



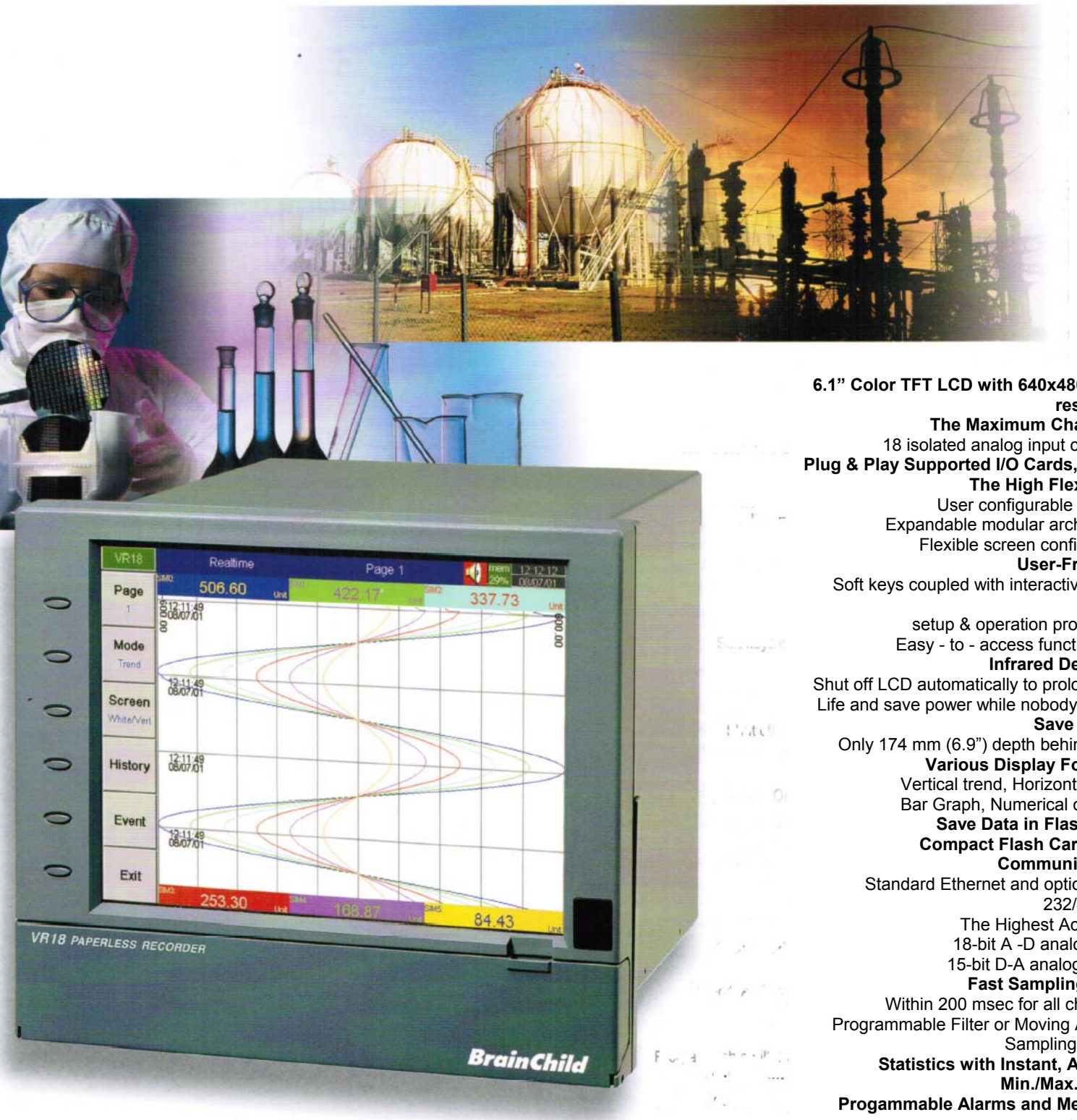
## CRN TECNOPART, S.A.

