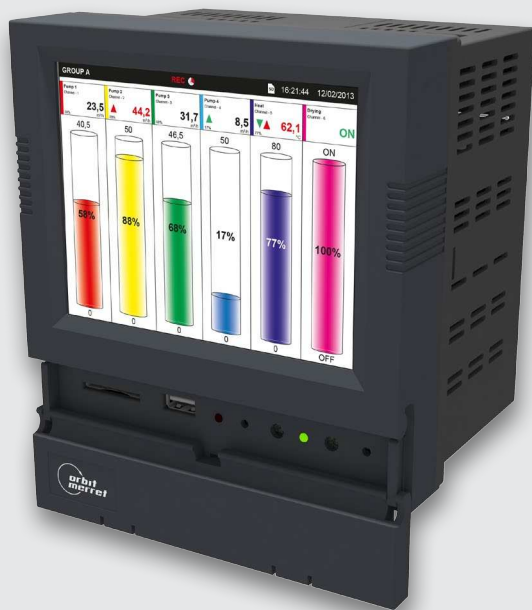




OMR 700
PAPERLESS RECORDER





PAPERLESS RECORDER **OMR 700**

Colour TFT display 5,6"

Modular data recorder with 8 positions for plug-in cards:

- analogue inputs, max. 12 inputs/card
- digital inputs, max. 12 inputs/card
- analogue outputs, max. 6 outputs/card
- digital outputs, max. 10 outputs/card
- data outputs

Recorded information is stored either to the internal 512 MB memory, or to the SD card or to the USB Flash disc
Always on board are Ethernet 10/100B, RS 485 – Modbus, USB and micro USB

Dimensions 150 x 150 mm

Power supply 10...30 V AC/DC or 80...250 V AC/DC

INTRODUCING THE RECORDER

ORBIT MERRET has added the paperless recorder OMR 700 to its already wide range of products.

This recorder is intended for areas where it is needed to display and/or record a number of electrical and nonelectrical values. Versatility and good value for money predestine this device to fulfil most of your demanding needs including IP64 (front panel).

This paperless recorder has been developed with versatility and intuitive control in mind. Thanks to its modularity the user can insert input / output cards into any of the 8 slots. This way it is possible to record up to 96 channels.

Always on board are external input control inputs, serial line RS 485, Ethernet 10/100, USB connectors on both the front and the rear of the recorder as well as 512 MB of internal memory to record the measured data.

PROJECTION

Colour 5,6" TFT display with fine resolution dominates the device. It is multitouch and therefore allows an ease of use.

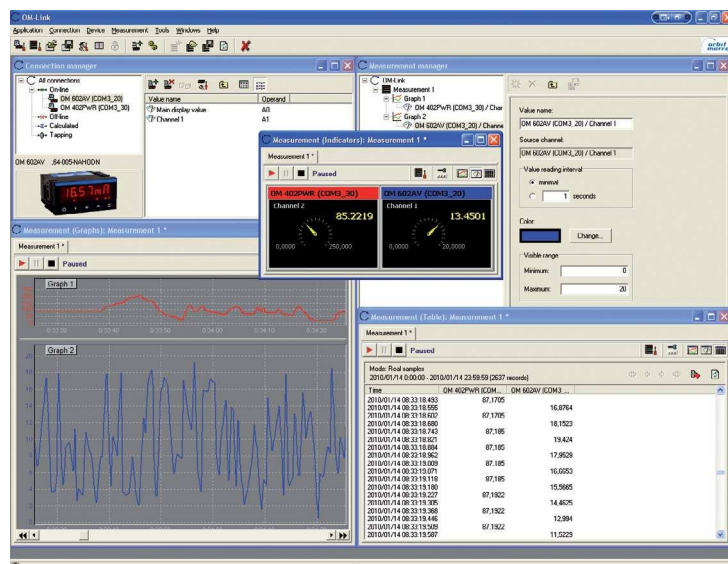
CONTROL

Recorder is controlled by both the touch screen and the push buttons positioned underneath a sliding front door. Touch buttons are used to enter the recorder's menu, for a direct launch of data recording into the instrument's memory and for reset.

Two indicating LEDs indicate run/error and an active recording of data.

SETTING AND VISUALISATION

As well as all other Orbit Merret devices the OM 700 paperless recorder is also fully compatible with the OM Link software.



DATA RECORDING

The OMR 700 can record measured data from any of its active inputs. Values are stored in the internal 512 MB memory and either simultaneously or at a later time can be transferred to an SD card or to a USB Flash disc. The fastest recording period (applies to a limited number of channels) is 1ms per channel.

Recording speed according to number of channels / Memory space

Recording speed	12 inputs	48 inputs	68 inputs	96 inputs
1 ms	2,5 hours	x	x	x
10 ms	1 day	7,5 hours	x	x
1 s	3,5 months	1 month	20 days	16 days
1 min	18 years	5 years	3,5 years	2,5 years
10 min	182 years	52 years	37 years	25 years



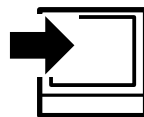
Recording to an SD card or to USB Flash is possible directly in the „CVS“ format, however this way is memory space demanding.

MODULAR CARDS

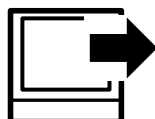
The OMR 700 was designed with versatility and flexibility in focus. Cards are mutually interchangeable in their positions. More cards can be added into the vacant slots at a later date. This way the OMR 700 can grow along with your requirements.

Analogue cards are fully galvanic isolated from the internal bus and also individual inputs are galvanic isolated from each other (depending on a version).

