

# Series BDF

## LARGE DISPLAYS for parallel BCD code

BDF-xx-BCD for parallel BCD code



IDEAL SOLUTION to display numerical values at long distances, controlled by parallel BCD signal, in 4 and 6 digits format. Very strong housing and electrically protected units, designed for all type of industrial applications.

# Models BDF for BCD code

## LARGE DISPLAYS for parallel BCD code

The BDF series of large displays for parallel BCD signal is available in 4 and 6 digits format with 57mm or 100mm digit height. Digits are 7 segments in red color (optional green led, ask for information).

The display value of each digit is controlled by BCD code. Several parallel lines control all digits (lines ABCD independent for each digit). Control to light the decimal point independent for each digit, control for «HOLD» function to block the refresh of each digit, and control for negative sign (polarity)

Function «BLANK» to switch-off all segments and function «TEST» to light all segments.

The mechanical of the BDF instruments is a very strong and sturdy aluminium housing anodized in black color, for panel mount, and for wall mount as an option. The front lens is antireflexive and is firmly inserted on the aluminium profile with a rubber gasket around, providing IP65 protection on the front.

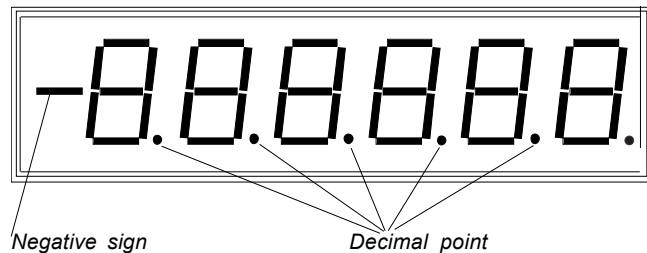
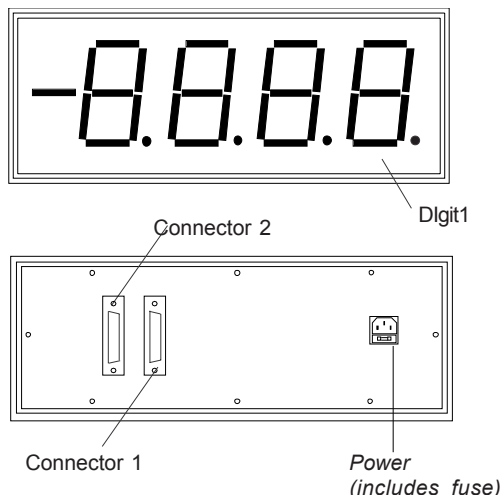
The signal wires are connected to plug-in screw clamps for higher security of the connections, accessible at the rear side of the instrument. The power is connected to a 3 terminal plug (2 power connections and 1 earth) containing an integrated protection fuse and an additional fuse as spare part.

### 0.-ORDERING REFERENCE

	Size	Model	Power	Color
<b>BDF</b>	24 26 44 46	BCD	230 Vac 115 Vac 24 Vdc isolated	R - Red

### 1.-SIZES

<b>SIZE BDF-24 .-</b>	Instrument with 4 digits 57mm digit height	<b>SIZE BDF-26 .-</b>	Instrument with 6 digits 57mm digit height
<b>SIZE BDF-44 .-</b>	Instrument with 4 digits 100mm digit height	<b>SIZE BDF-46 .-</b>	Instrument with 6 digits 100mm digit height



Instruments BDF for parallel BCD code are available in 4 or 6 digits format. Digits are led type 7 segments, with decimal point and negative sign.

### 3.-GENERAL CHARACTERISTICS

DISPLAY	4 or 6 digits red color Led type 7 segments	DATA	parallel BCD code
DIGIT	57mm (2,3") (BDF-24 , BDF-26) 100mm (4,0") (BDF-44 , BDF-46)	LÓGIC	positive logical level «1» >4,3 Vdc (max. 40 Vdc) logical level «0» <1,1 Vdc.
READING	-9999 to 9999 in 4 digits -999999 to 999999 in 6 digits	HOLD	«HOLD» active in logical state «1». independent for each digit independent for the negative sign in logical state «0» reading updates continuously
FRONTAL	antirreflexive filter IP65 protection on front filter	TEST	active in logical state «0». lights all segments «-8.8.8.8.8.»
DECIMAL POINT	selectable	BLANK	active in logical state «0» lights-off all segments
HOUSING	extruded aluminium anodized in black color for panel mount (optional for wall mount)	NEGATIVE	negative sign active in logical state «0» with independent «HOLD» control
POWER	standard 230 Vac 50/60 Hz optional 115 Vac 50/60 Hz optional 24 Vdc isolated	CONSUMPTION	6 VA sizes BDF-24 and BDF-26 12VA sizes BDF-44 and BDF-46
WEIGHT	see section 7 and 8	CONSUMPTION BY CHANNEL	4 mA at 24 Vdc 1,5 mA at 12 Vdc 150 µA at 5 Vdc
SIZES	see section 7 and 8		
ENVIRONMENTAL DATA			
Working Temp.	from 0 to +50°C (32/122 °F)		
Storage Temp.	from -20 to +85°C (-4/185°F)		
Relative Hum.	from 0 to 85% non condensed		

