

IF302

CURRENT TO FIELDBUS CONVERTER



Features

- 0.03% accuracy.
- Configuration through Fieldbus communication from a PC or by the local adjustment switches (should be used the display).
- Digital LCD display (optional).
- Instantiation and deletion of function blocks.
- Self diagnostics.
- Weather proof, explosion proof and intrinsically safe.
- Network Master capability.



Description

The IF302 is from the first generation of Fieldbus devices. It is a converter mainly intended for interface of analog transmitters to a Fieldbus network. The IF302 receives a current signal, typically 4-20 mA or 0-20mA, and makes it available to the Fieldbus system. The digital technology used in the IF302 enables a single model to accept three inputs and also provide several types of transfer functions, an easy interface between the field and the control room and several interesting features that reduce considerably the installation, operation and maintenance costs.

The IF302 is part of Smar's complete 302 series of Fieldbus devices. Fieldbus is a complete system enabling distribution of the control function to equipment in the field.

Using Fieldbus technology, with its capability to interconnect several devices, very large control schemes can be constructed. In order to be user friendly, the function block concept was introduced. The user may now easily build and overview complex control strategies. Another advantage is added flexibility, the control strategy may be edited without having to rewire or change any hardware.

The need for implementation of Fieldbus in small as well as large systems was considered when developing the entire 302 series of Fieldbus devices. They have the common features of being able to act as a master on the network and be configured locally using a magnetic tool, eliminating the need for a configurator or console in many basic applications.

Function Blocks Table

BLOCK	
RES	RESOURCE – This block contains data that is specific to the hardware that is associated with the resource.
TRD	TRANSDUCER BLOCK – This block converts the primary variables of the function blocks will be displayed in the device LCD panel..
DSP	DISPLAY TRANSDUCER – This block configures what process variables of the function blocks will be displayed in the device LCD panel.
DIAG	DIAGNOSTICS TRANSDUCER – It provides online measurement of block execution time, check of links between blocks and other features.
AI	ANALOG INPUT – This block takes the input data from the transducer block and makes it available to other function blocks. It has scaling conversion, filtering, square root and low cut.
PID	PID CONTROL – This standard block has a lot of valuable features as setpoint treatment (value and rate limiting), filtering and alarm on PV, feed-forward, output tracking and others.
EPID	ENHANCED PID – It has all the standard features plus: bumpless or hard transfer from a "manual" mode to an "automatic" mode and bias.
ARTH	ARITHMETIC – This calculation block provides some pre-defined equations ready for use in applications as flow compensation, HTG, ratio control and others.
INTG	INTEGRATOR – It integrates a variable in function of the time. There is a second flow input that may be used for the following applications: net flow totalization, volume/ mass variation in vessels and precise flow ratio control.

ISEL	INPUT SELECTOR – This block has four analog inputs that may be selected by an input parameter or according to a criterion as first good, maximum, minimum, middle and average.
CHAR	SIGNAL CHARACTERIZER – It has capability for two signal characterization based on the same curve. The second input has an option for swapping “x” to “y”, providing an easy way to use the inverse function, that may be used in signal characterization of read-back variables.
SPLT	SPLITTER – This block is used in two typical applications: split ranging and sequencing. It receives the output of PID block that is processed according to the selected algorithm then it generates the values for the two analog output blocks.
AALM	ANALOG ALARM – This alarm block has dynamic or static alarm limits, hysteresis, temporary expansion of alarm limits on step setpoint changes to avoid nuisance alarms, two levels of alarm limits and delay for alarm detection.
SPG	SETPOINT RAMP GENERATOR – This block generates setpoint following a profile in function of the time. Typical applications are temperature control, batch reactors, etc.
TIME	TIMER – This block has four discrete inputs that are processed by combination logic. The selected timer processing type operates on the combined input signal to produce a measurement, delay, extension, and pulse or debounce.
LLAG	LEAD-LAG – This block provides dynamic compensation of a variable. It is used normally in a feed-forward control.
OSDL	OUTPUT SELECTOR / DYNAMIC LIMITER – It has two algorithms: <ul style="list-style-type: none"> - Output selector – selection of output by a discrete input. - Dynamic limiter – this algorithm was developed specially for double cross limit in combustion control.
CT	CONSTANT – It provides analog and discrete output parameters with constant values.



Technical Characteristics

Functional Specifications

Input Signal (Field Values)	0-20 mA, 4-20 mA or any within 0 and 20 mA. Reverse polarity protected.
Output Signal (Communication)	Digital only, FOUNDATION™ Fieldbus, 31.25 Kbit/s voltage mode with bus power.
Input Impedance	Resistive 100 Ohm , plus a 0.8 V drop over diode in forward direction.
Power Supply	Bus powered: 9 - 32 Vdc. Current consumption quiescent 12 mA.
Indication	Optional 4½-digit numerical and 5-character LCD indicator alphanumeric LCD indicator.
Hazardous Location	Explosion proof, weather proof and intrinsically safe (CENELEC and FM standards).
Temperature Limits	Operation: -40 to 85 °C (-40 to 185 °F). Storage: -40 to 120 °C (-40 to 250 °F). Display: -10 to 60 °C (14 to 140 °F) operation. -40 to 85 °C (-40 to 185 °F) without damage. Less than 0.15 cm ³ (0.01 in ³).
Humidity Limits	0 to 100% RH.
Turn-on Time	Approximately 10 seconds.
Update Time	Approximately 0.3 seconds.

