ALPHA-C

LOAD CELL

DESCRIPTION

The ALPHA-C model is an instrument designed to measure forces (weight, load, pressure, torque, etc). It admits connection to several bridge type transducers such as load-cells with low level signals up to ±300 mV and excitation voltage 10 V or 5 V DC @ 120 mA that allows the connection up to 4 or 8 parallel cells. A wide amount of functions that include the possibility of reading up to ±32000 points, signal linearization of up to 30 points, 36 programmable logical functions, direct access to the setpoint values.

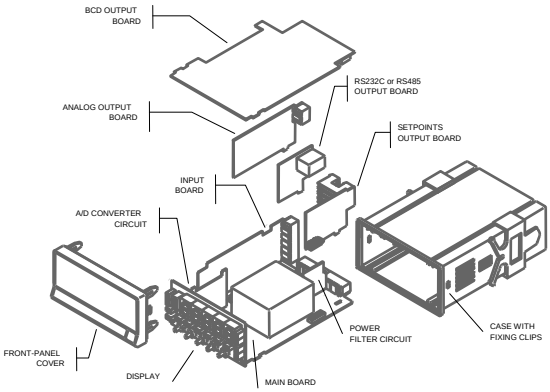
The programming menu allows the user to:

- Select input sensibility
- Two display scaling methods.
- Two filter types with 10 levels each.
- Display value round.
- Programming parameters selective locking (code).
- Back to factory configuration

News from version C2.00

- 3 Tare mode
- Sensor break detection (any wire)
- Fail Safe independently programmable on each relays
- Function R.O.C. (Rate of Change)

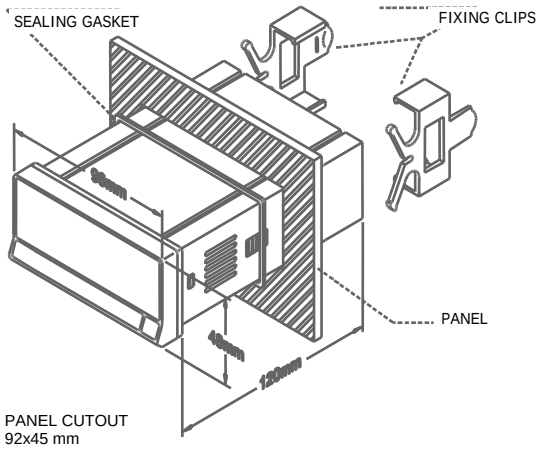
STRUCTURE



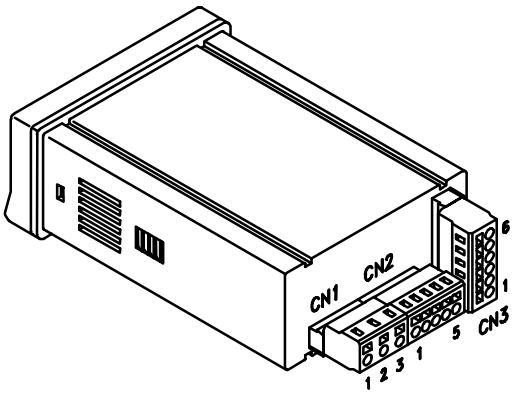
STANDARD

- Panel-mounting 1/8 DIN case, depth 120 mm
- Single-part clips for panel mounting.
- Front panel sealing gasket.
- Plug-in terminal block connectors.

DIMENSIONS AND MOUNTING



CONNECTIONS



CN1	POWER SUPPLY	
PIN	AC VERSION	DC VERSION
1	AC PHASE	DC POSITIVE
2	GND (GROUND)	-
3	AC NEUTRAL	DC NEGATIVE

CN2	REMOTE FUNCTIONS
1	RESET
2	HOLD
3	COMMON
4	TARE
5	PEAK / VALLEY

CN3	INPUT SIGNAL
1	POSITIVE INPUT mV
2	NOT CONNECTED
3	NEGATIVE INPUT mV
4	NOT CONNECTED
5	+EXCITATION
6	- EXCITATION

ALPHA-C

OPTIONS

The ALPHA-C model can accept a variety of output options which are installed in the meter's main assembly by means of plug-in connectors:

• 2 SPDT Relays rating 8A @ 250V AC / 150V DC
Ref **2RE**

• 4 SPST Relays rating 5A @ 250V AC / 50V DC
Ref **4RE**

• 0 Outputs rating 50mA @ max.50V DC
Ref **4OP**

• 4 PNP Outputs rating 50mA @ max.50V DC
Ref **4OPP**

The setpoints are independently programmable for HI or LO action and time delay or hysteresis operation. They can also be made to track one another by a programmable or automatic offset.

• RS232C communication output, 1200 to 19200 baud
Ref **RS2**

• RS485 communication output, 1200 to 19200 baud
Ref **RS4**

Serial communication protocols: ASCII, ISO1745, Modbus

• Isolated analog output 0-10V / 4-20mA (Selectable)
Ref ..... **ANA**

The analog outputs can be used to drive remote displays or for proportional control purposes.