Signal connections at SUB-D connector available at the rear of the instrument.

Each digit has 4 connection lines (ABCD) for its BCD code, 1 «Hold» line controlling the display update, and 1 control for the decimal point.

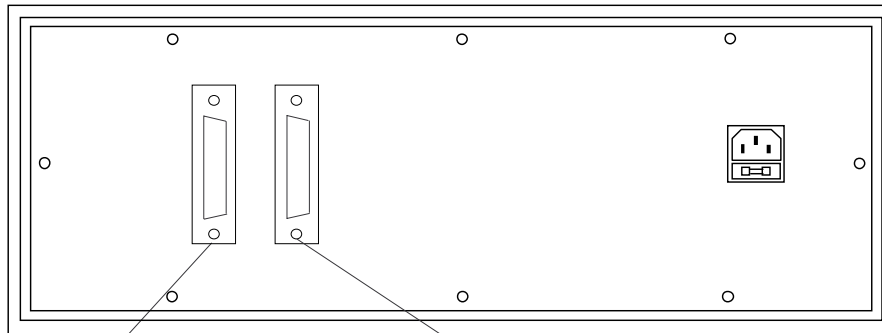
The negative sign has 1 control line and 1 line for «Hold».

Connection lines identified as «+5Vdc» can be used as fixed controls with logical state «1».

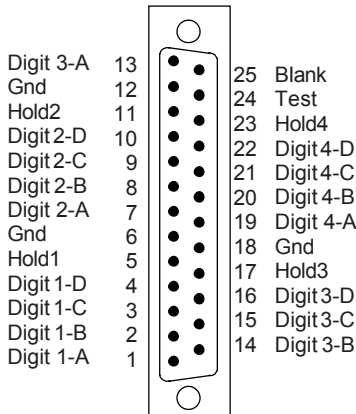
Connection lines identified with «GND» can be used as fixed controls with logical state «0».

The «Digit1» is the Least Significant Digit.

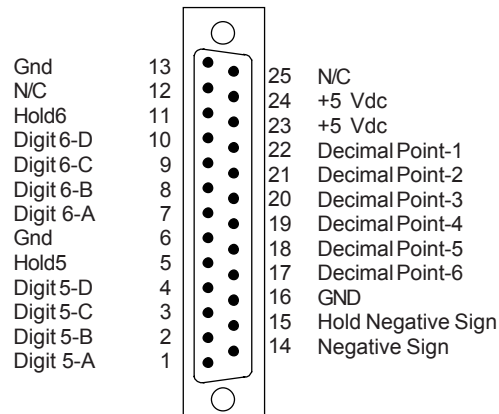
DigitX				BCD Value	Display
D	C	B	A		
0	0	0	0	0	0
0	0	0	1	1	1
0	0	1	0	2	2
0	0	1	1	3	3
0	1	0	0	4	4
0	1	0	1	5	5
0	1	1	0	6	6
0	1	1	1	7	7
1	0	0	0	8	8
1	0	0	1	9	9
1	0	1	0	10	A
1	0	1	1	11	b
1	1	0	0	12	C
1	1	0	1	13	d
1	1	1	0	14	E
1	1	1	1	15	«BLANK»



Connector2



Connector1

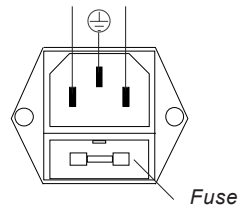


## 5.-POWER CONNECTIONS

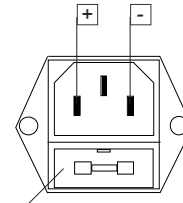
The power connector allows one terminal for earth and two power terminals. Internal fuse is integrated on the connector and an additional fuse is available as a spare part. The value of the fuses depends on the power supply, and is according to rule IEC127/2