Performance Specifications

Accuracy	± 0.03% of span for 4-20 mA, 5 µA for others spans.
Ambient Temperature Effect	For a 10 °C variation: ± 0.05%.
Vibration Effect	Meets SAMA PMC 31.1.
Electro-Magnetic Interference Effect	Designed to comply with IEC 801.

Physical Specifications

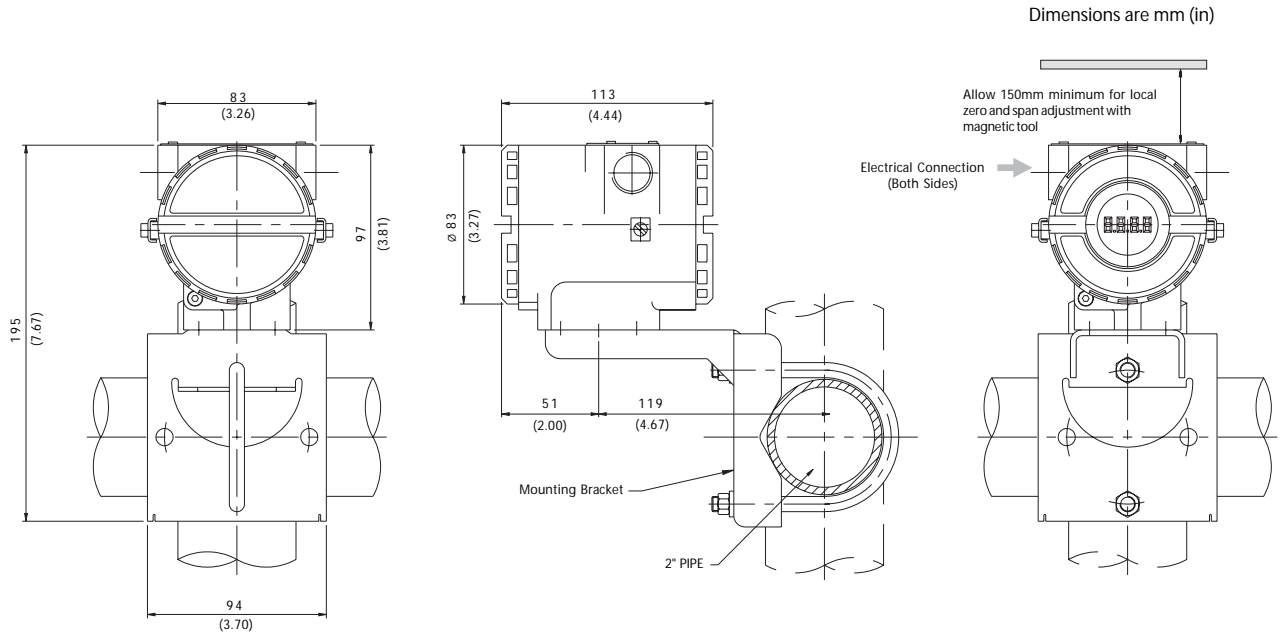
Electrical Connection	1/2-14 NPT, Pg 13,5 or M20 x 1,5.
Material of Construction	Injected low copper aluminum with polyester painting or 316 Stainless Steel housing, with Buna N O-rings on covers (NEMA 4X, IP67).
Mounting	With an optional bracket can be installed on a 2" pipe or fixed on a wall or panel.
Weight	Without display and mounting bracket: 0.80 kg. Add for digital display: 0.13 kg. Add for mounting bracket: 0.60 kg.

Ordering Code

MODEL	CURRENT TO FIELDBUS CONVERTER			
IF302				
	CODE	Local Indicator		
	0	Without Indicator		
	1	With Digital Indicator		
		CODE	Mounting Bracket for 2" Pipe Mounting	
		0	Without Bracket	
		1	Carbon Steel Bracket	
		2	316 SST Bracket	
		CODE	Electrical Connections	
		0	½ - 14 NPT	
		A	M20 x 1,5	
		B	Pg13,5 DIN	
		CODE	Optional Items*	
		H1	316 SST Housing	
		A1	316 SST Bolts	
		ZZ	Special Options - Specify	
IF302	-	1	1	-
				0
				/
				*
				◀ TYPICAL MODEL NUMBER

* Leave it blank for no optional items.

Dimensions



smar
www.smar.com

Specifications and information are subject to change without notice.
Up-to-date address information is available on our website.

web: www.smar.com/contactus.asp

