Multi-Purpose Indicator
loop powered with very large digits

Application examples: Marine applications

Control rooms

Food industry

The D-Series is a front panel mount indicator, controller and monitoring system for measurement applications in industrial environments. It is the robust alternative for your existing, not waterproof, panel meters.

Advantages

- Unique, robust IP66, IP67 (NEMA Type4X) panel mount front enclosure made of die cast aluminum, allowing even big jets of water and total immersion.
- Intuitive "Know one, know them all!" configuration menu, saving time, cost and aggravation.
- Resistant to harsh weather conditions: rain, snow, salty atmospheres.
- Only a few inches depth clearance for smaller, low cost panels and panel doors.

Features

- Multi-Purpose input loop powered indicator.
- Displays the actual value, measuring unit and loop current.
- Very large 26mm (1") high digits.
- Piegraph indication: ten segments.
- LED backlight option.
- Selectable on-screen engineering units: %, PPM, meter, m, cm, mm, ft, sqft, ML, L, NL, M³, nM³, GAL, USGAL, IGAL, bbl, CUFT, mg, g, kg, ton, lb, psi, psig, mbar, bar, barg, °C, °F, K, P, Rev, K, KPA, pH, mV, /sec, /min, /hr, /day or no unit (others on request).
- Ability to process a (0)4-20mA signal from any sensor.
- Power requirements: Input loop powered.
- Auto backup of settings.
- Ambient temperature -40°C up to +80°C (-40°F up to 176°F).

Introduction

The D090 is a Multi-Purpose, panel mount indicator to display the actual process value, range and loop current. The measuring unit to be displayed is simply selected through an alfa-numerical configuration menu. No adhesive labels have to be put on the outside of the enclosure: a weather proof and user friendly solution! The configuration of Span, offset and number of decimals is done through software functions, without any sensitive dip-switches or trimmers.

Configuration

All configuration settings are accessed via a simple operator menu which can be password protected. Each setting is clearly indicated with an alphanumerical description, which avoids confusing abbreviations and baffling codes. Once familiar with one D-series product, you will be able to program all models in all series without a manual. All settings are safely stored in EEPROM memory in the event of sudden power failure.

Display

The display has 51/2 large 26mm (1") digits to show the main process information. At the bottom line, smaller 8mm (0.31") alfanumerical digits are available to display the measuring unit and additional messages in case of an alarm; range error e.g. With the piegraph, an actual range indication is offered in a single glance. If desired, additional information can be presented after pressing the select key, like the actual loop current and the 0% and 100% process value. The display is a transflective type, which means that a high contrast reading is guaranteed, even in full sunlight. The D090 has a smart display update function incorporated. Related to the lower temperatures, the update frequency of the LCD is tuned automatically to achieve a readable display even at -40°C / -40°F.

Backlight

For those applications where readabillity during day and night is an issue, a white backlight is available. The intensity can be adjusted in the configuration menu.

Bright LED backlight.

Very large 26mm (1") digits.

Status indication

Piegraph indication: ten segments.

Resistant to harsh weather conditions like snow,rain and -40°C/-40°F to +80°C/+178°F

Same configuration menu and rugged buttons as the F-Series, in other words: **"Know one, know them all!"**

Robust aluminum IP66/67 (Type4X) front panel enclosure withstands even powerful water jets!

Clear 8mm (0.31") alphanumeric digits

D-Series needs only a few inches depth clearance

All info at a glance

Easy to install

Easy to program

Know one know them all!

Reliable

User-friendly

Overview application D090

The D-Series is a DIN-sized display and the better alternative for your existing, not waterproof, front panel mount indicators in extreme weather outdoor applications or e.g. in food industries where working environments are often cleaned with powerful water jets. The D090 takes operating energy from an input current (2-wire 4 - 20mA) and reduces installation cost. It accepts a wide range of process instruments, including flow (linear or square root), level, pressure and temperature transmitters. All these process parameters can be displayed in their own engineering units. Alternative field mounted model: F090.
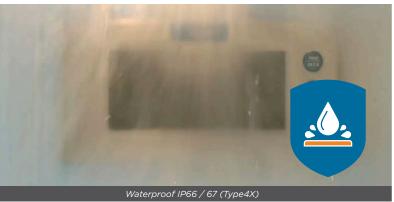

Signal input

The D090 does accept 4 - 20mA input signals only. The input signal type can be tuned and set by the user in the configuration menu without having to adjust any sensitive mechanical dip-switches, jumpers or trimmers.

Power requirements

The D090 is designed to be a loop powered indicator, which means it takes its operating energy from an input current (2-wire 4 - 20mA).