• BCD parallel outputs with TTL/24V DC logic
Ref ..... **BCD**

STANDARD FUNCTIONS

TARE

The tare operation is accomplished by a push of the TARE key on the front panel or by applying a low level signal to the corresponding logic input at the CN2 connector.
The tare memory is cleared to zero by a combination of the RESET and TARE keys (also at the CN2 connector).

PEAK & VALLEY

The instrument detects and memorizes the max and min values reached for the variable after the last reset (peak and valley).
To display the peak value, press the MAX/MIN key. The second push calls up the valley value. The third push makes the display show the tare value.
A falling edge at the corresponding logic inputs of the CN2 connector causes the same effects.

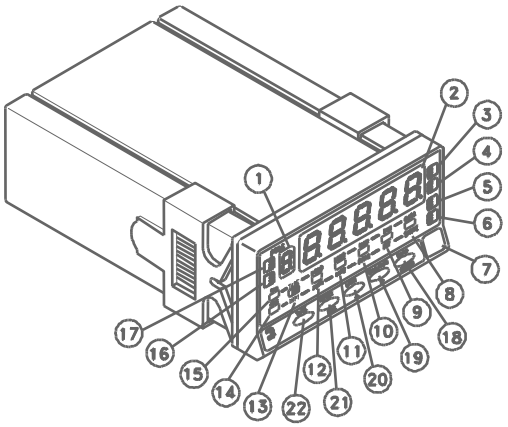
RESET PEAK & VALLEY MEMORY

The peak and valley memories can be reset back to their default values by simultaneously pressing the RESET and MAX/MIN keys.
The same function is available at the CN2 connector.

HOLD

The hold function is only accessible from the CN2 connector.
The hold condition (display frozen) is maintained as long as the corresponding logic input is kept at "0" level.

FRONT-PANEL FUNCTIONS



MODE		RUN	PROG
Auxiliary Display	1	Displays polarity of reading	Displays programming
Main Display	2	Displays the input variable	Displays programming
LED 1	3	Relay1 / Opto1 status	-
LED2	4	Relay2 / Opto2 status	-
LED 3	5	Relay3 / Opto3 status	-
LED 4	6	Relay4 / Opto4 status	-
Label	7	Measurement unit	
LED DATA	8	-	Indicates data memory storage
LED MIN	9	Indicates display of a valley value	Indicates input filtering
LED MAX	10	Indicates display of a peak value	Indicates DISPLAY 2
LED LIMIT	11	Indicates display of setpoint value	Indicates INPUT 2 programming
LED HOLD	12	Indicates display hold	Indicates DISPLAY 1
LED TARE	13	Indicates tare memory	Indicates INPUT 1 programming
LED PROG	14	-	Indicates programming
LED RUN	15	Indicates run mode	-
LED B	16	-	Indicates program step
LED A	17	-	Indicates program step
ENTER key	18	Enters in PROG mode. Displays data	Accepts data. Advances
MAX/MIN key	19	Calls up peak and valley values	Moves to right
LIMIT key	20	Calls up the setpoint values	Increments the value of the
RESET key	21	Reset the display to offset	ESCAPE function
TARE key	22	Take on the display values as tare	-

Remote functions (CN2)

The rear connector CN2 provides 4 user programmable optocoupled inputs that can be operated from external contacts or logic levels supplied by an electronic system. Four different functions may be then added to the functions available from the front-panel keys. Each function is associated to one of the CN2 connector pins (PIN 1, PIN 2, PIN 4 and PIN 5) and is activated by applying a falling edge or a low level pulse to the corresponding pin with respect to common (PIN 3). Each pin can be assigned one of the 36 functions listed on the following pages.

DISPLAY / MEMORY FUNCTIONS

Nº	Function	Description	Activation
0	None	Deactivated. The pin has no function	None
1	TARE (*)	Adds the current display value to the tare memory. The display goes to zero	Falling edge
2	RESET TARE	Adds the tare memory contents to the display value and clears the tare memory	Falling edge
3	PEAK	Recalls peak value. A new falling edge returns to normal reading	Falling edge
4	VALLEY	Recalls valley value. A new falling edge returns to normal reading	Falling edge
5	RESET PEAK/ VALLEY	Clears the peak or valley memory (if the values are on display)	Falling edge
6	PEAK/ VALLEY (*)	1st push recalls peak, 2nd push recalls valley, 3rd push brings the meter to the indication of the variable being measured	Falling edge
7	RESET (*)	Combined with (1) clears the tare memory Combined with (6) clears the peak or valley memories	Falling edge combined with (1) or (6)
8	HOLD1	Holds the display while the outputs remain active	Low level
9	HOLD2 (*)	Holds the display, the BCD and the analogical outputs	Low level

FUNCTIONS ASSOCIATED WITH THE DISPLAY OF THE INPUT VARIABLE

10	INPUT	Displays the actual input signal value in mV (flashing)	Low level
11	GROSS	Displays the measured value + the tare value = gross	Low level
12	TARE	Displays the amount of tare contained in the memory	Low level