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**BrainChild**

**BC-130.32E**

## VR18 PAPERLESS RECORDER



**6.1" Color TFT LCD with 640x480 pixels resolution**

**The Maximum Channels :**

18 isolated analog input channels

**Plug & Play Supported I/O Cards, 6 Slots**

**The High Flexibility :**

User configurable I/O card

Expandable modular architecture

Flexible screen configuration

**User-Friendly :**

Soft keys coupled with interactive dialog

simplify

setup & operation procedures

Easy - to - access function keys

**Infrared Detector :**

Shut off LCD automatically to prolong LCD

Life and save power while nobody near by

**Save Space :**

Only 174 mm (6.9") depth behind panel

**Various Display Formats :**

Vertical trend, Horizontal trend,

Bar Graph, Numerical or mixed

**Save Data in Flash ROM,**

**Compact Flash Card or PC**

**Communication :**

Standard Ethernet and optional RS-

232/422/485

The Highest Accuracy :

18-bit A -D analog input,

15-bit D-A analog output.

**Fast Sampling Rate :**

Within 200 msec for all channels,

Programmable Filter or Moving Average

Sampling Method

**Statistics with Instant, Average,**

**Min./Max. Values**

**Programmable Alarms and Messages**

available

**Portable / Bench Top Assembly Kit**

available

## 12 SOFT KEYS FOR EASY OPERATION

VR18 is the World Firstpaperless recorder of the same size with the highest resolution (true VGA , 640x480 pixels), infrared detector, 18 channels, plug & play I/O card, high flexibility, the most user - friendly and the shortest depth. In chemical plant, food & beverage plant, petrochemical plant, semiconductor plant, metal alloy, automotive plant, environmental monitoring or laboratory, VR18 can be used to monitor, record, evaluate the processes in the plants. The user can access data on the screen as well as on site from a remote place via RS-232, RS-485, RS-422 serial interface or Ethernet networking. The historical data can be stored in flash ROM, Compact Flash Card, or collected in a remote host PC for data evaluation and print-out.

### Rear Terminals

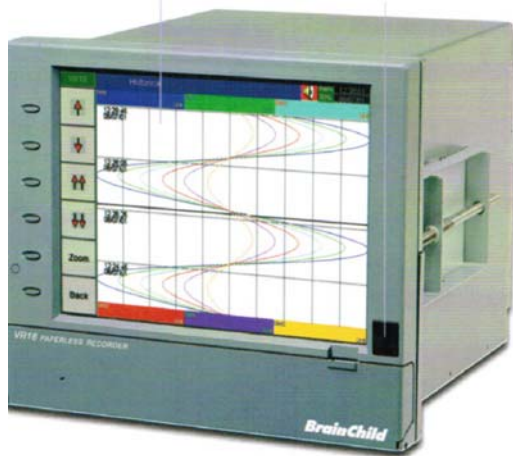
standard Ethernet and optional RS-232/422/485 Power supply



6 SLOTS for Plug & play I/O cards, maximum 18 analog input or mixed with analog & digital I/O cards

### Panel Mounted Style

6.1" color TFT LCD 640x480 pixels resolution  
Infrared detector protect LCD & save power



