D 074 Datasheet

Your success counts

FLUIDWELL

Level / Pump Controller

with one high / low alarm output.

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

- Level control: high / low control values and a preset value can be set.
- Displays actual level, height, percentage and control value.
- Control values and preset value can be set by the operator or being password protected.
- Level: six large 17mm (0.67”) digits.
- LED backlight option.
- Selectable on-screen engineering units: L, m³, GAL, USGAL, kg, lb, bbl or no unit.
- Ability to process (0)4-20mA or 0-10V DC signals.
- One on / off control output (e.g. for pump or valve control), available as passive signal, active signal or a robust, highly isolated (NO/NC) relay.
- Power requirements: Input loop powered, battery powered or 8 - 30V DC, 24V AC and 115 - 230V AC.
- Sensor supply: 8.2 / 12 / 24V DC.
- Auto backup of settings and running totals.

Introduction

The D074 is a basic, panel mount level / pump controller that works with a preset value and two switch points to control a pump or valve. The low and high level control values are entered as a percentage of the preset value to switch the device on / off. For pump control applications, the function can be inverted to empty a well. A stable level within a hysterese around the preset value is the result.

Configuration

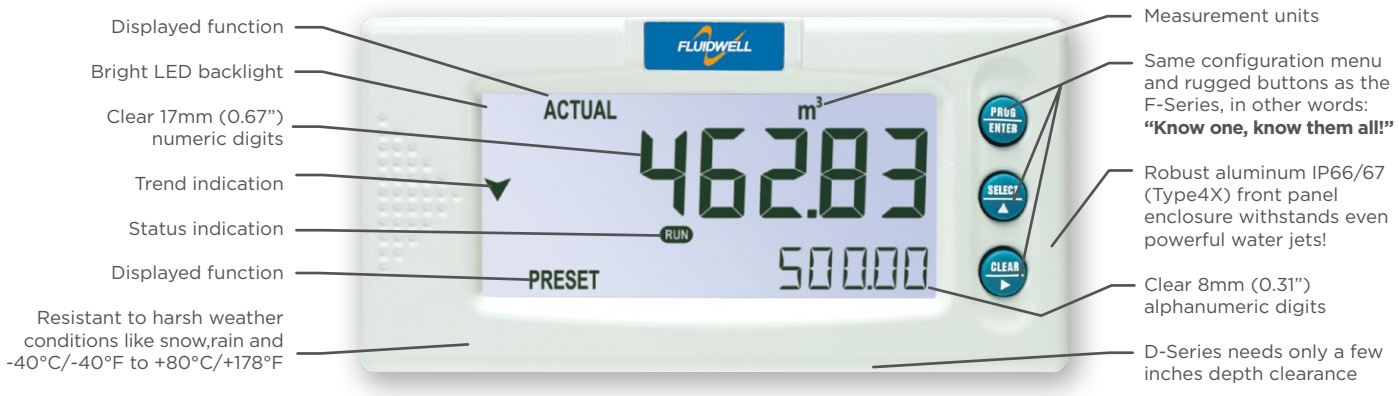
All configuration settings are accessed via a simple operator menu which can be password protected. Each setting is clearly indicated with an alphanumerical description, which avoids confusing abbreviations. Once familiar with one D-series product, you will be able to program all models in all series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

Display

The display has large 17mm (0.67”) and 8mm (0.31”) digits which can be set to show the actual level, height, percentage and control value. The display is a transflective type, which means that a high contrast reading is guaranteed, even in full sunlight. The D074 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.

Control output

One output is available to control e.g. pump or valve, according to the high / low level switch point values. The output signal can be a passive NPN, active PNP or a robust, highly isolated electro-mechanical relay (NO/NC).