Integral part of the default execution contains a power supply module with READY output (no errors detected), WRITE (SD card/USB Flash are full) and a communication module with Ethernet 10/100, RS 485 (ASCII, MODBUS), 2x USB, SD memory card and 5 auxiliary digital inputs.

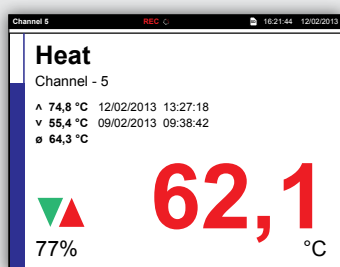
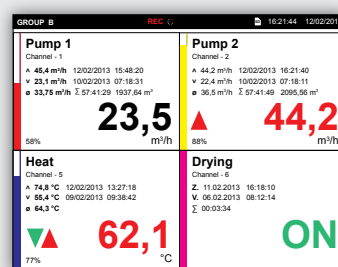
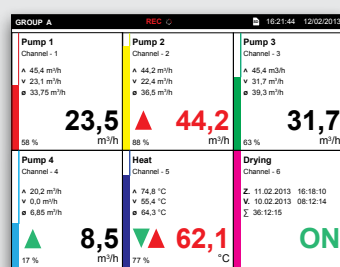
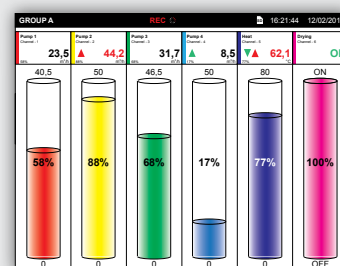
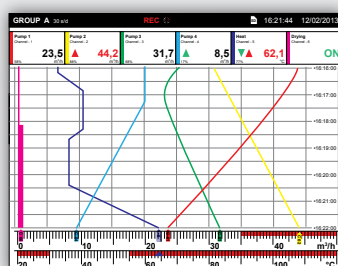
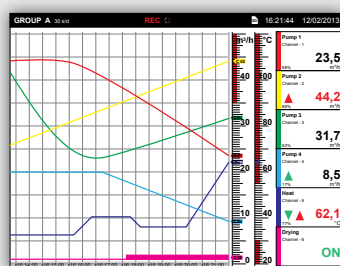


- 3x universal - DC, PM, OHM, RTD, Ni, Cu, T/C, DU
- 8x/12x DC - voltage input
- 8x/12x DC - current input
- 5x RTD input - Pt xxx, Ni xxx, Cu xxx
- 8x T/C input - J/K/T/E/B/S/R/N/L
- 2x DMS - load cell input
- 3x DC - precise voltage/current input
- 12x input counter/frequency/IRC
- 2x AC/PWR - voltage/current/power/frequency
- 12x digital input 10...250 V AC/DC



- 4x relay with switch-over contact
- 8x relay with a switch-on contact
- 10x relay with a switch-on contact and one common terminal
- 8x open collector NPN
- 16x open collector NPN
- 8x open collector PNP
- 6x SSR
- 2x/4x/6x analogue output
- 1x PROFIBUS
- 1x PROFINET

TYPES OF PROJECTION



RECORDING OF EVENTS

GROUP A 30 sec REC 16:21:44 12/02/2013

No.	Event	Date	Time
01	Switching on	16/01/2013	07:12:15
02	Insert SD card	22/01/2013	09:18:10
03	Insert USB Flash	31/01/2013	14:32:35
04	Change setting - User 1	04/02/2013	10:41:52

GROUP A 30 sec REC 16:21:44 12/02/2013

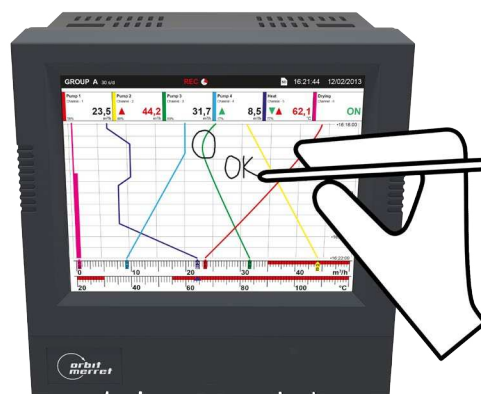
No.	Event	Date	Time
01	Pump 2	20/01/2013	08:11:10
02	Heat	20/01/2013	11:19:22
03	Pump 2	20/01/2013	16:22:30
04	Heat	03/02/2013	13:45:52
05	Heat - info@service.eu	03/02/2013	13:45:52
06	Pump 4	16/02/2013	12:51:38
07	Pump 4 - User 1	16/02/2013	12:55:52

GROUP A 30 sec REC 16:21:44 12/02/2013

Channel	Tag/Name	Source Tag	Date	Time
01	Pump 1	Flow	20/01/2013	08:11:10
A	45,4 m³/h		20/01/2013	15:48:20
V	23,1 m³/h		20/01/2013	07:18:31
e	33,75 m³/h			
Σ	1937,64 m³ / 2 57:41:29			
02	Pump 2	Flow	20/01/2013	08:11:38
A	44,2 m³/h		12/02/2013	16:21:40
V	22,4 m³/h		10/02/2013	07:18:11
e	36,5 m³/h			
Σ	2005,56 m³ / 2 57:41:49			
Σ	42037,64 m³ / 2 4557:22			

MAKING NOTES

To make notes into the trend on the display you can use either your finger tips or a stylus (located on a reverse side of the front sliding door). You can select the colour, type and thickness of the lines you draw.



