

Application :

The **Ziegler Pro Hz** transducer is used for frequency measurement .The output signal is proportional to measured frequency and is either load independent DC Current or load independent DC Voltage .

Salient Features :

Fully onsite programmable input range.

Available in Single or Dual output type.

Onsite selectable output type.(DC current / DC voltage)

Accuracy class 0.2 (IEC EN 60688)/

Seven Segment LCD Display.

Rs485(Modbus) Communication.

Wide Auxiliary power supply Accept any input between 60V.300V AC DC or 24V 60V AC DC

Output Response Time > 300 ms .

Fast and easy installation on DIN RAIL or onto a wall or in a panel using optional screw hole bracket.

Connection Terminal : Conventional Screw type

Product Features:

Measuring Input:

Sine wave or distorted wave form of nominal input voltage with fundamental wave .

Analog Output (Single or dual) :

Isolated analog output which can be set onsite to either voltage or current output.

Accuracy:

Output signal accuracy Class **0.2** as per International Standard IEC / EN 60688

Programmable Input/Output:

The Transducer can be programmed onsite using front key & display or through programming port (COM) or through RS 485.

LED Indication:

LED indication for power on and output type .
(Current output :Red LED Voltage output , Green LED)

Ziegler Pro Hz Frequency Transducer



Fig .1 Ziegler Pro F

Display Module(Optional):

Optional 7 segment LCD display with backlit & keypad . For displaying measured parameters & onsite configuration of Input/output

Rs485 Communication(Optional):

Optional RS485 communication is available. For reading measured parameters & onsite configuration of input/output.

Symbols and their meaning:

X	Input Frequency
X0	Start value of input
X1	Elbow value of input
X2	End value of input
Y	Output DC Voltage / DC Current
Y0	Start value of output DC Voltage /DC Current
Y1	Elbow value of output DC Voltage /DC Current
Y2	End value of output DC Voltage /DC Current
RN	Rated value of output burden
UN	Nominal input voltage

Technical Specification :

Measuring Input X

Frequency Transducer (Ziegler Pro Hz) :

Measuring Ranges	45Hz to 55Hz ,48Hz to 52Hz ,55Hz to 65Hz ,45Hz to 65Hz (min span 4Hz)
Nominal input Voltage(U_N)	$57V \leq U_N \leq 500 V$
Nominal input Voltage burden	>0.6 VA max
Overload Capacity	: $1.2 * U_N$ continuously, $2 * U_N$ for 1 second ,repeated 10 times at 10 minute intervals (maximum 300V with power supply powered from measuring input) .

Measuring Output Y(Single or Optional Dual):

Output type	Load independent DC Voltage , DC Current onsite selectable through DIP switches.
Load independent DC output	0...20mA /4...20mA OR 0... 10V.
Output burden with DC current output Signal	$0 \leq R \leq 15V/Y2$
Output burden with DC voltage output Signal	$Y2/(2 \text{ mA}) \leq R \leq \infty$
Current limit under overload $R=0$	$\leq 1.25 * Y2$ with current output $\leq 100 \text{ mA}$ with Voltage output
Voltage limit under $R^* \infty$. =	$1.25 > Y2$ with voltage output $\leq 30 \text{ V}$ with current output
Residual Ripple in Output signal	$\leq 1 \% \text{pk-pk}$
Response Time	300 ms

Auxiliary Power Supply:

AC/DC Auxiliary Supply	60V ...300 VAC-DC $\pm 5 \%$ or 24V ... 60VAC-DC $\pm 10 \%$
AC Auxiliary supply frequency range	40 to 65 Hz
Auxiliary supply consumption	

60V- 300 VAC. DC	$\geq 8 \text{ VA}$ for Single output
	$\geq 10 \text{ VA}$ for Dual output
24V- 60 VAC. DC	$\geq 5 \text{ VA}$ for Single output
	$\geq 6 \text{ VA}$ for Dual output

Safety:

Protection Class Protection	II (Protection Isolated ,EN 61010) IP 40 ,housing according to EN 60 529 IP 20 ,terminal according to EN 60 529
Pollution degree	2
Installation Category	III
Insulation Voltage	50Hz-1min (EN 61010.1) 5500V ,Input versus outer surface 3700V ,Input versus all other circuits 3700V ,Auxiliary supply versus outer surface and output 490V ,Output versus output versus each other versus outer surface.