Backlight

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

All info at a glance

Easy to install

Easy to program

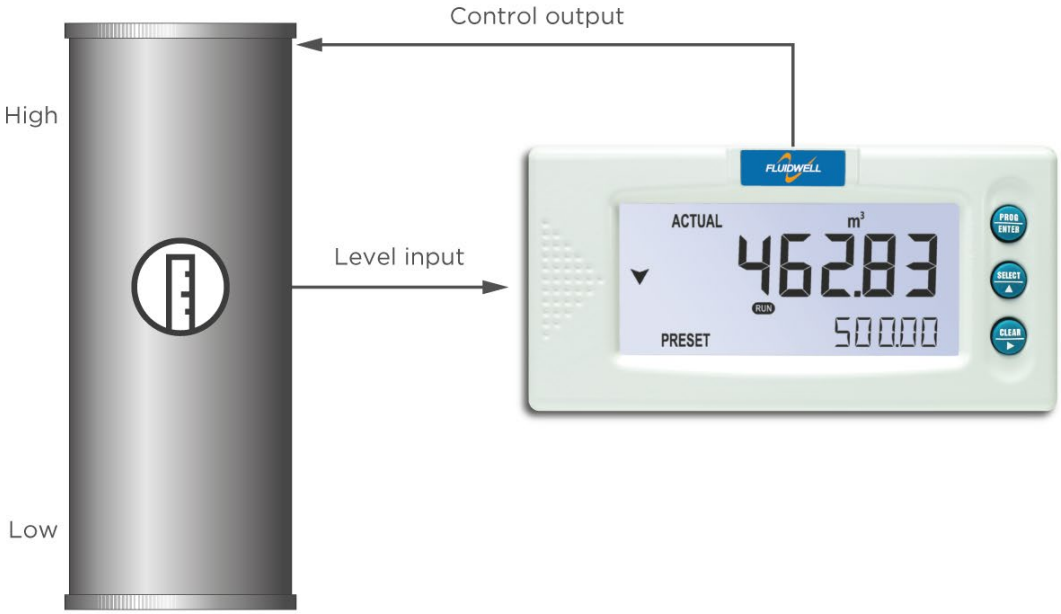
Know one know them all!

Reliable

User-friendly

Overview application D074

The D074 fits in basic on / off level control applications (e.g. for filling-up a container) without PI(D) control. Also very suitable when the required level changes frequently (e.g. for emptying a well or tank). Alternative basic models: D070, D073, D077 or the F-Series level indicators.



Signal input

The D074 does accept (0)4 - 20mA and 0 - 10V input signals from any type of level measurement device. The input signal type can be selected by the user in the configuration menu without having to adjust any sensitive mechanical dip-switches, jumpers or trimmers. Also a 4 - 20mA input loop powered model is available.

Power requirements

The basic power supply for the D074 is 8 - 30V DC. Several other power supplies are possible: With the 24V AC/DC and 115 - 230V AC power supplies, an 8.2 / 12 / 24V DC sensor supply is offered. For analog sensors, a 4 - 20mA input loop powered version is available. Finally we offer a long life lithium battery with a life expectancy that will last up to five years.

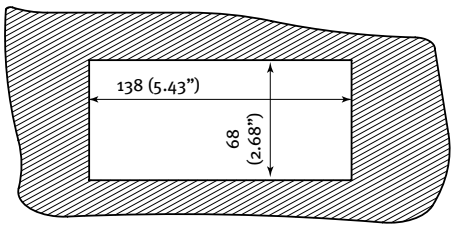
Waterproof IP66 / 67 (Type4X)