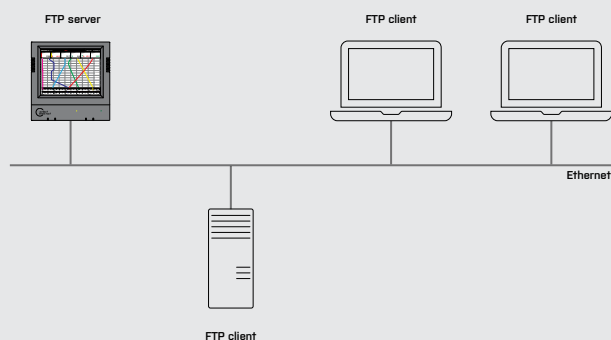
COUNTERS / FREQUENCY MEASUREMENT

Universal digital input is used to count voltage pulses. Comparative voltage levels can be set from 2 to 30 V. Input type PNP/NPN/contact can also be selected.

Up to 4 IRC sensors (2 of them fast) can be connected to this input. Inputs allow for pulse counting in various modes and also for frequency measurement.

Inputs are equipped with various configurable filters, such as eliminating false signals which can originate from closing/opening a mechanical contact or a filter which suppresses interference during a frequency measurement.

Counter inputs can also be used as logical inputs and their states are recorded along with analogue inputs into the internal memory/SD memory card /USB flash disk.

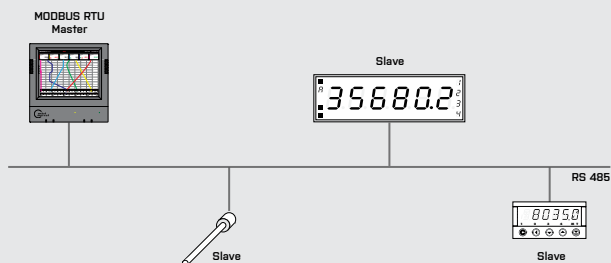


In its default execution the recorder is equipped with connection Ethernet 10/100Base and offers:

- display projection
- transfer of stored data (internal memory, SD card, USB Flash)
- recording of events

Other network functions are:

- send an e-mail
- synchronise time
- DHCP



Recorder offers the use of a data line RS 485 MODBUS RTU protocol.

Up to 247 devices can be connected to this line.

This can be used for:

- collecting data from (not only) Orbit Merret instruments
- projecting measured or calculated values on an external display, for example OMD 202RS which has up to 6 digits 125mm tall.

When required, two plug-in cards are available for PROFIBUS and PROFINET data communication.

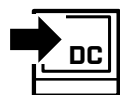
Only those cards have, due to their different size of connectors, a set position in slot B5 and are used to transfer data into a superior system (PLC).



microUSB

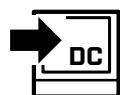
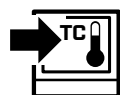
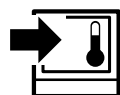
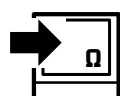
Ext. inputs
5x contact

Ethernet
10/100BaseT

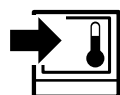


A1 3x Universal input

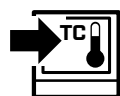
DC: $\pm 60/\pm 150/\pm 300/\pm 1\ 200$ mV
PM: $0\ldots 5$ mA/ $0\ldots 20$ mA/ $4\ldots 20$ mA ± 2 V/ ± 5 V/ ± 10 V/ ± 40 V
OHM: $0\ldots 100$ Ω / $0\ldots 1/10/100$ k Ω /Auto
RTD: Pt 50/100/Pt 500/Pt 1 000
Cu: Cu 50/Cu 100
Ni: Ni 1 000/Ni 10 000
T/C: J/K/T/E/B/S/R/N/L
DU: Linear potentiometer (min. 500 Ω)



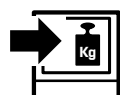
B1 8x $0\ldots 5/20$ mA/ $4\ldots 20$ mA, isol.
B2 8x $\pm 2/\pm 5/\pm 10/\pm 40$ V, isolated
B3 12x $0\ldots 5/20$ mA/ $4\ldots 20$ mA
B4 12x $\pm 2/\pm 5/\pm 10/\pm 40$ V
B8 3x $0/4\ldots 20$ mA; $\pm 5/\pm 10$ V, isol.



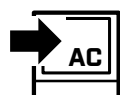
B5 5x input for Pt/Ni/Cu xxxx
two and three wire connection



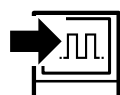
B6 8x input for thermocouples
J/K/T/E/B/S/R/N/L
with cold junction compensation



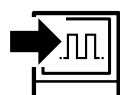
B7 2x input for load cells, galvanic isolated
range: $1\ldots 2/8/16$ mV/V
supply for loadcells



B9 2x AC/PWR input, galvanic isolated
 $0\ldots 450$ V/ $0\ldots 5$ A
voltage, current, power, frequency



C1 12x counter/frequency/IRC
 $0\ldots 30$ V, $0,1$ Hz.. 100 kHz
(1 MHz for QVADR and UP/DW)
Measuring modes: SINGLE/QVADR/UP/DW/TIME



C2 8x digital input
 $12\ldots 250$ V AC/DC

IN



The following are available under the front sliding door (plus a stylus)