### Input & Output Cards

Digital input      Digital output (6 alarms)      Analog input



Configure input by DIP switches

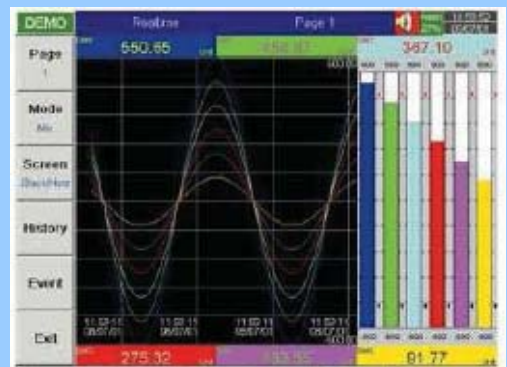
### Bench Top / Portable Style



Power Switch

Portable handle

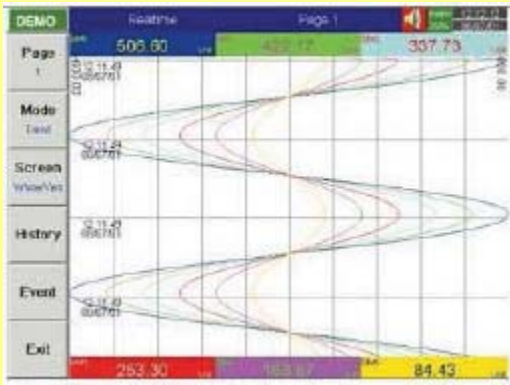
### Mixed Mode



- View max. 6 mixed real time data trends horizontally.
- Display data in "Bars" and "Digits" together with mixed "Trends".
- Recognize data trends easily by different colors and tag names.
- Switch to other configured pages easily by "Page" function key.
- Display current "Time/Date" information.
- Remind the user of "Alarm" or "Memory Full".



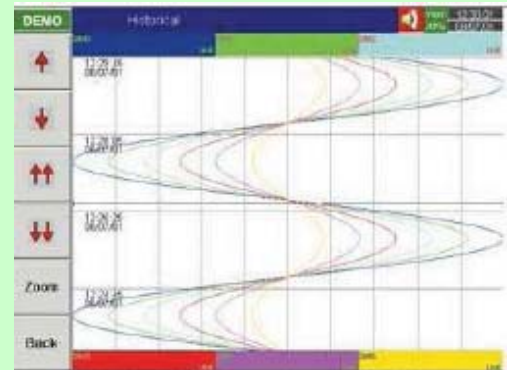
### Trend Mode



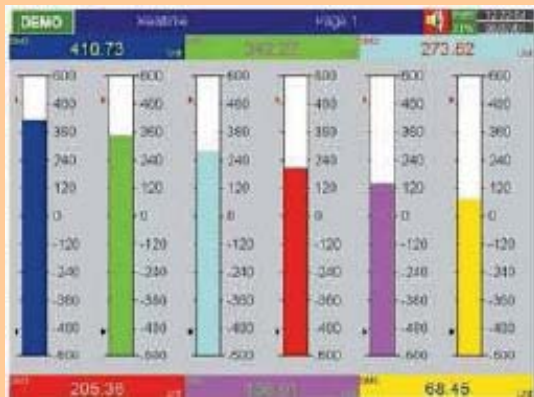
- View max. 6 real time data trends vertically.
- Recognize data trends easily by different colors and tag names.
- Switch to other configured pages easily by "Page" function key.
- Display current "Time/Date" information.
- Remind the user of "Alarm" or "Memory Full".

- Display max. 6 sets of historical data simultaneously
- View desired data section by  $\uparrow\downarrow$  function keys
- Access precise data value at a point selected by moving the "ruler".
- "Zoom" to expand/contract the display time span.
- View historical data trends and their respective data values.
- Recognize trends easily by different colors and individual tag names

### Historical Mode



### Bar Graph Mode



- View max. 6 real time data in bar graphs.
- Scale individually by user in "configuration".
- Display data value and tag name in different colors together with each bar graph.
- Mark "Hi/Lo" alarm limits.
- Display current "Time/Date" information.
- Remind the user of the "Alarm" or "Memory Full".

- List all the alarm records clearly with useful information .
- Browse through the alarm list or "acknowledge" alarm easily by function keys on the vertical bar.
- Remind the user of the alarm status in different colors.