Waterproof IP66 / 67 (Type4X)
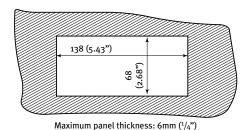
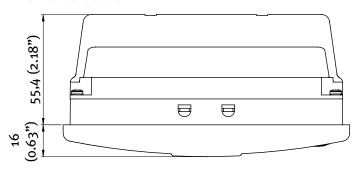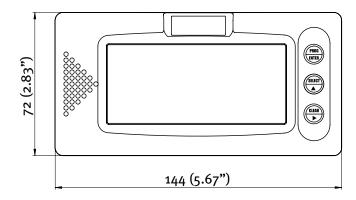

Only a few inches depth clearance

Enclosures

The D090 is supplied in a unique, robust IP66, IP67 (NEMA Type4X) class panel mount front enclosure made of die cast aluminum, based on a popular DIN sized enclosure of 144 x 72mm. The front enclosure withstands powerful water jets and even total immersion. The maximum thickness of the panel is 6mm (1/4"). The D-Series is the better alternative for your existing, not waterproof, front panel mounted indicators.
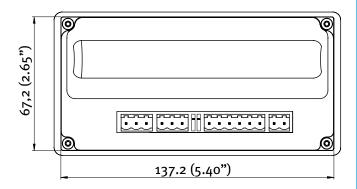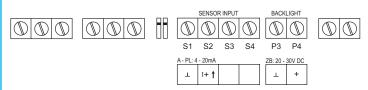
Panel cut out

138 (5.43")

68 (2.68")

Maximum panel thickness: 6mm (¹/₄")

Dimensions enclosure

55,4 (2.18")

16 (0.63")

72 (2.83")

144 (5.67")

67,2 (2.65")

137.2 (5.40")

Dimensions according DIN 43700 / IEC 61554

Terminal connections D090

SENSOR INPUT				BACKLIGHT	
S1	S2	S3	S4	P3	P4

A - PL: 4 - 20mA				ZB: 20 - 30V DC	
⊥	I+ ↑			⊥	+

Display example - 90 x 40mm (3.5" x 1.6")

1683.92

GAL/dAY

RUN

Display

Type	High intensity reflective numeric and alphanumeric LCD, UV-resistant.
Dimensions	90 x 40mm (3.5" x 1.6").
Digits	$5^1/_2$ very large 26mm (1") and eleven 8mm (0.31") digits. Various symbols and measuring units.
Piegraph	10 segment range indication in relation to its measuring range 0 - 100%
Option ZB	Transflective LCD with white LED-backlight. Intensitiy can be adjusted in the configuration menu. Good readings in full sunlight and darkness.

Piegraph

Digits	10 segments.
Relation	To the min. and max. input signal (0 - 100%).

Ambient temperature

Safe areas	-40°C to +80°C (-40°F to +176°F).

Power requirements

Type PL	Input loop powered from sensor signal 4 - 20mA (requires type A)
Type ZB	20 - 30V DC. Power consumption max. 1W. With type PD / PM: internally powered.

Terminal connections

Type	Removable plug-in terminal strip. Wire max. 1.5mm² and 2.5mm²

Directives & Standards

EMC	Directive 2014/30/EU, FCC 47 CFR part 15.
Low voltage	Directive 2014/35/EU
RoHS	Directive 2011/65/EU
IP & NEMA	EN 60529 & NEMA 250.

Data protection

Type	EEPROM backup of all settings. Backup of running totals every minute. Data retention at least 10 years.
Password	Configuration settings can be password protected.

Enclosure

Window	Polycarbonate window.
Sealing	Silicone.
Control keys	Three industrial micro-switch keys. UV-resistant silicone keypad.

Panel mount enclosure

Dimensions	144 x 72 x 71.4mm (5.67" x 2.83" x 2.81") - W x H x D according DIN 43700 / IEC 61554.
Panel cut-out	138 x 68mm (5.43" x 2.68") L x H.
Material	Die-cast aluminum front panel + GRP back enclosure.
Protection	IP66, IP67 (NEMA Type4X) at the front-side.
Weight	325 gr.
Panel thickness	Max. 6mm ($\frac{1}{4}$").

Signal inputs - Sensor

Type A	(0)4 - 20mA. Analog input signal can be scaled to any desired range within 0 - 20mA.
Accuracy	Resolution: 16 bit. Error < 0.01mA / ± 0.05% FS. Low level cut-off programmable.
Span	0.00001 - 199,999 with variable decimal position.
Offset	-99,999 / +199,999 units.
Update time	Four times per second.
Voltage drop	Max. 2.6V DC @ 20mA.
Relationship	Linear and square root calculation.

Operator functions

Displayed info	• Top line: main display value. • Bottom line: measuring unit and messages. • Piegraph: 10 segments related to input signal. • Actual sensor input value in mA.

Displayed information

Digits	$5\frac{1}{2}$ digits. (height 26mm / 1").
Units	m - mL - L- nL - M^3 - nM^3 - mg - g - kg - ton - gal - sgal - igal - lb - bbl - cf - scf - p - rev - °C - °F - °K - % - mm - cm - mtr - inch - ft - mmwk - mmwc - cmwk - cmwc - mwk - mwc - inwc - ftwc - mbar - bar - psi - pH - mV - no unit.
Time units	/sec - /min - /hr - /day - no unit.
Decimals	0 - 1 - 2 - 3 - 4 or 5.

		Description
Model	**D090**	**Multi-Purpose indicator, loop powered with very large digits.**
Input	**A**	**(0)4 - 20mA input.**
Enclosure	**HB**	**Aluminum panel mount front enclosure.**
Power	**PL**	**Input loop powered from sensor signal 4 - 20mA - requires type A.**
Hazardous	**XX**	**Safe area only, according CE and UKCA.**
Options	ZB	Backlight.
Options	**ZX**	**No options.**

The **bold** marked text contains the standard configuration: D090-A-HB-PL-XX-ZX.