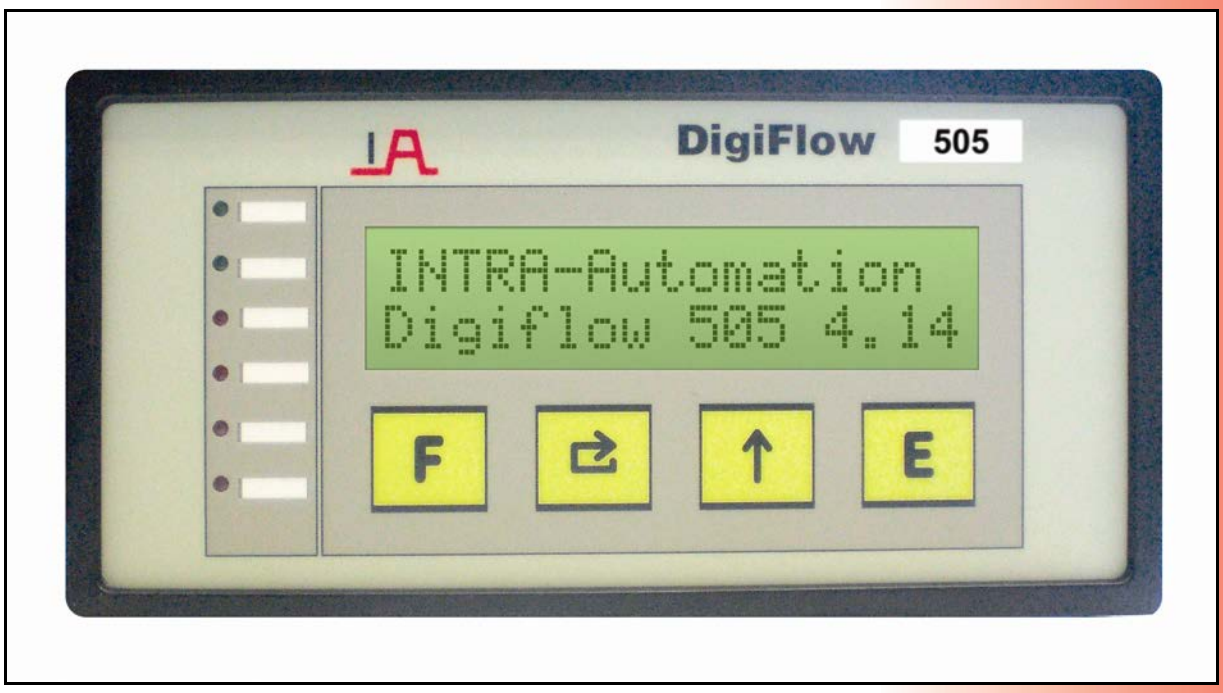
INTRA-AUTOMATION

MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

Certified according to ISO 9001; PED 97/23/EC; ATEX 2014/34/EU

MICROPROCESSOR CONTROLLED FLOW INDICATOR-INTEGRATOR

Series: DigiFlow
Type: 505



Technical Information

03/2012

FLOW

THE SPECIALIST IN LEVEL AND FLOW

Intra-Automation
Technical Information
03/2012

Technical details subject to be changed without notice.

For comments regarding this brochure, please contact
info@intra-automation.de

Series: DigiFlow
Type: 505

MICROPROCESSOR CONTROLLED FLOW INDICATOR-INTEGRATOR

List of Contents:

1 Functions

- Full scaleable input signals 4…20 mA analogue or frequency
- 2 inputs either two independent measurements, dual range, median of two sensors or two different channels.
- Integrated and indication of totals when time dependent signals.
- Simple programming
- User menus in three languages
- Control of a sensor-purge-unit
- Data logging output

The backlit one row alphanumeric display shows the instantaneous readings of Flow or Totals, and the four key touchpad it is used to program and configure the unit.
The **DigiFlow 505** has per default one analog input 4 – 20mA each channel, as well as a frequency input.
A scalable Pulse Output to drive external counters, 2 Relay Outputs for limit alarm, selectable Low or High and an RS232 interface are also standard features of the **DigiFlow 505**.
Optionally there are up to two scalable Analog Outputs 4 – 20mA available.
Furthermore an optionally equipment to control a sensor purge unit can be ordered.
The RS232/RS485 Interface will output all parameters which are displayed. This can be done to a printer or a host computer.
An integrated real time clock is included to send protocols in selectable intervals, up to 9999min. Totals may be reset.
The Totals can be reset by pressing the related key on the keyboard or by a voltage input at the related rear-terminal jack.
The **DigiFlow 505** is powered by AC of 115/230 VAC 50/60 Hz. Optionally voltages between 24 and 28 V AC/DC.
The **DigiFlow 505** provides an adjustable voltage of 18V DC for powering sensors. Maximum current is 100mA.