- 230 Vac - 200 mA fuse time-lag
- 115 Vac - 400mA fuse time-lag
- 24 Vdc - 350 mA fuse fast

Powered  
230 Vac (115 Vac optional)



Powered  
24 Vdc Isolated



## 6.-WARRANTY

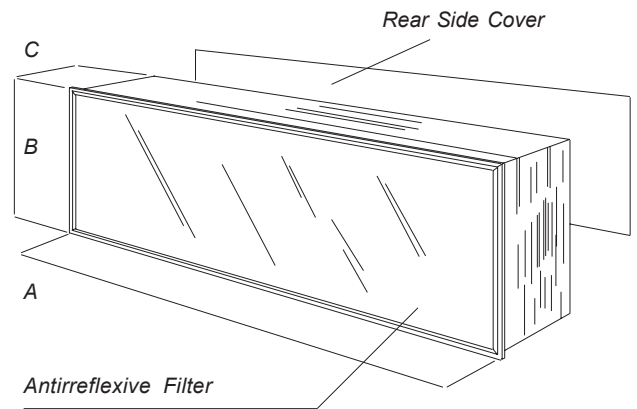
**FEMA ELECTRÓNICA, S.A.** warrants this instrument free of defects for a period of 24 MONTHS from the date of shipment. This warranty covers both the materials of the instrument and the processes used for manufacturing.

This warranty is excluded and does not apply if the instrument is damaged due to misuse, improper application, accident, or if the instrument has been manipulated or repaired by unauthorized personnel or companies.

BLANK SECTION

Size 24/26	A	B	C
4 digits 57mm (2")	264mm (10,40")	120mm (4,75")	112mm (4,41")
6 digits 57mm (2")	384mm (15,12")	120mm (4,75")	112mm (4,41")

Size 44/46	A	B	C
4 digits 100mm (4")	480mm (18,90")	180mm (7,09")	112mm (4,41")
6 digits 100mm (4")	668mm (27,10")	180mm (7,09")	112mm (4,41")

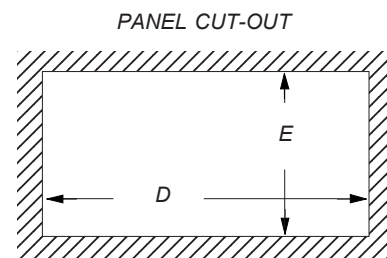


**Note** .- add 27mm to the «C» dimension for the power supply plug

## 8.-PANEL CUT-OUT AND WEIGHT

Size 24/26	D	E	Weight
4 digits 57mm (2")	256mm (10,07")	112mm (4,40")	2.3 Kg (5 lbs)
6 digits 57mm (4")	376mm (14,80")	112mm (4,40")	2.7 Kg (6 lbs)

Size 44/46	D	E	Weight
4 digits 100mm (4")	472mm (18,58")	172mm (6,77")	5.0 Kg (11,0 lbs)
6 digits 100mm (4")	680mm (36,77")	172mm (6,77")	5.7 Kg (12,5 lbs)

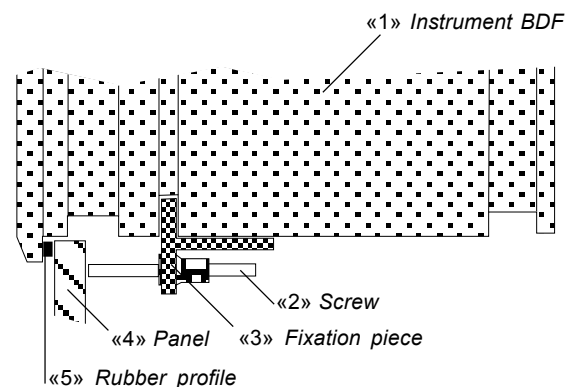


Panel width  
Max. 14 mm (0,55")  
Min. 2,5mm (0,10")

## 9-PANEL INSTALLATION

Introduce the instrument «1» into the panel cut-out and place a fixation piece «3» on each side. Place the screw «2» through the fixation piece «3» until it presses the panel «4» and is firmly fixed.

**Note** .- The front of the instrument is sealed with a protection level IP65. To have the same level of protection between the panel and the instrument, place a rubber profile (squared or round) as indicated «5».





