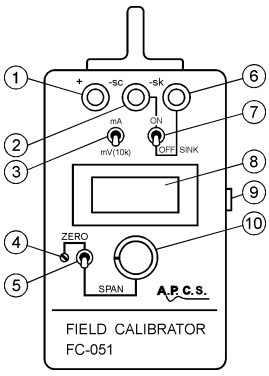
Field Calibrator FC051

The FC051 combines a self-contained process signal source together with a 2-wire transmitter simulator in one instrument. Built-in batteries (2 x 9V PP9) make this calibrator ideal for use in the field. The 3.5 digit, 10mm high LCD display (8) provides direct read-out of mV or mA in sink or source mode. Output range is 0 - 22mA and 0 - 2200mV with display readability of 0 - 19.99mA and 0 - 1999mV. The display also provides LOW BATTERY indication and a mV sign when in mV output mode. The output is controlled by a precision 10-turn potentiometer (10) allowing high resolution for adjustment. For SPAN/ZERO calibration work a second 22-turn screwdriver adjustable potentiometer (4) can be user adjusted to set a second (zero) point (typically 4mA). Changeover from Span to Zero only requires the flick of a switch (5) thus saving considerable calibration time. Set switch (7) to the "ON" for **Source Operation** the DISPLAY will be energised. Signal is now available from the RED (+) (1) and BLACK (-sc) (2) terminals. Selector switch (3) is used to provide mA or mV output. If mV operation is selected then the indicator will display "mV" directly. The mV output should not be applied to loads less than 10kΩ to avoid display errors. In mA output mode the display is in series with the output signal and indicates the actual current signal driven through the load. A quiescent current of typically 2mA will be indicated if no load is connected. Set switch (7) to the "OFF" for **Sink Operation** to simulate a loop powered transmitter the FC051 is connected into the loop (Positive to the RED terminal (1) negative to the BLUE (-sk) (6) terminal). In sink mode the calibrator takes its power from the loop (approximately 3mA) enabling the FC051 to be used without batteries. A minus sign on the display indicates sink mode. The standard calibrator is factory loaded with two heavy-duty 9V batteries. For in-house bench operation a 26Vdc-plug pack supply as battery eliminator. This is connected via a 3.5mm plug socket (9) on the side of the FC051. Optional Nickel-Mh batteries and a battery charger circuit are also available. A green LED close to the 3.5mm plug pack socket will be energised when charging using a 26Vdc-plug pack power supply.



Specifications

Size:	110 W x 66 H x 70 D mm
Weight:	Dry cell 0.272 kg, Nickel-Mh 0.290 kg
Case material:	High-impact polystyrene
Accuracy:	± 0.1% FS or ± 1 digit
Ambient temp. effect:	± 0.01% / °C
Operating temp. range:	0 - 50°C
Storage temp. range:	-20...+50°C
Display:	3.5 digit L.C.D. 10mm character height
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)
Current Output	
Source range:	0 - 22.00mA (0 - 50mA optional)
Sink range:	3 - 23.00mA (3 - 50mA optional)
Resolution:	0.01mA
Max loop supply voltage:	40V
Output load:	Source 0 - 800Ω Sink $\frac{Vs-6}{0.02}$ [Ω]
Millivolt Output	
Range:	0 - 2200mV
Resolution:	1mV
Minimum load:	10kΩ
Source impedance:	100Ω
Battery life at full continuous output	
Heavy duty 9V batteries:	4 hrs.
Alkaline 9V batteries:	8 hrs.
Ni-Mh batteries/charge:	6 hrs.
External power source:	26Vdc / 30mA via 3.5mm phone plug tip (+).

Note: mV output is short circuit protected but display will be inaccurate for load < 10kΩ

For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

TYPE NO. DESIGNATION

FC051 – X XX XX

Battery:

1 = Dry 9V PP3 battery (D)
*) 2 = Nickel-Mh PP3 rechargeable / Includes built in charging circuit (N)

Models:

	Source Current	Source Voltage	Sink Current
	01 = 0 – 19.99mA (22),	0 – 1999mV (2.2V)	3 – 19.99mA (23)
*)	02 = 0 – 50.0mA,	0 – 1999mV (2.2V)	3 – 50.0mA
*)	03 = 0 – 19.99mA (22),	0 – 10.00V.	3 – 19.99mA (23)
*)	04 = 0 – 50.0mA,	0 – 10.0V.	3 – 50.0mA
*)	05 = 0 – 19.99mA (22), **+/** 0 – 199.9uA	0 – 1999mV (2.2V)	3 – 19.99mA (23)
*)	06 = 0 – 19.99mA (22), **+/** 0 – 199.9uA	0 – 10.00V	3 – 19.99mA (23)
*)	07 = 0 – 19.99mA (22),	0 – 1000mV (10 M ohm BNC connector)	
*)	08 = 0 – 19.99mA (22),	0 – 1999mV**+/** 0 – 10.00V	3 – 19.99mA (23)

Option:

00 = None
*) 01 = Polarity reversing on source output (mounted on side).

*) = Price Extra
+/ = Extra switch for dual range.

Notes

1. The front labelling on all models is designed for model 01.
2. The extra switches for dual range and reverse polarity are mounted on the side and have extra labels added.
3. The 0 – 10V source output is calibrated to 0-20Vdc over the full range of the output control, with fully charged batteries 0-15Vdc can be achieved.
4. Current sink mode will only work when reverse polarity switch is set to direct.
5. A BNC connector for model 07 replaces the sink current terminal. The output for this model has a series 10M-ohm resistor to simulate an OPR or pH sensor.

Changes to Ordering Codes

All ordering codes have now changed to eliminate confusion over function of module for a given order code.

Old Number	New Number
FC051D (standard)	FC051-10100
FC051N (standard)	FC051-20100
FC051D (50mA option)	FC051-10200
FC051N (50mA option)	FC051-20200
FC051D-BNC	FC051-10700
FC051D-CUS	FC051-10500
FC051D/10V	FC051-10300

Accessories available:

A755-016	Carry case
A755-002	Plug Pack 240Vac / 26Vdc
A755-003	1 x set of silicone test leads

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