SD card
< 32 GB

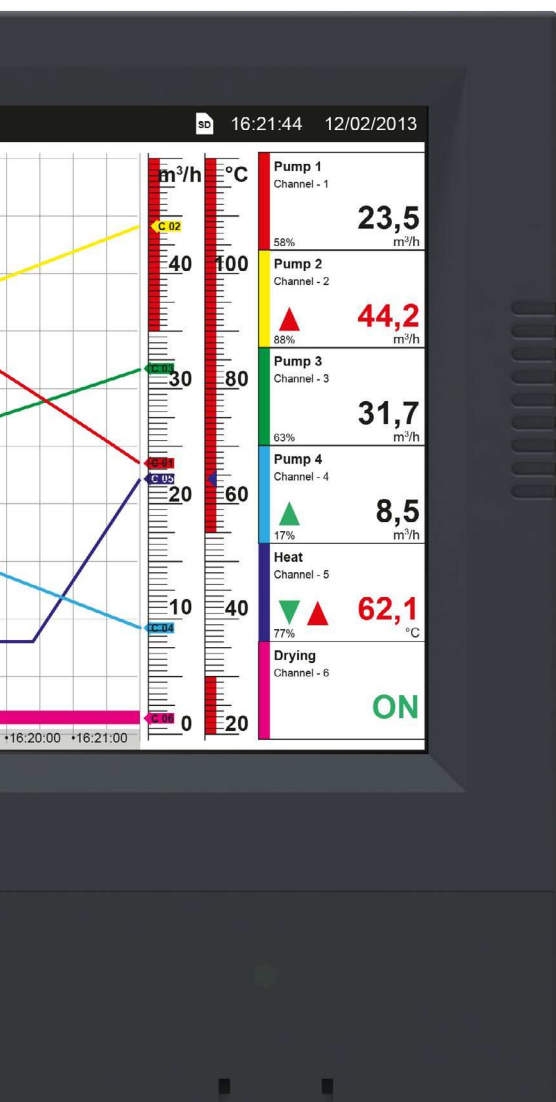
USB
connector A

Output

READY and WRITE
open collector



RS 485



OUT



- Q1 4x relay with a switch-over contact
- Q2 8x relay with a switch-on contact
- Q3 10x relay with a switch-on contact and one common terminal



- Q4 8x open collector, NPN
- Q5 16x open collector, NPN with one common terminal
- Q6 8x open collector, PNP



- Q7 6x SSR



- V1 2x Analogue output, gal. isolated
- V2 4x Analogue output, gal. isolated
- V3 6x Analogue output, gal. isolated