### Alarm list

Ack	Type	Source	Alarm Time	Clear Time	Status
	Event	PW ON	2001.6.7 12:20:20		
	LoAlarm	DM6	2001.6.7 12:21:41	2001.6.7 12:25:12	Cleared
	LoAlarm	DM12	2001.6.7 12:21:41	2001.6.7 12:25:44	Cleared
	HiAlarm	DM6	2001.6.7 12:21:41	2001.6.7 12:25:3	Cleared
	HiAlarm	DM6	2001.6.7 12:25:29	2001.6.7 12:29:24	Cleared
	LoAlarm	DM10	2001.6.7 12:25:48	2001.6.7 12:29:19	Cleared
	HiAlarm	DM6	2001.6.7 12:25:58	2001.6.7 12:28:11	Cleared
	HiAlarm	DM12	2001.6.7 12:28:45	2001.6.7 12:29:11	Cleared
	LoAlarm	DM12	2001.6.7 12:29:12	2001.6.7 12:29:5	Cleared
	HiAlarm	DM6	2001.6.7 12:29:67	2001.6.7 12:29:8	Cleared
	LoAlarm	DM6	2001.6.7 12:30:28	2001.6.7 12:31:15	Cleared
	HiAlarm	DM10	2001.6.7 12:30:63	2001.6.7 12:31:52	Cleared
	HiAlarm	DM12	2001.6.7 12:31:5	2001.6.7 12:31:47	Cleared
	LoAlarm	DM6	2001.6.7 12:31:29	2001.6.7 12:31:55	Cleared
	LoAlarm	DM12	2001.6.7 12:31:48	2001.6.7 12:31:7	Cleared
	HiAlarm	DM6	2001.6.7 12:31:19	2001.6.7 12:34:6	Cleared
	HiAlarm	DM10	2001.6.7 12:32:30	2001.6.7 12:34:5	Cleared
	HiAlarm	DM6	2001.6.7 12:31:16	2001.6.7 12:34:6	Cleared
	LoAlarm	DM12	2001.6.7 12:30:28	2001.6.7 12:35:7	Cleared
	LoAlarm	DM6	2001.6.7 12:34:6	2001.6.7 12:37:7	Cleared
	LoAlarm	DM10	2001.6.7 12:34:12	2001.6.7 12:37:7	Cleared
	LoAlarm	DM6	2001.6.7 12:34:58	2001.6.7 12:37:7	Cleared
	HiAlarm	DM12	2001.6.7 12:31:19	2001.6.7 12:37:7	Cleared
	HiAlarm	DM6	2001.6.7 12:31:19	2001.6.7 12:37:7	Cleared

### Numerical Mode



- View max. 6 real time data in numbers.
- Display data value and tag name in different color.
- Mark "Hi/Lo" alarm limits.
- Display current "Time/Date" information.
- Remind the user of the "Alarm" or "Memory Full"

- Configure pen (input/output, pen name, event, job.....)
- Configure page (color, pen, decimal, pen width.....)
- Configure timer.
- Configure instrument (storage media, display, communication, time/date.....)

### Configuration Mode

Every	No	Type	Setpoint	Job 1	Job 2	Hysteresis
	1	H	176.0	Log Alarm	No Action	OFF
	2	L	304.0	Log Alarm	No Action	OFF
	3	HH	360.0	Log Alarm	No Action	OFF
	4	LL	30.0	Log Alarm	No Action	OFF

## SPECIFICATIONS

### POWER SUPPLY

90-250 Vac o 20-28 Vac, 47-63Hz, 60VA,30W max.  
11-18, 18-36 o 36-72 Vdc 60VA, 30W max.

### DISPLAY

6,4" TFT LCD, resolution 640x480 pixels, 256 colores

### MEMORY

8MB storage memory on board  
Storage media: 128, 512 MB, 1 GB CF (Compact Flash) cards