Only a few inches depth clearance

Enclosures

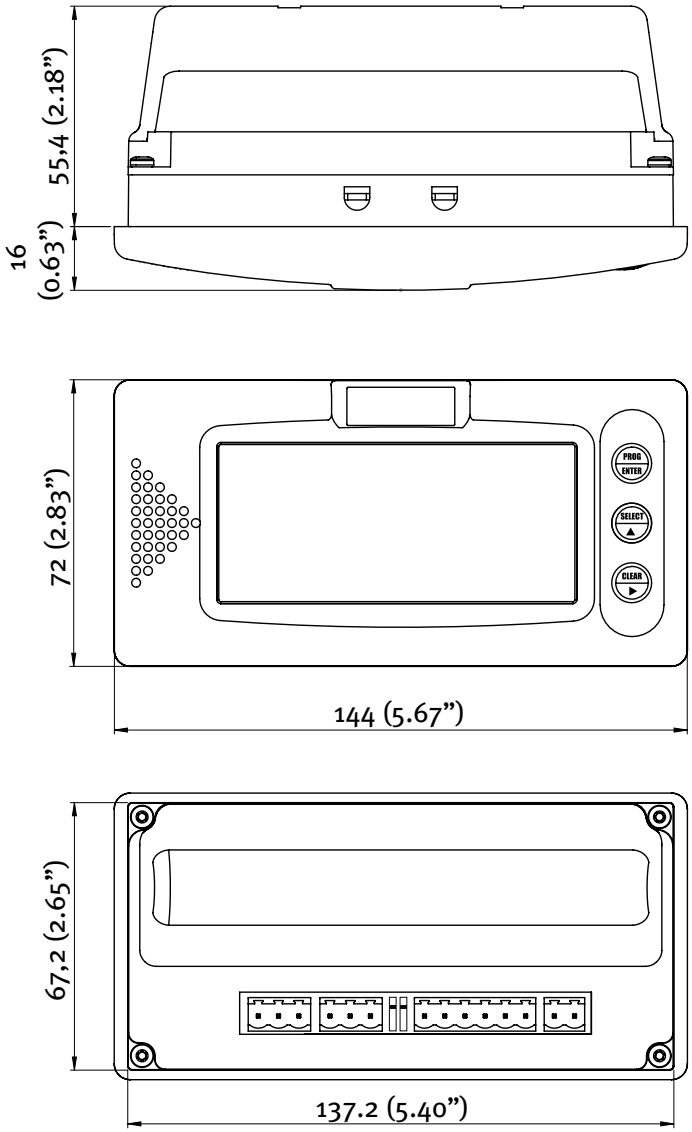
The D074 is supplied in a unique, robust IP66, IP67 (NEMA Type4X) class panel mount front enclosure made of die cast aluminum, based on a popular DIN sized enclosure of 144 x 72mm. The front enclosure withstands powerful water jets and even total immersion. The maximum thickness of the panel is 6mm (1/4"). The D-Series is the better alternative for your existing, not waterproof, front panel mounted indicators.

Panel cut out



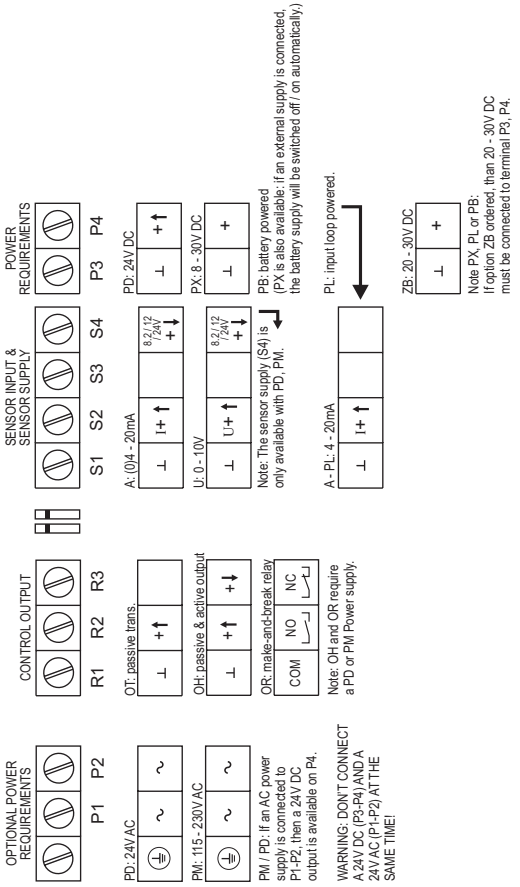
Maximum panel thickness: 6mm (1/4")