- X1 1x PROFIBUS



- X2 1x PROFINET

LED

recording

Keys

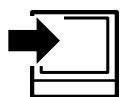
menu
record
reset

LED

run
error

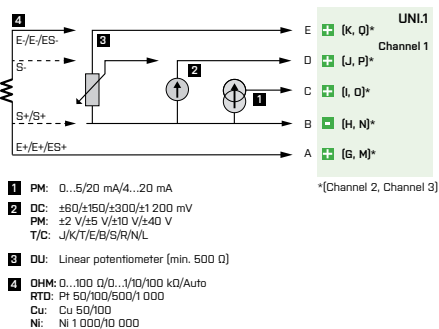


Recorder can hold up to 8
cards in any combination

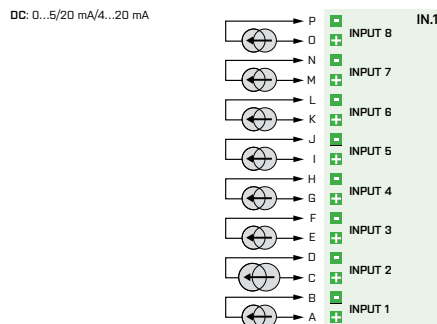


CONNECTION – INPUT

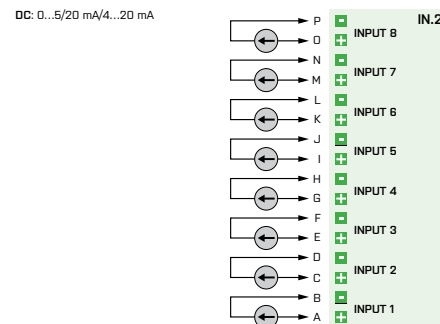
UNI.1 3x Universal input



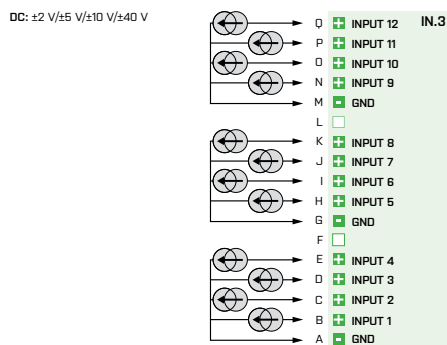
IN.1 8x DC input, current



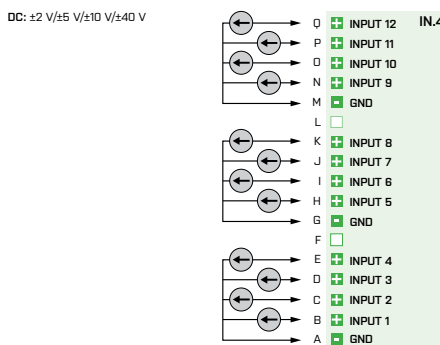
IN.2 8x DC input, voltage



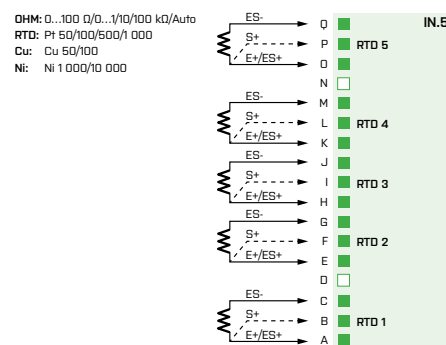
IN.3 12x DC input, current



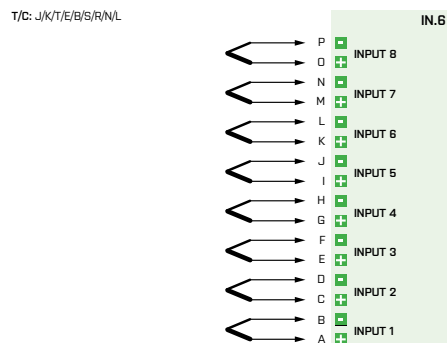
IN.4 12x DC input, voltage



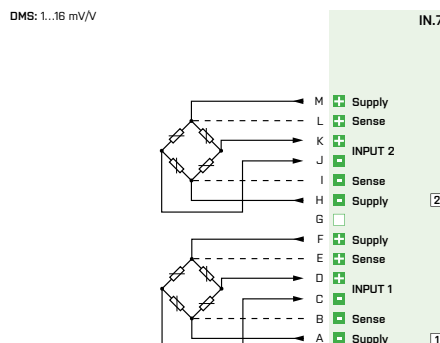
IN.5 5x RTD input



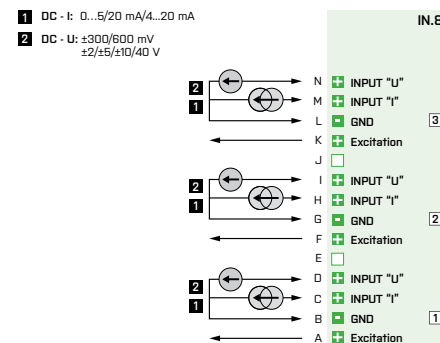
IN.6 8x T/C input



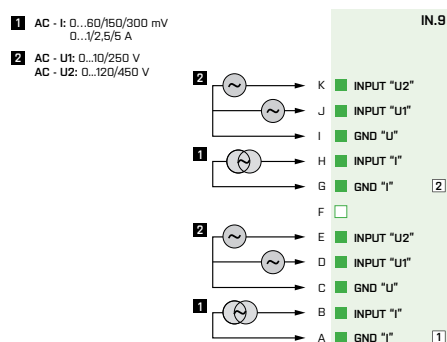
IN.7 2x Load cell input



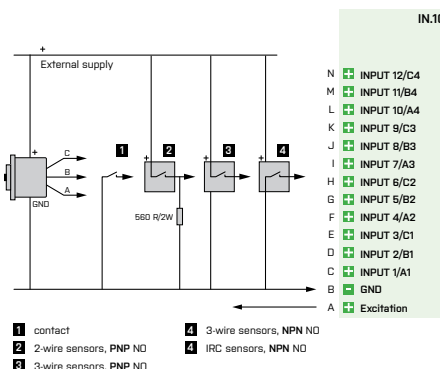
IN.8 3x DC input



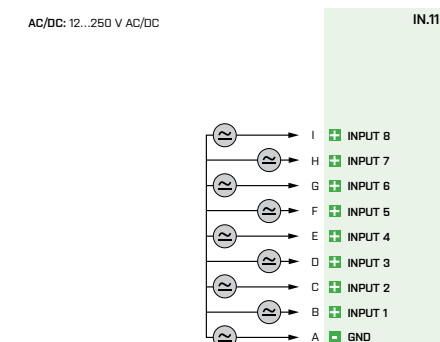
IN.9 2x AC/PWR input

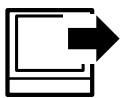


IN.10 12x Pulse input



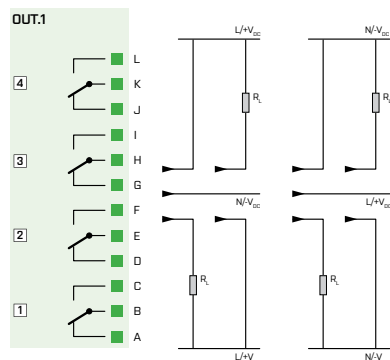
IN.11 8x Digital input



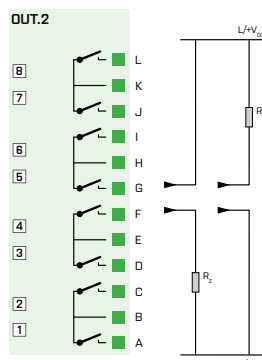


CONNECTION – OUTPUT

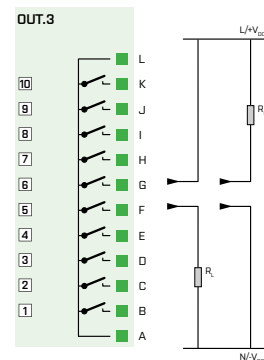
OUT.1 4x Relay, switch-over contact



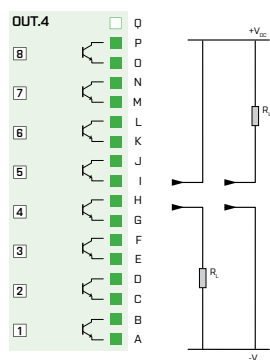
OUT.2 8x Relay, switch-on contact



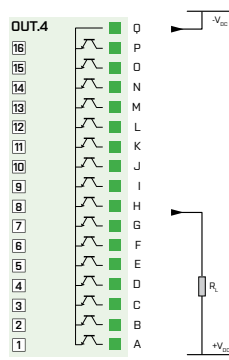
OUT.3 10x Relay, switch-on contact



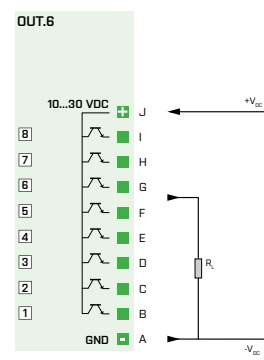
OUT.4 8x OC, NPN



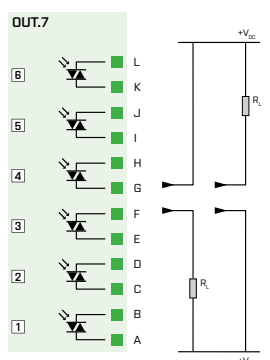
OUT.5 16x OC, NPN



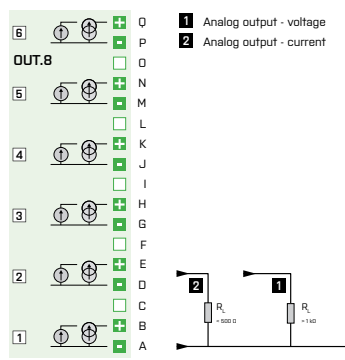
OUT.6 8x OC, PNP



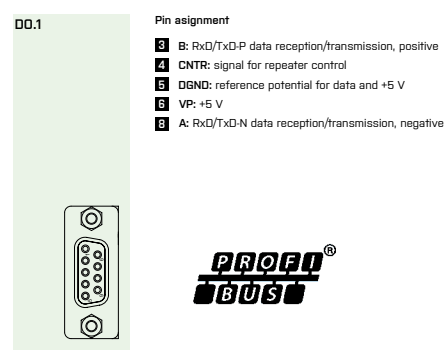
OUT.7 6x SSR



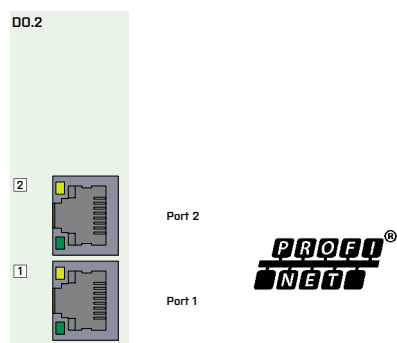
AO.1 2/4/6x Analogue output



DO.2 1x PROFIBUS



DO.2 1x PROFINET





TECHNICAL DATA

PROJECTION

Display: 5,6" colour TFT display with capacitive touch screen
Brightness: selectable or automatic

INSTRUMENT ACCURACY

TC: 50 ppm/°C