FUNCTIONS ASSOCIATED WITH THE ANALOG OUTPUT

13	ANA GROSS	Makes the analog output follow the gross value (measured value + tare)	Low level
14	ZERO ANA	Puts the analog output to the zero state (0 V for 0-10 V, 4 mA for 4-20 mA)	Low level
15	ANA PEAK	Makes the analog output follow the peak value	Low level
16	ANA VALLEY	Makes the analog output follow the valley value	Low level

FUNCTIONS FOR USE WITH A PRINTER VIA THE RS OUTPUTS

Nº	Function	Description	Activation
17	PRINT NET	Prints the net value.	Falling edge
18	PRINT GROSS	Prints the gross value.	Falling edge
19	PRINT TARE	Prints the tare value.	Falling edge
20	PRINT SET1	Prints the setpoint1 value and its output status.	Falling edge
21	PRINT SET2	Prints the setpoint2 value and its output status.	Falling edge
22	PRINT SET3	Prints the setpoint3 value and its output status.	Falling edge
23	PRINT SET4	Prints the setpoint4 value and its output status.	Falling edge

FUNCTIONS ASSOCIATED WITH THE SETPOINTS AND RS OUTPUTS

24	FALSE SETPOINTS	Exclusively for instruments WITHOUT relays/transistors control outputs card.	Low level
25	RESET SETPOINTS	Exclusively for instruments with 1 or more setpoints programmed as "latched setpoints". Deactivates the setpoints output.	Falling edge

SPECIAL FUNCTIONS

26	ROUND RS	The display value as sent via the RS output includes no filtering or rounding.	Low level
27	ROUND BCD	Makes the BCD output follow the display value without rounding.	Low level
28	SEND ASCII	Transmission of the last four digits of the display to a remote serial indicator model MICRA-S. By holding the pin to a low level, the display is continuously sent at a rate of 1 message per second.	Low level or Falling edge

NEW FUNCTIONS

29	Deactivate Setpoints	Deactivates the activity of the setpoints and leaves the outputs at still	Low level
30	Batch	Adds the present value of the display to the total and increments the batch counter once.	Impulse
31	Visualize Total	The value of the total appears in the display, alternating its high part and low part of four digits each. The auxiliary display shows “H” or “L”, depending of which part we are looking to.	Low level
32	Visualize Batch	The display shows the value of the batch counter. The auxiliary display indicates “b”.	Low level
33	Reset Total and Batch	Reset the total and batch counter	Impulse
35	Print Total and Batch	Prints the value of the total and batch counter	Impulse
36	Hold and print the Max.	When activated it resets the value of the Max. Then it saves the maximal value while the function is still activated. Finally it prints it when the function is deactivated	Low level

ALPHA-C

SPECIAL FUNCTIONS

- Back to factory configuration
- Setpoints bistables “latch”
- Activation relays by: net, Gross, peak, valley
- Flickering of display when get the setpoint value
- ON / OFF relay/ opto via RS232 or RS485
- Automatic detection of peak value with setpoint 2

INPUT SIGNAL

- Configuration ..... differential asymmetrical
- Max Applicable voltage..... ±300 mV DC
- Resolution.....0.5 µV
- Input impedance .....100 MΩ
- Excitation.....10 V @ 120 mA, 5 V @ 120 mA

FUSES (DIN 41661) (Recommended)

- Alpha-C (230/115 V AC)..... F 0.2 A/ 250 V
- Alpha-C1 (10-30 V DC)..... F 2 A/ 250 V
- Alpha-C2 (24/48 V AC)..... F 0.5 A/ 250 V

POWER SUPPLY

- AC voltages. 115/ 230 V, 24/ 48 V (±10%) 50/60 Hz AC
- DC voltages.....10-30 V DC
- Consumption.....5 W (without options), 10 W (max.)

DISPLAY

- Main..... -32000/32000, 5 digits 14 mm red
- Auxiliary .....1 digit 7.62 mm green
- Decimal point.....programmable
- LED's..... 14 (programming and control)
- Display update time .....62 ms
- Positive over-range .....+oVFLo
- Negative over-range.....-oVFLo

FILTERS

Filter P

- Cut -off frequency (-3 dB) ..... from 4Hz to 0.05Hz
- Slope.....from 14 to 37 dB/10

Filter E

- Programmable .....10 levels

ACCURACY

- Max. error..... ± (0.1% of the reading +2 digits)
- Temperature coefficient.....100 ppm/ ºC
- Warm-up .....10 minutes

A/D CONVERSION

- Technique..... ΣΔ
- Resolution .....24 bits
- Read rate ..... 16/ s

ENVIRONMENTAL

- Operating temp. .....-10ºC to 60ºC
- Storage temp. .....-25ºC to +85ºC
- Relative humidity ..... <95 % at 40ºC
- Altitude max. .....2000 m
- Front Sealed .....IP65 (Indoor use)

MECHANICAL

- Dimensions..... 96x48x120 mm
- Panel cut-out ..... 92x45 mm
- Weight .....600 g
- Case material.....UL 94 V-0 rated polycarbonate

ORDERING REFERENCES

- 115/230V AC 50/60Hz powered .....ALPHA-C
- 10-30V DC powered ALPHA-C1
- 24/48V AC 50/60Hz powered ALPHA-C2