Dimensions enclosure

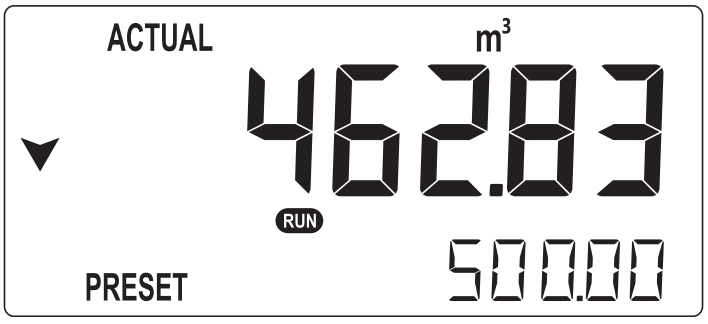


Dimensions according DIN 43700 / IEC 61554

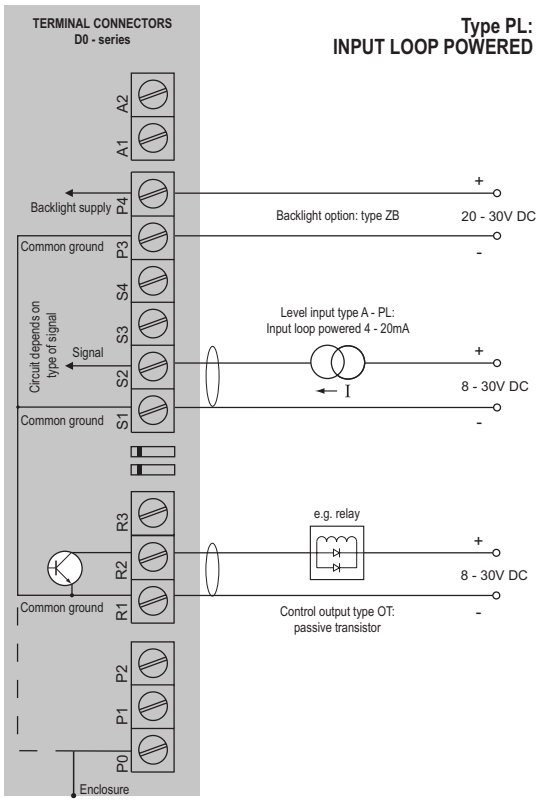
Terminal connections D074



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

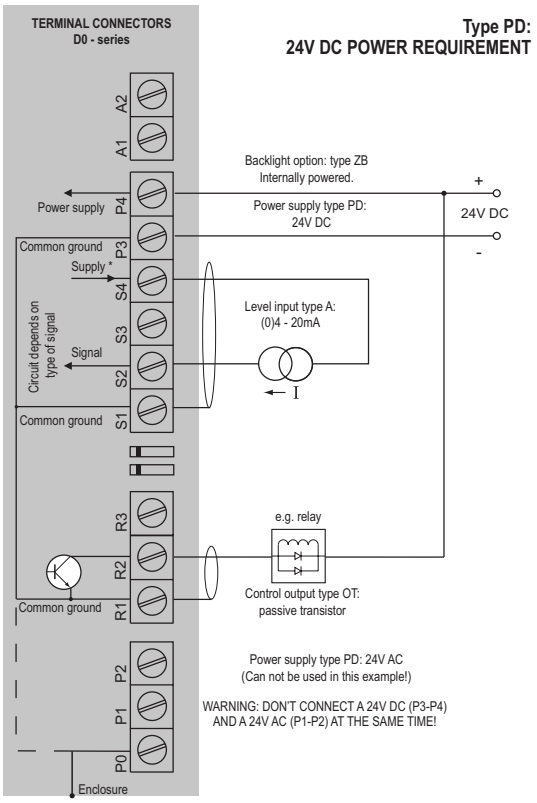


D074-A-OT-PL-XX-ZB



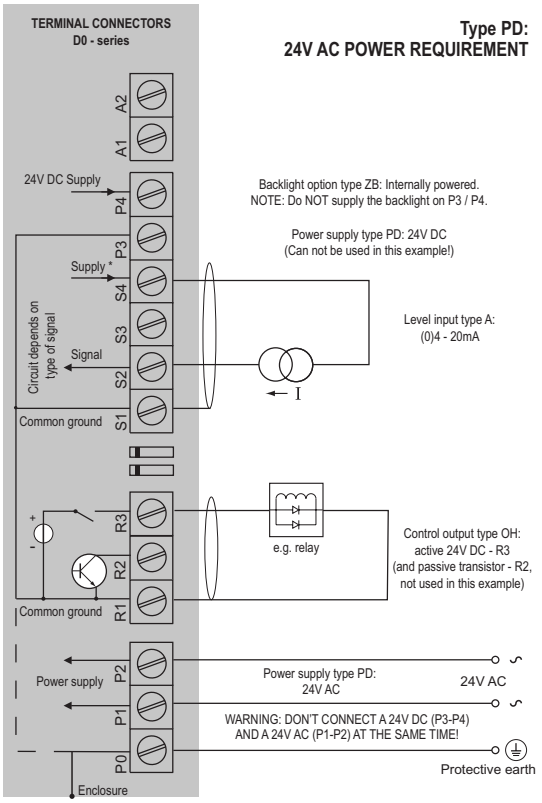
Sensor supply: sensor is externally powered.

D074-A-OT-PD-XX-ZB



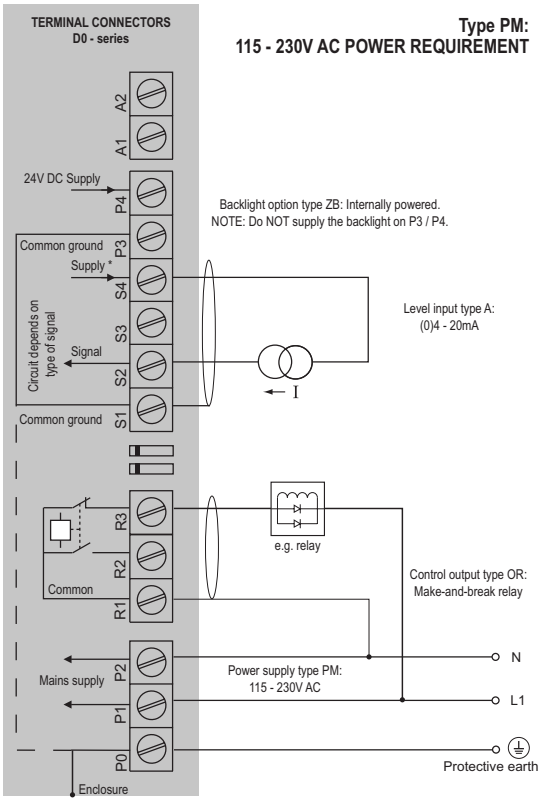
* Sensor supply voltage for analog sensor type A / U:
Terminal S4: 8.2 / 12 / 24V DC.

D074-A-OH-PD-XX-ZB



* Sensor supply voltage for analog sensor type A / U:
Terminal S4: 8.2 / 12 / 24V DC.

D074-A-OR-PM-XX-ZB



* Sensor supply voltage for analog sensor type A / U:
Terminal S4: 8.2 / 12 / 24V DC.

Display

Type	High intensity reflective numeric and alphanumeric LCD, UV-resistant.
Dimensions	90 x 40mm (3.5" x 1.6").
Digits	Seven 17mm (0.67") and eleven 8mm (0.31") digits. Various symbols and measuring units.
Refresh rate	User definable: fast, 1sec , 3sec, 15sec, 30sec, off.
Option ZB	Transflective LCD with white LED-backlight. Intensitiy and alarm response can be adjusted in the configuration menu.

Ambient temperature

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

Power requirements

Type PB	Long life Lithium battery - life-time depends upon settings and configuration - up to 5 years. (requires PL or PX)
Type PD	24V AC/DC ± 10%. Power consumption max. 10 Watt.
Type PL	Input loop powered from sensor signal 4 - 20mA (requires type A)
Type PM	115 - 230V AC ± 10%. Power consumption max. 15 Watt.
Type PX	8 - 30V DC. Power consumption max. 0.3 Watt.
Type ZB	20 - 30V DC. Power consumption max. 1 Watt. With type PD / PM: internally powered.