Accuracy: depending on the measuring card used
Accuracy of cold junction measurement ±1,5°C
Measuring rate: depending on the measuring card used
Overload capacity: 10x (t < 30 ms) - not for > 200 V and 5 A; 2x
Resolution: 0,1°C (RTD), 1°C (T/C)
Watch-dog: reset after 500 ms
Functions: HOLD, LOCK, Digital filters, Tare
Linearisation: by linear interpolation in 50 points
Digital filters: Averaging, Floating average, Exponential filter, Rounding
Function: offset, Min./Max. value, Tare, Pick value, Math. function, Mat. operation between inputs
Ext. inputs: HOLD, LOCK, Tare, Min/Max, Record
Output: READY, WRITE (open collector)
Recording management: recorded values are stored in the internal memory (512 MB)
RTC: - 15 ppm/°C, time-date-value
Data storage: internal, SD card, USB Flash (max. 32 GB)
OM Link: company communication interface for setting, operation and update of instrument SW via USB
Calibration: at 25°C and 40 % of r.h.

COMPARATOR

Type: digital, adjustable in menu
Outputs: 4/8/10x relays with switch-on contact (Form A) or with switch-off contact (Form C) [250 VAC/30 VDC, 3 A], 8/16x open collectors NPN or PNP, 5x SSR

DATA OUTPUTS

Protocols: ASCII, MODBUS RTU, FTP, SMPT
Data format: 8 bit + no parity + 1 stop bit (ASCII)
Rate: 300...230 400 Baud
RS 485: isolated, addressing (max. 31 instruments)
Ethernet: 10/100BaseT, secure communication, SMPT, FTP

ANALOG OUTPUTS

Type: isolated, programmable with 16 bits D/A convertor, type and range are adjustable
Non-linearity: 0,1% of range
TC: 15 ppm/°C
Rate: response to change of value < 1 ms
Range: 0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA (comp. < 500 Ω)

EXCITATION

Adjustable: 5...24 VDC/max. 2,5 W

POWER SUPPLY

10...30 V AC/DC, ±10%, max. 30 VA, PF ≥ 0,4,
 $I_{STD} < 75 \text{ A/2 ms}$
 80...250 V AC/DC, ±10%, max. 30 VA, PF ≥ 0,4,
 $I_{STD} < 45 \text{ A/2 ms}$
Protection by fuse inside the instrument