### ANALOG INPUT CARDS (AI181, AI182, AI183)

Channels: AI181 ~ 1 channel, AI182 ~ 2 channels, AI183 ~ 3 channels  
Resolution: 18 bits  
Sampling Rate: 5 times/ second  
Maximum Rating: -2 VDC minimum, 12 VDC maximum (1 minute for mA input)  
Temperature Effect:  $\pm 1.5 \mu\text{V}/\mu\text{C}$  for all inputs except mA  
 $\pm 3.0 \mu\text{V}/\mu\text{C}$  for mA input  
Sensor Lead Resistance Effect:  
T/C:  $0.2 \mu\text{V}/\text{ohm}$   
3-wire RTD:  $2.6 \mu\text{C}/\text{ohm}$  of resistance difference of two leads  
2-wire RTD:  $2.6 \mu\text{C}/\text{ohm}$  of resistance sum of two leads  
Burn-out Current: 200nA  
Common Mode Rejection Ratio (CMRR): 120dB  
Normal Mode Rejection Ratio (NMRR): 55dB  
Isolation Breakdown Voltage between channels: 430VAC min.  
Sensor Break Detection:  
Sensor opened for TC, RTD and mV inputs, below 1 mA for 4-20mA input, below 0.25V for 1-5V inputs.

### CHARACTERISTICS:

Type	Range	Accuracy @ 25 °C	Input Impedance
J	-120 °C 1000 °C (-184 °F 1832° F)	$\pm 1 \text{ }^\circ\text{C}$	2,2 M $\Omega$
K	-200 °C 1370 °C (-328 °F 2498° F)	$\pm 1 \text{ }^\circ\text{C}$	2,2 M $\Omega$
T	250 °C 400 °C (-418 °F 752 °F)	$\pm 1 \text{ }^\circ\text{C}$	2,2 M $\Omega$
E	-100 °C 900 °C (-148 °F 1652 °F)	$\pm 1 \text{ }^\circ\text{C}$	2,2 M $\Omega$
B	0 °C 1820 °C (32 °F 3308 °F)	$\pm 2 \text{ }^\circ\text{C}$ 200/820°C	2,2 M $\Omega$
R	0 °C 1767,8 °C (32 °F 3214 °F)	$\pm 2 \text{ }^\circ\text{C}$	2,2 M $\Omega$
S	0 °C 1767,8 °C (32 °F 3214 °F)	$\pm 2 \text{ }^\circ\text{C}$	2,2 M $\Omega$
N	-250 °C 1300 °C (-418 °F 2372 °F)	$\pm 1 \text{ }^\circ\text{C}$	2,2 M $\Omega$
L	-200 °C 900 °C (-328 °F 1652 °F)	$\pm 1 \text{ }^\circ\text{C}$	2,2 M $\Omega$
PT100 (DIN)	-210 °C 700 °C (-346 °F 1652 °F)	$\pm 0,4 \text{ }^\circ\text{C}$	1,3 M $\Omega$
Pt 100 (JIS)	-200 °C 600 °C (-328 °F 1112 °F)	$\pm 0,4 \text{ }^\circ\text{C}$	1,3 M $\Omega$
mV	-8mV 70mV	$\pm 0,05\%$	2,2 M $\Omega$
mA	-3mA 27mA	$\pm 0,05\%$	70,5 K $\Omega$
0-1 V	-0,12V 1,15V	$\pm 0,05\%$	32 K $\Omega$
0-5 V	-1,3V 11,5V	$\pm 0,05\%$	332 K $\Omega$
1-5 V	-1,3V 11,5V	$\pm 0,05\%$	332 K $\Omega$
0-10 V	-1,3V 11,5V	$\pm 0,05\%$	332 K $\Omega$

### ANALOG INPUT CARD (AI 183V)

Type	Range	Accuracy @ 25° C	Input Impedance
-60/60mV	-62 62mV	$\pm 0,1\%$	2,2 M $\Omega$
-2/2V	-2,2 2,2V	$\pm 0,3\%$	340 K $\Omega$
-20/20V	-22 22V	$\pm 0,1\%$	3,62 M $\Omega$
-20/20mA	-22 22mA	$\pm 0,1\%$	70,5 $\Omega$

### DIGITAL INPUT CARD (DI181)

Channels: 6 per card Logi

### DIGITAL OUTPUT CARD (DO181)

Channels: 6 per card

Contact Form: N.O. (form A)