**INSTALLATION PRECAUTIONS.**- The installation and operation of this instrument must be done by qualified operators. This instrument DOES NOT have power switch and will start to operate as soon as the power supply is connected. The instrument has an internal protection fuse, according to IEC-127/2, and is located inside the power-supply connector. The values are

- Fuse 200 mA Time Lag (for 230 Vac power)**
- Fuse 400 mA Time Lag (for 115 Vac power)**
- Fuse 350 mA Fast (for 24 Vdc power)**

When the instrument is used to control machines or processes where the personnel or the process can be damaged, the appropriate security elements must be added to the system in order to protect the operator and / or the system.



**SAFETY PRESCRIPTIONS.**- This instrument has been designed and verified according to the UNE-20553 rules and is delivered in perfect conditions of operation. This manual contains the adequate information for the electrical installation. Before starting operations for connections, readjustment, substitution, maintenance, repair, etc, the instrument must be unplugged from the power supply. The instrument must be installed in places with good ventilation to avoid excessive heating, and far from sources of electrical noise or magnetic field generators, such as power relays, electrical motors, speed controls, etc... The instrument can not be installed in open places. Do not use until the installation is finished. The instrument is designed to be mounted on a metallic panel with the adequate protections. DO NOT clean the front lens with abrasive products (such as solvents, alcohol, etc) use a clean and water humid rag. Do not expose the instrument to excessive moisture. DO NOT operate the unit in the presence of flammable gases or fumes.

**EXCITATION VOLTAGE Vexc.-**

Instruments BDF-xx-32 and BDF-xx-36 supply an excitation voltage of 10 to 24 Vdc (50mA) to power transducers, available between terminals A and C. Do NOT connect these terminals to an external power supply, permanent damages may result on both instruments.

**POWER SUPPLY** .- Connect the Power Supply to the terminals indicated in this manual. Verify that the voltage and frequency of the power supply is according to the voltage and frequency values indicated in the label attached to the unit. DO NOT connect the instrument to power lines which are overloaded, or power lines with loads working in ON/OFF cycles, or with inductive loads.



**SIGNAL WIRING** .- Information to consider relating the wiring of the sensors, probes, transducers, etc. The wires can act as antennas and introduce electrical noise from the environment into the signal wires, specially if the wires are close to noise sources or electromagnetic sources. There are several rules generally known which should be taken into consideration for the wiring :

- a.- DO NOT install impulse, control or signal wires together in the same conduits as the wires connected to power lines, connected to CC or AC engines, electromagnets, ...
- b.- When using shielded wires, connect the shield to the common of the instrument, and leave not-connected the probe side
- c.- The wires of impulse, control and signal should be placed in places far away from switches, transformers, control relays, etc...

**IN CASE OF FIRE**



- 1.- Disconnect the unit from the power supply.
- 2.- Give the alarm according to the local rules.
- 3.- Switch off all the air conditioning devices.
- 4.- Attack the fire with carbonic snow, do not use

water in any case.

**WARNING :** In closed areas do not use systems with vaporized liquids.

**11.-DECLARARION OF CONFORMITY**

**CE DECLARATION OF CONFORMITY**

Manufacturer.- **FEMA ELECTRÓNICA, S.A.**  
 Address.- Pol. Ind. Santiga - Altimira 14 (T14 - N2)  
 E-08210 Barberà - BARCELONA  
 ESPAÑA - SPAIN

Conforming Products  
 Series.- BDF-24, BDF-26, BDF-44 and BDF-46  
 Models.- BCD

We hereby declare that the above products conform to the essential protection requirements of Directives and Harmonized standards indicated below.

Signed.- D. Juncà  
 Position.- Quality Manager  
 Place .- Barberà, 2005

**DIRECTIVES**

**EUROPEAN DIRECTIVE FOR LOW VOLTAGE D73/23/CEE AMMENDED BY D93/68/CEE.** Equipments powered from 50 to 1000 Vac and/or from 75 to 1500 Vdc.

**EUROPEAN DIRECTIVE FOR ELECTROMAGNETIC COMPATIBILITY D89/336/CEE AMMENDED BY D93/68/CEE**

**STANDARDS**

IMMUNITY	<b>UNE EN 50082-1 (1998)</b>
EMMISSIONS	<b>UNE EN 50081-2 (1994)</b>
ELECTRICAL SAFETY	<b>UNE EN 61010-1 (1997)</b>
	<b>UNE EN 60204-1 (1998)</b>

*NOTE .- During an electromagnetic disturbance (10V/m) it is permitted a worst case error of 1% of the A/D range. The instrument will recover automatically its functionality when the disturbance stops, without need of the operator to reset or restart.*