MECHANIC PROPERTIES

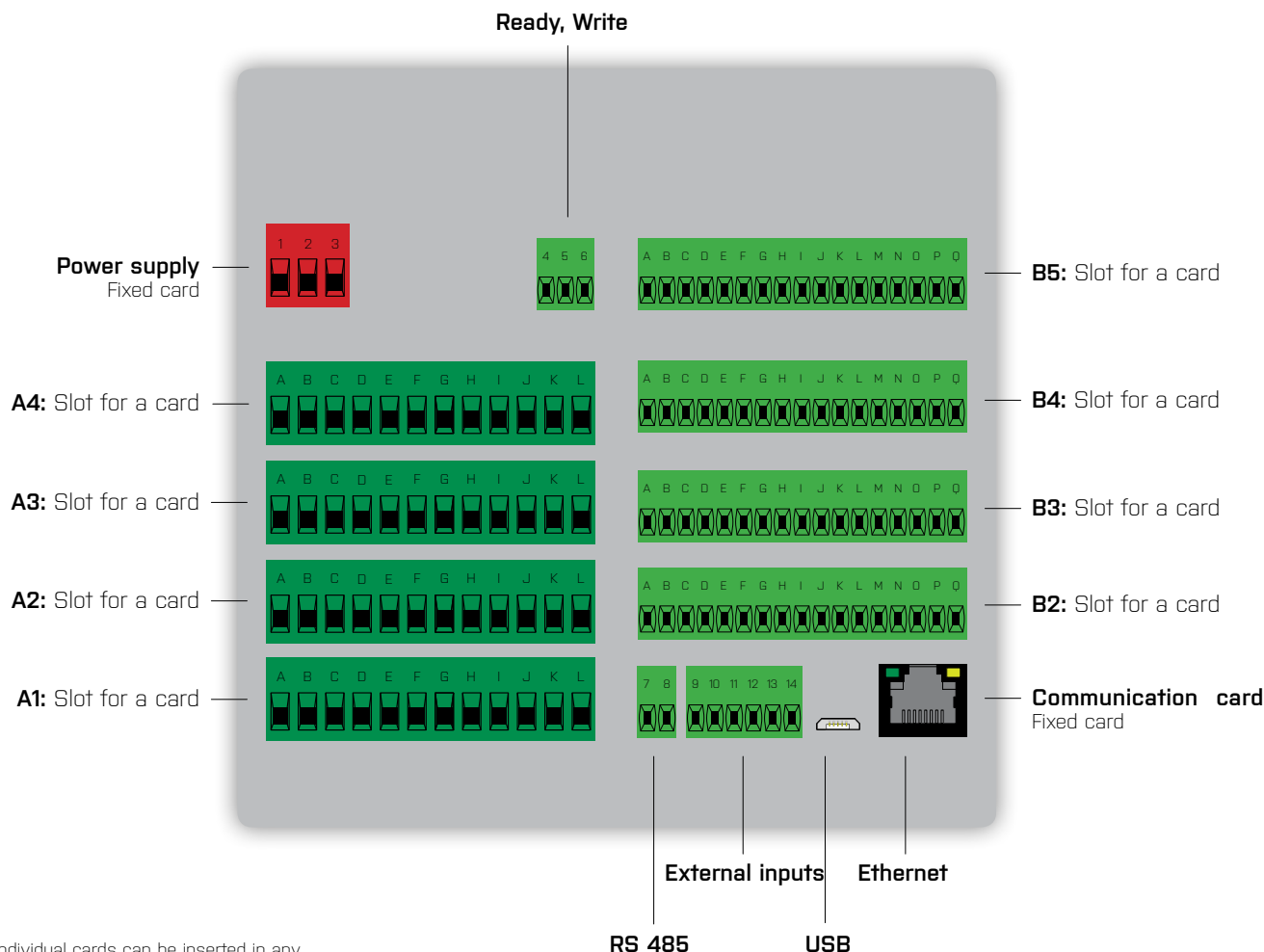
Material: Noryl GFN2 SE1, incombustible UL 94 V-I
Dimensions: 144 x 150 x 80 mm
Depth behind panel: 85 mm
Panel cut-out: 138 x 138 mm

OPERATING CONDITIONS

Connection: connector terminal board, conductor cross-section < 1,5/2,5 mm²
Stabilisation period: within 15 minutes after switch-on
Working temp.: -20°...60°C
Storage temp.: -20°...85°C
Cover: IP64 (front panel only)
Overvoltage cat.: EN 61010-1, A2
Dielectric strength: 4 kVAC after 1 min between supply and bus
 4 kVAC after 1 min between cards
Insulation resistance.: for pollution degree II, measurement cat. III
 instrument power supply > 670 V [PI], 300 V [DI]
 input, output, PN > 300 V [PI], 150 V [DI]
EMC: EN 61326-1