Relay Rating: 5A/240 VAC, life cycles 200,000 resistive load

### ANALOG OUTPUT CARD (AO183I, AO183V)

Channels: 3 per card Output signal: AO183I: 4-20mA, 0-20mA, AO183V: 0-5V, 1-5V, 0-10V

Resolution: 15 bits

Accuracy:  $\pm 0.05\%$  of Span  $\pm 0.0025\% / ^\circ\text{C}$

Load Resistance: 0-500 ohms (current), 10K ohms minimum (voltage)

Output Regulation: 0.01% for full load change

Output Setting Time: 0.1 second (stable to 99.9%)

Isolation Breakdown Voltage: 1000VAC min.

Integral Linearity Error:  $\pm 0.005\%$  of Span

Temperature Effect:  $\pm 0.0025\%$  of Span  $^\circ\text{C}$

### COMM MODULE (CM181)

Interface: RS-232 (1 unit), RS-485 or RS-422 (up to 247 units)

Protocol: Modbus Protocol RTU mode

Address: 1-247

Baud Rate: 0.3~38.4 Kbits/sec.

Measured data Bits: 7 or 8 bits

Parity Bit: None, Even or Odd

Stop Bit: 1 or 2 bits

### STANDARD ETHERNET COMMUNICATION

Protocol: Modbus TCP/IP, 10 Base T

Ports: AUI (Attachment Unit Interface) and RJ-45, Auto-detect capability

### INFRARED DETECTOR

Distance: Detect moving human body in distance around 2 meters

Time delayed: 10, 20, 30, 40, 50 or 60 minutes to be defined

### ENVIRONMENTAL & PHYSICAL

Operating Temperature: 5 ~ 50 °C

Storage Temperature: -25 ~ 60 °C

Humidity: 20 to 80% RH (non-condensing), maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 40°C

Altitude: 2000 M maximum

Insulation Resistance: 20 M ohms min. (at 500 VDC)

Dielectric Strength: 1350 VAC, 50/60 Hz for 1 minute

Vibration Resistance: 10-55 Hz, 10m/ s2 for 2 hours

Shock Resistance: 30m/ s2 (3g) for operation, 100g for transportation

Operation Position: no inclined restriction

Dimensions: Panel Mount style: 166(W) x 144(H) x 174mm(D)

Bench Top style: 166 (W) x 192 (H) x 194mm (D)

Standard Panel Cutout: DIN size in 138 x 138mm

### APPROVAL STANDARDS

Safety: UL61010C-1,

CSA C22.2 No. 24-93

CE: EN61010-1 (IEC1010-1)

over voltage category II, Pollution degree 2

Protective Class: IP 30 front panel for indoor use, IP 20 housing and terminals

EMC:

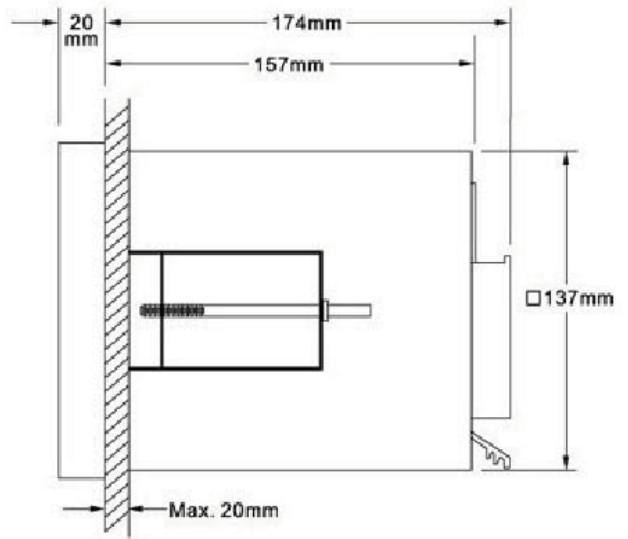
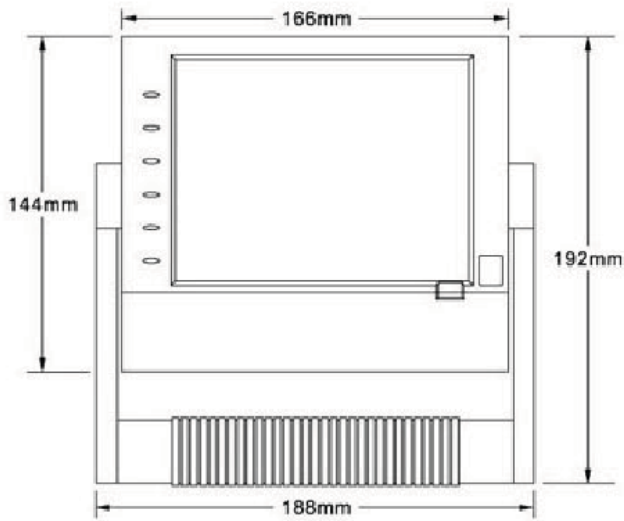
Emission: EN61326 (EN55022 class A, EN61000-3-2, EN61000-3-3)