Sensor excitation

Type PB / PX	Not available.
Type PD / PM	Dipswitch adjustable sensor supply: 8.2V DC, I_{out} max. 35mA @ 20°C. 12V DC, I_{out} max. 50mA @ 20°C. 24V DC, I_{out} max. 75mA @ 20°C. (this voltage can vary depending on the input supply voltage)
Note Pd/ PM	Total consumption of sensor, active output OH and backlight may not exceed 75mA @ 24V DC @ 20°C.

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 ($^1/_4$").

Signal inputs - Level sensor

Type A	(0)4 - 20mA. Analog input signal can be scaled to any desired range within 0 - 20mA.
Type U	0 - 10V DC. Analog input signal can be scaled to any desired range within 0 - 10V DC.
Accuracy	Resolution: 16 bit. Error < 0.01mA / ± 0.05% FS. Low level cut-off programmable.
Span	0.001 - 999,999 with variable decimal position.
Offset	-999,999 / +999,999 units.
Update time	Four times per second.
Voltage drop	Type A: max. 1V DC @ 20mA.
Voltage drop	Type A - PL (loop powered): max. 2.6V DC @ 20mA.
Load impedance	Type U: 3kΩ.
Relationship	Linear and square root calculation.
Note A / U	For signal type A and U: external power to sensor is required; e.g. type PD / PM.

Signal output - Digital output

Function	Control output that switches e.g. a pump or valve on / off, according the high/low level switch point values.
Type OH	• Active 24V DC transistor output (PNP); Load max. 75mA. Requires PD/PM. • Passive transistor output (NPN) - not isolated; Max. 24V DC - 300mA per output. Requires PD/PM
Type OR	Isolated electro-mechanical relay (NO/NC). Requires PD/PM. Maximum resistive load: 2A @ 250V AC / 30V DC. Maximum inductive load: 0.5A (pilot duty applications)
Note OR	In case of inductive load, use RC snubbers.
Type OT	Passive transistor output (NPN) - not isolated. Max. 50V DC - 300mA per output.

Operator functions

Displayed info	• Actual level. • Height or percentage. • High and low control level value. Control values can be entered (this function can be disabled).

Level

Digits	7 digits.
Units	L, m^3, GAL, USGAL, kg, lb, bbl, no unit.
Decimals	0 - 1 - 2 or 3.

Height

Digits	6 digits.
Units	mm, cm, m, mtr, inch, ft, mmwk, mmwc, cmwk, cmwc, mwk, mwc, inwc, ftwc, mbar, bar, psi, no unit.
Decimals	0 - 1 or 2.

Percentage

Digits	3 digits.
Decimals	1.

Alarm values

Digits	7 digits.
Units	According to the settings for level / preset.
Decimals	According to the settings for level / preset.
Time units	According to the settings for level / preset.
Type of alarm	The control values have to be entered as a percentage of the preset value. The unit will calculate and display the absolute value automatically.

	Description						
Model	**D074**	**Level / pump controller with one control output.**					
Input	**A**	**(0)4 - 20mA input.**	**-A**				
	U	0 - 10V DC input.	-U				
Enclosure	**HB**	**Aluminum panel mount front enclosure.**		**-HB**			
Digital output	OH	Active and passive transistor output - requires PD / PM.			-OH		
	OR	Highly isolated mechanical relay output - requires PD / PM.			-OR		
	OT	**Passive transistor output.**			**-OT**		
Power	PD	24V AC / DC + sensor supply.				-PD	
	PL	Input loop powered from sensor signal 4 - 20mA - requires type A.				-PL	
	PM	115 - 230V AC + sensor supply.				-PM	
	PX	**Basic power supply 8 - 30V DC (no real sensor supply).**				**-PX**	
Battery	PB	Additional lithium battery (optional) - requires PL or PX.				-PB -P_	
Hazardous	**XX**	**Safe area only.**					**-XX**
Options	ZB	Backlight.					-ZB
	ZX	**No options.**					**-ZX**
	D074	-_	-HB	-O	-P_	-XX	-Z_

The **bold** marked text contains the standard configuration: D074-A-HB-OT-PX-XX-ZX.

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