Installation Data:

Mechanical Housing	Lexan 940 (polycarbonate) Flammability Class V,0 acc to UL 94 self extinguishing . non dripping ,free of halogen
Mounting position	Rail mounting /wall mounting
Weight	Approx .0.4kg

Connection Terminal

Connection Element	Conventional Screw type terminal with indirect wire pressure
Permissible cross section of the connection lead	≤ 4.0 mm ² single wire or 2 x 2.5 mm ² fine wire

Environmental:

Nominal range of use	0 °C... <u>23 °C</u> ...45 °C (Usage Group II)
Storage temperature	-40 °C to 70 °C
Relative humidity of annual mean	≤ 75%
Altitude	2000m max

Ambient tests:

EN 60 068-2-6	Vibration
Acceleration	±2 g
Frequency range	10/ 150 10Hz rate of frequency sweep 1.octave.minute
Number of cycles	10 ,in each of the three axes
EN 60 068-2-7	Shock
Acceleration	3*50g 3 shocks in each direction
EN 60 068-2-1-/2-/3	Cold ,Dry ,Damp heat
IEC 61000/4-2 3 4 5 -6 EN 55 011	Electromagnetic compatibility.

ON LED	Aux supply healthy condition	Green LED continuous ON
O/P1 LED	Output1 voltage selection	Green LED continuous ON
	Output1 Current selection	Red LED continuous ON
O/P2 LED	Output2 voltage selection	Green LED continuous ON
	Output2 Current selection	Red LED continuous ON

Electrical Connections:

Connection	Terminal details	
Measuring input	~	5
	~	6
Auxiliary Power supply	+ , ~	7
	- , ~	8
Measuring output -1	+	1
	-	2
Measuring output -2	+	3
	-	4

Dimensions

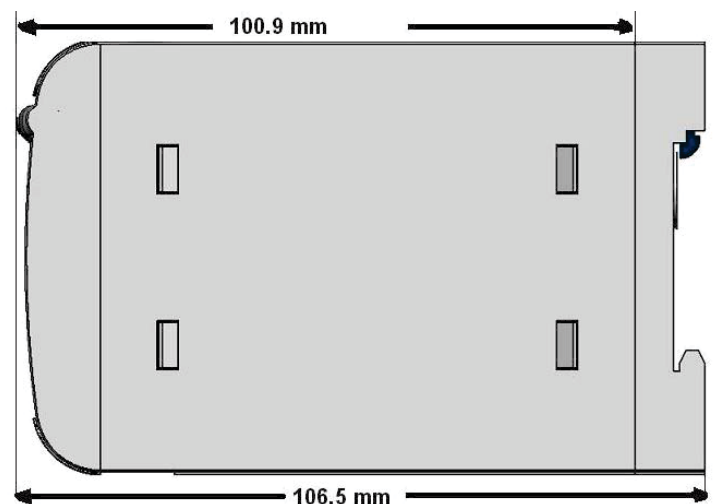
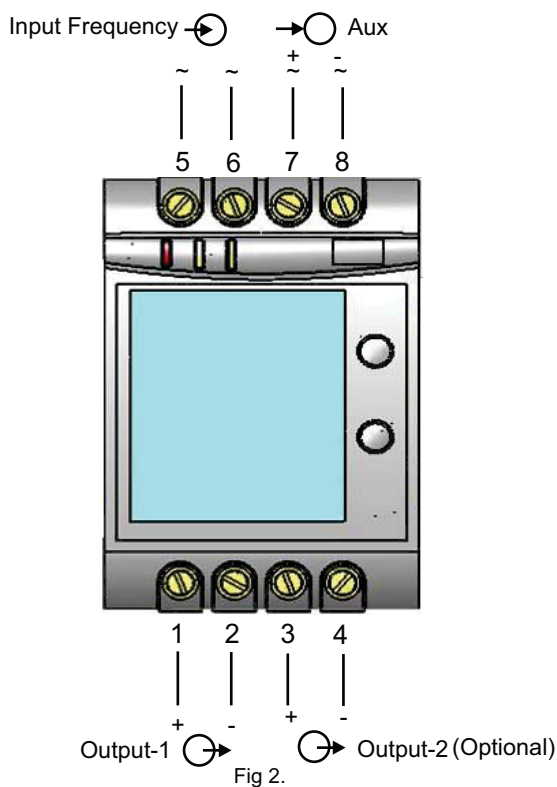
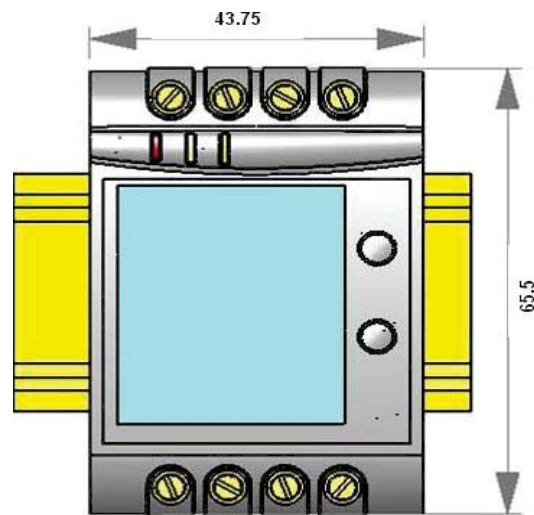