Immunity: EN61326 (EN61000-4-2, EN61000-4-3, EN61000-4-4,

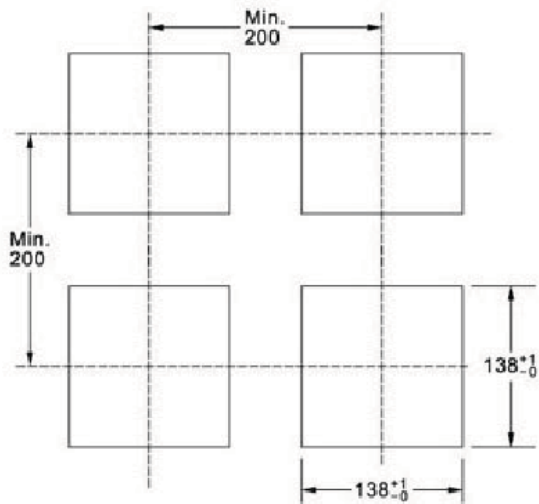
EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11

# INSTALLATION

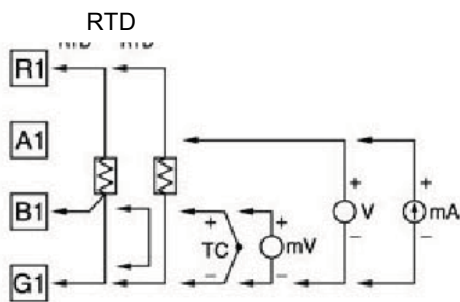
## MECHANICAL DATA



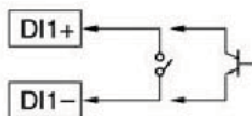
## PANEL COUTOUT



Analog Input Cards (AI 181, AI 182, AI 183)

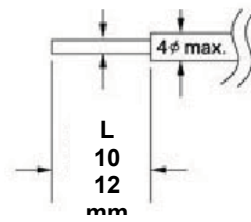


Digital Input Card (DI 181)

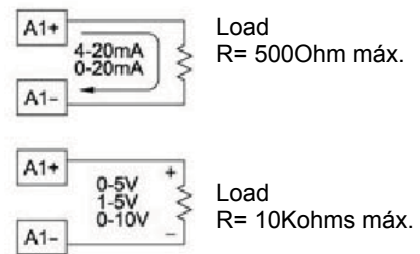


## WIRING CABLE

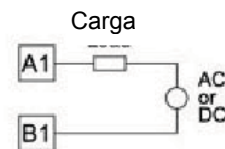
Metal Gauge 2mm



Analog Output Cards (AO 183I, AO183V)



Digital Output Card (DO 181)