2 Inputs

Since the DigiFlow 505 scalable integrates any physical unit which is converted into 4-20mA analog or frequency signal, the user have to enter a dimension text with up to 5 characters length.
The input signals aren't converted only linearly. Also nonlinear relationships of input-to output quantity can be programmed. Additional to the predefined exponents of the conversion curve for linear, square or square root relationship of y = AE, a free settable exponent can be entered. If none of these conversion terms describes exactly the relationship between input and output, a 12 point correction curve can be programmed
The most common use of the DigiFlow 505 is as flow indicator. Most types of flow meters can be used Including:

1. Linear frequency producing flow meters like (VORTEX), turbines or positive displacement.
2. Non–linear frequency producing flow meters.
   A 12 point correction curve can be programmed to linearize the signal.
3. Volumetric flow meters with outputs of 4 – 20mA such as (VORTEX) or turbine meters with a frequency to current converter on the output.
4. Differential Pressure devices for ITABAR–sensors or orifice plates, where a square law relationship applies.
5. Linear Differential Pressure devices where the 4 – 20mA output is proportional to the flow rate.
6. Dual Range Differential Pressure devices where two separately spanned transmitters are used across a common flow device (ITABAR–sensor).
7. Non–linear Differential Pressure devices like laminar flow tubes.
8. Signal of two transmitters at one test point can be weighted added into one flow signal

3 Technical Specifications

General:

Display:	Back lighted, alphanumeric LC–Display, 2 rows, 16 cols. Each char is 0.276" high.
Keyboard:	Sealed membrane keyboard with four keys.
Transmitter supply:	18 V / 100 mA; via keyboard adjustable, isolated.
Power:	115/230 V AC; 50/60 Hz internally switchable. Optionally 24-28 V AC/DC Power consumption 10 W @ 230 V AC without Options.
Operating Temperature:	32 – 131 °F
Housing:	Enclosure: glass–fiber reinforced synthetic material; Front: aluminum keyboard membrane.
Face:	Watertight to IP 54 (NEMA 4X equal)
Dimensions:	5.7" W × 2.8" H × 5.1" D
Panel cutout:	5.4" W × 2.6" H

Programming and Configuration:

Handheld:	There is no handheld terminal required. All necessary constants and parameters are programmed using the keypad.
Language:	German, English or French selectable.

Frequency Input:

Frequency Range:	0.25 - 10 kHz Input 1. 0.25 - 500 Hz Input 2.
Input Circuits:	Most AC, logic and proximity switches accepted. 0.5 – 50 V_{pp}.
Non–Linear Correction:	Up to 12 points for curve fit.

Analog Input 4 – 20 mA:

Inputs:	2 for flow (split range).
Input Impedance:	120 Ω.
Circuit:	All inputs are isolated, no common ground.

Pulse Output:

Pulse Width:	Adjustable between 10 ms and 90 ms.
Duty Cycle:	≥ 1 : 1.
Logic:	Open Collector, Active Low.
Current sinking:	max. 100 mA.
Pulse generation:	The pulse count is proportional to the counter difference in selectable units of 10 (1, 10, 100, ...100000).

External Keyboard:

Function:	One input controls the display and one input resets the total-counters.
Circuit:	An input voltage higher than +18 V is detected.

Communication Port:

Type:	An RS232 interface is provided. Optionally there is a RS485 multipoint communication interface for up to 32 instruments connected to a common bus.
Baud Rate:	300 – 9600 Baud.
Data Bits:	7 or 8 selectable.
Parity:	None, even or odd.
Stop Bits:	1 or 2 selectable.
Data logging:	Output in intervals up to 9999 min or by key stroke.

Relay Output:

Function:	High– and Low–flow rate alarms based on the flow rate.
Form:	Normally open. (SPST)
Max. Voltage	250 V AC
Max. Current	6 A AC

Options:

Analog Outputs:

Function:	Selectable: Output current proportional to standard display. Setpoints at 4 mA and 20 mA, linear interpolation between.
Output Span:	0 – 20 mA or 4 –20 mA selectable.
Resolution:	12 Bit
Max. Load:	500 Ω internally powered. 800 Ω externally 24 V powered.
Powering:	If there is no external supply >15V the output will be internal powered automatically.

Control of a Sensor–Purge–Unit:

Function:	Two relays control the solenoid activated valves of a Sensor Purge Unit. During the purging time and an additional selectable time after purging, the flow input is maintained.
Time between purging:	10 minutes to 31 days 23 hours 50 minutes.
Purge Duration:	1 to 999 s
Time Constant:	1 to 99 s

4 Ordering codes

Code	Description					
505	Microprocessor controlled flow indicator-integrator					
	Housing					
	S	Panel mounting IP54 (Standard)				
	T	Panel mounting with lockable transparent door IP55				
		Power supply				
		2	230 V AC Line (Standard)			
		1	115 V AC Line			
		4	24 V AC/DC			
			Analogue output			
			X	without analogue output		
			1	with one analogue output		
				Communication ports		
				2	RS232-Serial interface (Standard)	
				4	RS485-Multipoint serial interface	
					Relay output	
					S	High- and low-flow-alarm
					L	High- and low-flow-alarm and control for sensor-purge-unit
505						

Besides the products covered by this brochure, Intra-Automation GmbH also manufactures other high-quality and high precision instruments for industrial measurement tasks. For more information, please contact us (contact details on the backside of this brochure).

Flow measurement

Itabar®-Flow Sensor

IntraSonic IS210 Ultrasonic Flow Meter

Level measurement

ITA-mag. Level Gauge

MAGLINK Level Indicator

Other Measurement Tasks:

DigiFlow Flow and Level Computers

IntraCon Digital Controllers

IntraDigit Digital Indicators / Meters

INTRA-AUTOMATION

MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

International Headquarters:
Intra-Automation GmbH
Otto-Hahn-Str. 20
41515 Grevenbroich
GERMANY

☎ +49 – (0) 21 81 / 7 56 65-0
📠 +49 – (0) 21 81 / 6 44 92

🖱 info@intra-automation.de

Sales Office for the BENELUX:
B.V. Intra-Automation HTP
PO Box 10
4730 AA Oudenbosch
THE NETHERLANDS

☎ +31 – (0)165 – 32 22 01
📠 +31 – (0)165 – 32 29 70

🖱 info@intra-automation.nl

💻 www.intra-automation.com