Fig 3.

Programming (Figs.4 and 5)

Programming of transducer can be done in three ways :

- 1) Programming Via Front LCD & two keys.
- 2) Programming Via optional RS485(MODBUS) communication port (Device address, Password communication parameter, Output Type & simulation mode can be programmed).
- 3) Programming Via Programming port available at front of Pro F Transducers using (optional) PRKAB601 Adapter

Programming Via Programming port (COM)

A PC with RS 232 C interface along with the programming cable PRKAB601 and the configuration software are required to program the transducer.

The connections between

“PC ↔ PRKAB 601 ↔ Ziegler Pro Transducer.

The powersupply must be applied to Transducer before it can be programmed.

The Configuration software is supplied on a CD. The programming cable PRKAB601 adjusts the signal level and provides the electrical insulation between the PC and Pro Transducers.

Configuring Pro Hz ransducer :

To configure Pro Transducer Input /output one of the three programming methods can be adapted along with mechanical switch setting (DIP switch setting on PCB for output).

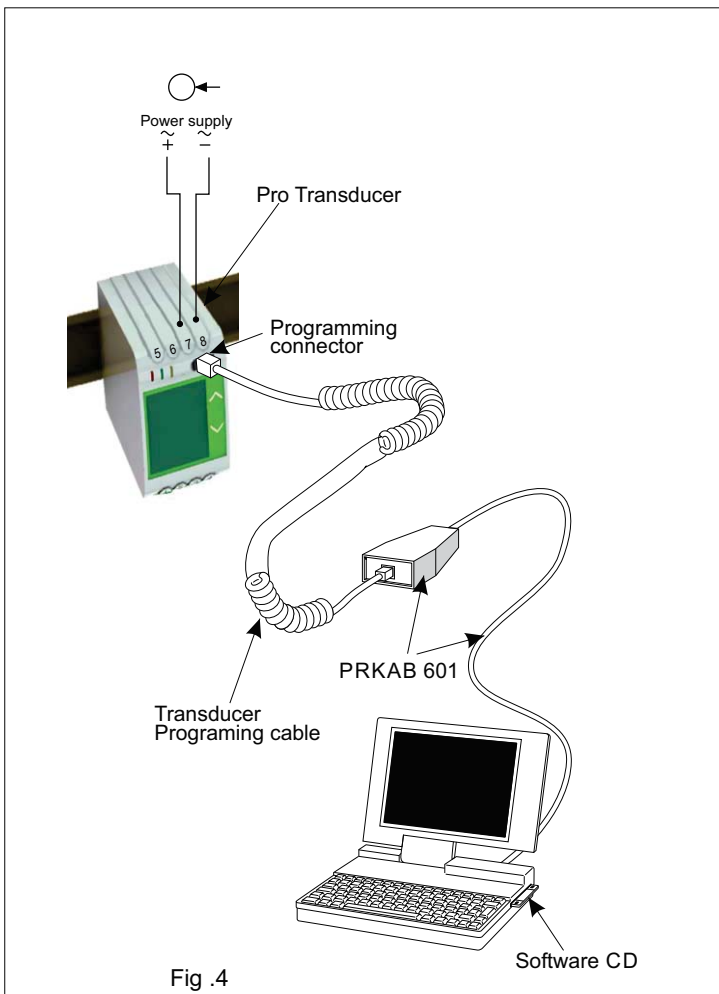
DIP Switch Setting for OUTPUT :