# ACCESORIES LIST

Part Nom.	Description
AI 181	Single Channel Analog Input Card
AI 182	Dual - Channel Analog Input Card
AI 183	Triple - Channel Analog Input Card
AI 183V	3 analog inputs Only $\pm$ mA, $\pm$ V
DI 181	6 - Channel Digital Input Card
DO 181	6 - Channel Relay Output Card (AC/DC)
AP 181	24Vdc auxiliary power
CM 181	RS - 232/422/485 COMM Module
CM 182	Ethernet Communication Module
PM 181	90~264 Vac, 47-63Hz Power Supply
PM 182	11 – 18 Vdc Power Supply
PM 183	18 – 36 Vdc Power Supply
PM 184	Power supply 90-250 Vac With Plug
PM 185	36 – 72 Vcc Power supply
PM 186	20 – 28 Vca Power supply
MK 181	Panel mount assembly kit
MK 183	Portable andel/bench top assembly kit
CF 102	1 GB compact flash card
AS 181	Basic PC Software Observer I
AS 182	Extensive PC Software Observer II
SC 181	Slot cover for empty slot
AO 183I	3 channel analog output card with current output
AO 183V	3 channel analog output card with voltage output
BT 182	Boot ROMw/Math. Counter, Totalizer & FDA 21 CFR part 11
SNA – 10A	RS-485 to RS-232 converter
UMVR 061	User Manual

Each instrument only supports 6 optional cards.

Standard model without options:

**VR18-4X00-011-610**

## ORDERING CODE

VR18 - 

### POWER SUPPLY

**4** : 90 – 250 Vca, 47-63 Hz  
**5** : 20 – 28 Vca, 47 -63 Hz  
**6** : 11 – 18 Vcc  
**7** : 18 – 36 Vcc  
**8** : 36 – 72 Vcc

### ANALOG INPUT

**0** : None  
**1** : 1 channel with AI181  
**2** : 2 channels with AI182  
**3** : 3 channels with AI 183  
**4** : 4 channels with AI 181 & AI 183  
**5** : 5 channels with AI 182 & AI 183  
**6** : 6 channels with AI 183  
**A** : 9 channels with AI 183  
**B** : 12 channels with AI 183  
**C** : 15 channels with AI 183  
**D** : 18 channels with AI183

**G** : 3 channels with AI183V  
**H** : 6 channels with AI183V  
**J** : 9 channels with AI183V  
**K** : 12 channels with AI183V  
**L** : 15 channels with AI183V  
**K** : 18 channels with AI183V

### DIGITAL INPUT

**0** : None      **2** : 12 channels      **4** : 24 channels      **6** : 36 channels  
**1** : 6 channels      **3** : 18 channels      **5** : 30 channels

### DIGITAL OUTPUT

**0** : None      **3** : 18 relays  
**1** : 6 relays      **4** : 24 relays  
**2** : 12 relays

### COMMUNICATION

**0** : standard Ethernet interface  
**1** : RS-232/422/485 ( three in one ) + Ethernet interface  
**9** : special order

### PC SOFTWARE

**1** : Free basic software Observer I for non-communication application  
**2** : Extensive software Observer II for communication of RS-232/422/485 or Ethernet

### FIRMWARE

**1** : with Mathematics, Counter & Totalizer & FDA 21 CFR part 11 compliance

### STORAGE MEDIA

**6** : 1 GB

### CASE / MOUNTING

**1** : standard panel mounting, grey case  
**2** : Bench top / portable style with handle, USA power cable, grey case  
**3** : Bench top with handle, European power cable, grey case

### SPECIAL OPTION

**0** : None  
**1** : 24VDC auxiliary power supply for transmitter, 6 channels )  
**2** : 3-channel current output  
**3** : 6-channel current output  
**4** : 9-channel current output  
**D** : 3-channel voltage output  
**E** : 6-channel voltage output  
**F** : 9-channel voltage output  
**G** : Panel mounting, with con. Europa  
**5** : Panel mounting, with con. USA  
**6** : Panel mounting, with power switch  
**7** : 7=1+5.  
**8** : 8=1+6.  
**9** : 9=1+5+6.  
**X** : Other options