PI - Primary insulation, DI - Double insulation

CONNECTOR LAYOUT



Individual cards can be inserted in any position

ORDER CODE

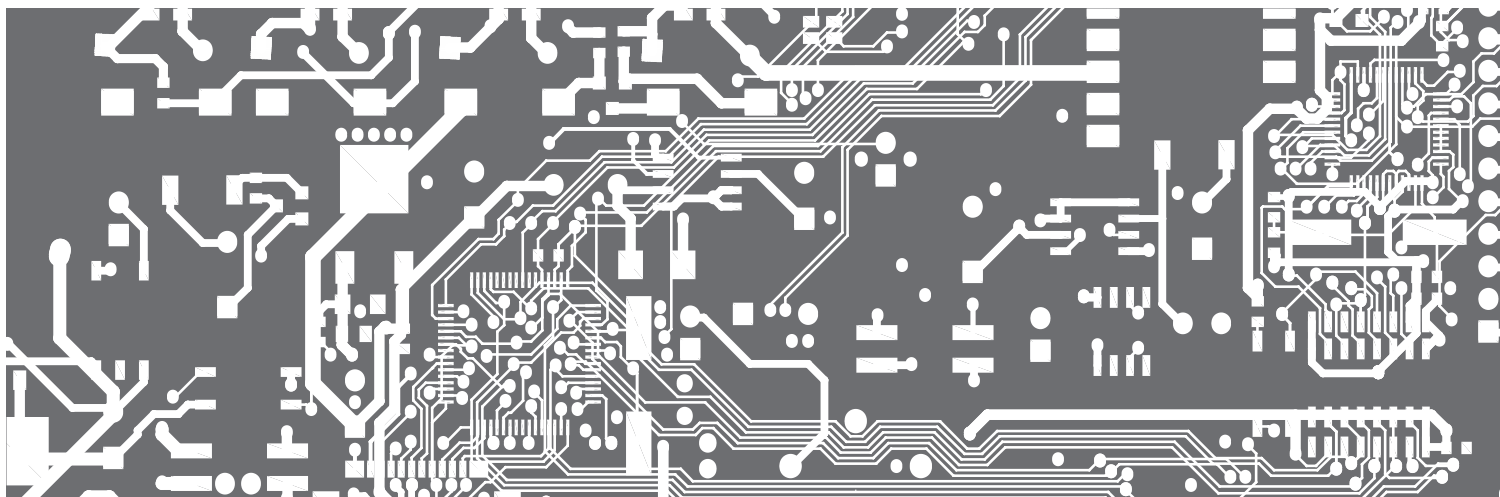
OMR 700



Power supply	10...30 V AC/DC	0								
	10...30 V AC/DC, isolated	1								
Options, please see table „Card types“			●	●	●	●	●	●	●	
Here list the cards of your choice										
Specification	customised versions only									00

Card types

Order code	Marking	Description	Range	Accuracy (full scale)	Convertor (resolution)	Measur. rate (measur./s)	Isolation (galvanic)
0	PW.0	Power supply	10...30 V AC/DC				yes
1	PW.1	Power supply	80...250 V AC/DC				yes
A1	UNI.1	3x Universal input	DC: ±60/±150/±300/±1 200 mV PM: 0...5 mA/0...20 mA/4...20 mA/±2 V/±5 V/±10 V/±40 V OHM: 0...100 Ω/0...1 kΩ/0...10 kΩ/0...100 kΩ/Auto RTD: Pt 50/100/Pt 500/Pt 1 000 Cu: Cu 50/Cu 100 Ni: Ni 1 000/Ni 10 000 T/C: J/K/T/E/B/S/R/N/L DU: Linear potentiometer [min. 500 Ω]	±0,15 %	24 bit	0,1...40	yes
B1	IN.1	8x current input	0...5 mA/0...20 mA/4...20 mA	±0,2	12 bit	1...500	yes
B2	IN.2	8x voltage input	±2 V/±5 V/±10 V/±40 V	±0,2	12 bit	1...500	yes
B3	IN.3	12x current input	0...5 mA/0...20 mA/4...20 mA	±0,2	12 bit	1...500	no
B4	IN.4	12x voltage input	±2 V/±5 V/±10 V/±40 V	±0,2	12 bit	1...500	no
B5	IN.5	5x RTD	Pt 50/100/1000, Ni 1000/10 000, Cu 50/100	±0,2	12 bit	1...500	no
B6	IN.6	8x T/C	J/K/T/E/B/S/R/N/L	±0,2	12 bit	1...500	yes
B7	IN.7	2x input for load cell incl. sensor supply	1...16 mV/V	±0,02	24 bit	1...100	yes
B8	IN.8	3x precise DC input	0/4...20 mA, ±5/±10 V	±0,02	24 bit	1...100	yes
B9	IN.9	2x Voltage (V _{RMS}), current (A _{RMS}), frequency (Hz) calculated Q, S, cos fi	input U: 0...10 V/0...120 V/0...250 V/0...450 V input I: 0...60 mV/0...150 mV/0...300 mV/0...1 A/0...2,5 A/0...5 A	±0,3 %		0,1...5	yes
C2	IN.11	8x digital input	12...250 V AC/DC			< 1 ms	yes
Q1	OUT.1	4x relay with a switch-over contact	250 VAC/30 VDC, 3 A			< 10 ms	
Q2	OUT.2	8x relay with a switch-on contact	250 VAC/30 VDC, 3 A			< 10 ms	
Q3	OUT.3	10x relay with a switch-on contact, one terminal common	250 VAC/30 VDC, 0,5 A			< 10 ms	
Q4	OUT.4	8x open collector, NPN	30 VDC/100 mA			< 0,2 ms	
Q5	OUT.5	16x open collector, NPN one terminal common	30 VDC/100 mA			< 0,2 ms	
Q6	OUT.6	8x open collector, PNP	30 VDC/700 mA			< 0,2 ms	
Q7	OUT.7	6x SSR	250 VAC, 1 A			< 0,2 ms	
V1	A0.1	2x Analogue output	0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA [comp. < 500 Ω/12 V]	±0,1%		< 1 ms	yes
V2	A0.2	4x Analogue output	0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA [comp. < 500 Ω/12 V]	±0,1%		< 1 ms	yes
V3	A0.3	6x Analogue output	0...2/5/10 V, ±10 V, 0...5 mA, 0/4...20 mA [comp. < 500 Ω/12 V]	±0,1%		< 1 ms	yes
X1	D0.1	PROFIBUS					yes
X2	D0.2	PROFINET					yes



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