Type of output (current or voltage signal) has to be set by DIP switch (see Fig.5).

For programming of DIP switch the user needs to open the transducer housing & set the DIP switch located on PCB to the desired output type Voltage or Current. Output range changing is not possible with DIP switch setting.

Refer below Fig .5 for DIP switch setting.

The four pole DIP switch is located on the PCB in the ProF Transducer



DIP Switch Setting	Type of Output Signal
	load-independent current
	load-independent voltage

Fig .5

Ordering Information : Standard Version :

Dual Output : Pro F -F1 -H -O1A1 -O2V1- D - Z - Z

Single Output : Pro F -F1 -L -O1A1 - D - Z - Z

Sr.No.	Transducer parameter	Ordering Code
1	Input Signal	
	Frequency	Pro Hz
	45.....65Hz	F1
	Note Input frequency can be programmed onsite from 45Hz to 65 Hz but minimum span is 4Hz	
2	Auxiliary Supply	
	High Aux (60V- 300V.A.C.DC)	H
	Low Aux (24V- 60V.A.C.DC)	L
3	Output 1 (Standard Ranges)	
	Current = 0.....20 mA	O1A1
4	Output 2(Standard Ranges)	
	Voltage = 0.....10 V	O2V1
5	With Display	D
6	Without RS -485	Z
7	Without PRKAB 601	Z

Note :End value of output can not be changed onsite.

Ordering Information : Optional Versions :

Sr.No.	Transducer parameter	Ordering Code
1	Input Signal	
	Frequency	Ziegler Pro F
	45.....55Hz	F2
	55.....65Hz	F3
	48.....52Hz	F4
	Note Input frequency can be programmed onsite from 45Hz to 65 Hz but minimum span is 4Hz	
2	Auxiliary Supply	
	High Aux (60V- 300VAC. DC)	H
	Low Aux (24V- 60VAC. DC)	L
3	Output 1	
	Current = 0.....20 mA	O1A1
	Current = 4.....20 mA	O1A2
	Voltage = 0.....10 V	O1V1
	Optional factory set ranges	
	Current = 0.....10 mA	O1A3
	Current = 0.....5 mA	O1A4
	Current = 0.....2.5 mA	O1A5
	Current = 0.....1 mA	O1A6
	Voltage = 0.....5 V	O1V2
	Voltage = 0.....2.5 V	O1V3
	Voltage = 0.....1 V	O1V4
	4	Output 2
Without output 2		O200
Current = 0.....20 mA		O2A1
Current = 4.....20 mA		O2A2
Voltage ..0. =10 V		O2V1
Optional factory set ranges		
Current = 0.....10 mA		O2A3
Current = 0.....5 mA		O2A4
Current = 0.....2.5 mA		O2A5
Current = 0.....1 mA		O2A6
Voltage = 0.....5 V		O2V2
Voltage = 0.....2.5 V		O2V3
Voltage = 0.....1 V		O2V4
5	LCD display module	
	With Display	D
	Without Display	Z
6	RS-485 module	
	With RS-485	R
	Without RS-485	Z
7	PRKAB 601 module	
	With PRKAB 601	PR
	Without PRKAB 601	Z

Optional Version Example:

Pro Hz- F2- H- O1A1- O1V1- O2V1 O2A1- D- R- PR

Pro Hz is Frequency transducer 45 55Hz nominal input signal High.Aux
 Output1 =0...20mA or 0...10V ,Output2 =0...10V or 0...20mA ,
 with LCD display module &with RS 485 -withPRKAB 601 cable

Note :End value of output can not be changed onsite.

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