



REMOTE I/O DC300 SERIES

- Discrete I/O connected direct to the bus.
- Input and Output Function Blocks, including Flexible Function Block (FFB) for logic execution.
- Power, Control and I/O integrated in the same hardware.
- The DC300 line allows easy integration between Profibus or Foundation fieldbus and Conventional Inputs/Outputs.
- Reduce wiring cost.



Control

DC300 Series

DC302 and DC303 allow easy integration between discrete devices such as pressure switches, push buttons, On/Off valves, pumps and conveyors to the Foundation fieldbus and PROFIBUS PA system via H1 bus. It is a compact module with power, control and I/O integrated into the same equipment, making it easy to use and assemble when compared to other solutions on the market. They are part of Smar's SYSTEM302 and can also be easily integrated with other third-party systems.



Until all types of field devices are available in Foundation fieldbus or PROFIBUS PA and allow integrations accepting fieldbus and conventional I/O signals, the existence of a mixed system is inevitable during the transition process to Fieldbus technology.

The DC300 Series makes conventional discrete and analog inputs and outputs easily available for configuring control strategies, using the function blocks concept. The system becomes homogeneous in such a way that this conventional equipment may appear as simple equipment on a Fieldbus bus.



Easy Installation

DC302/DC303 Remote I/O units can be distributed into the field where they are mounted close to the conventional devices without the need to run the conventional wiring to the control room.

DC302/DC303 may be installed close to the sensors and actuators, thereby eliminating long wire runs and associated marshalling panels and cable trays for the conventional I/O, with subsequent savings further reducing overall system cost. Use DC302/DC303 to make it possible to distribute I/O at various locations in the field and connect them via H1 bus. They are ideal to connect motor control centers, variable speed drives, and electrical actuators and motor operated valves to fieldbus.

The DC302/DC303 are simple low-cost DIN-rail mounted units. They can optionally be supplied preinstalled in an enclosure ready for field mounting.

Easy Configuration

The DC302 is fully configured via Syscon using the SYSTEM302 or any FOUNDATION™ fieldbus configuration tool.

The DC303 is fully configured through the SYSTEM302 or any other Profibus configuration tool based on EDDL or FDT/DTM.

Function Blocks

An extensive library of function blocks enables the DC302 and DC303 to perform logic and integrated regulatory and discrete control functions via the H1 bus. Instantiable function blocks provide great flexibility in control strategies. Now, conventional discrete I/O works together with purely fieldbus equipment integrated into the same network and control loop. Output function blocks include standardized safety procedures in case of failures.

Inputs and outputs are isolated from each other and accessed via the communication network, through the function block channels. LEDs are used to indicate the status of inputs and outputs. The use of function blocks makes the system homogeneous, in such a way that conventional discrete and analog input and output devices can be available for easy configuration of control strategies, looking like simple devices on a bus.

General

Communication	Digital on 31.25 Kbit/s voltage mode in compliance with IEC 61158-2.
Current consumption quiescent	150 mA from Vdc power supply.
Turn-on Current	400 mA during the first 20 s after power
Turn-on Time	Approximately 10 seconds.
Update Time	Approximately 60 ms. The update time is related to the update of the inputs and outputs.
Output Impedance	Non-intrinsic safety from 7.8 kHz - 39 kHz should be greater or equal to 3 kΩ. Intrinsic safety output impedance (assuming an IS barrier in the power supply) from 7.8 kHz - 39 kHz should be greater or equal to 400 Ω.
Function Blocks	Up to 16 Discrete Input Function Blocks (DIs) and up to 8 Discrete Output Function Blocks (DOs). DC302/DC303 have a Built-in Flexible Function Block (FFB) for logic execution such as: AND, OR, XOR and NOT. Functions as: Timer On-Delay, Timer Off-Delay, Timer Pulse, Pulse Counter Down (CTD), Pulse Counter Up (CTU), Flip-Flop RS and Flip-Flop SR.
Vibration Effect	Meets SAMA PMC 31.1.
Temperature Limits	Operation: -40 to 85°C (-40 to 185 °F). Storage: -40 to 110°C (-40 to 230 °F).
Housing	Housing and Base: Polycarbonate, 10% Glass Filled; Terminals: Zinc screws, chromed steel; Temperature rating: 110°C (230 °F) UL94VO; Protection: it has IP20 rating (finger protected) and meets VBG4 and other European accident prevention requirements. It can optionally be supplied preinstalled in an enclosure ready for field mounting.
Configuration	DC303: Via Profibus Communication using tools based on EDDL or FDT/DTM. DC302: configured by Syscon in SYSTEM302 or by any other Fieldbus configuration tool.
Mounting	Using DIN rail (TS35-DIN EN 50022 or TS32-DIN EN50035 or TS15-DIN EN50045).

The input senses the DC input voltage and converts it into a True (ON) or False (OFF) logic signal. It has 1 optically isolated group of 16 inputs to detect 24 Vdc.

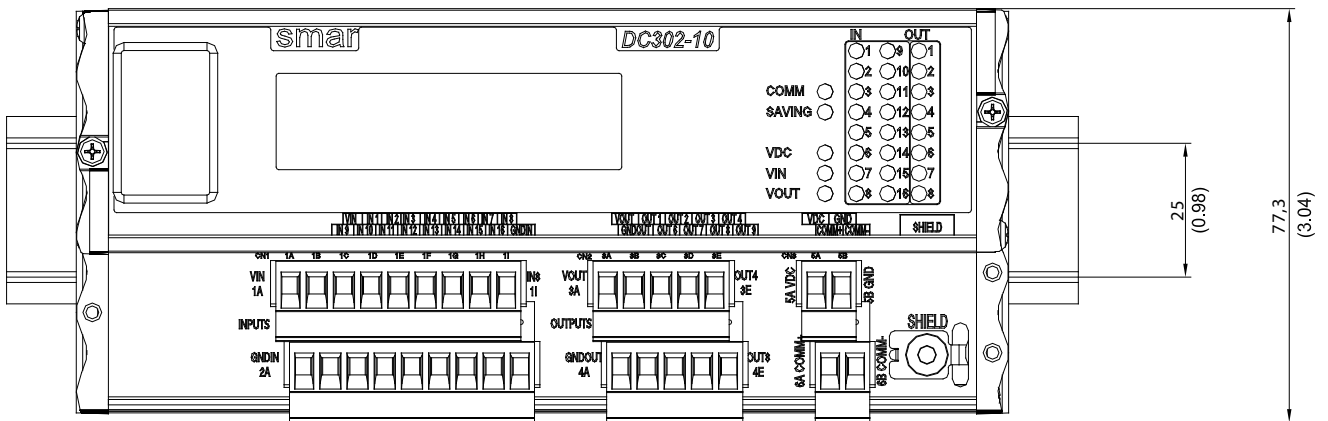
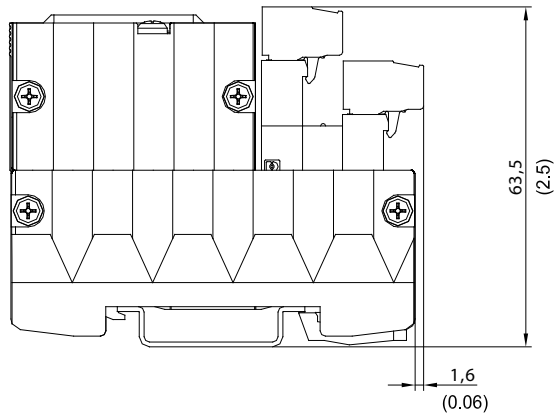
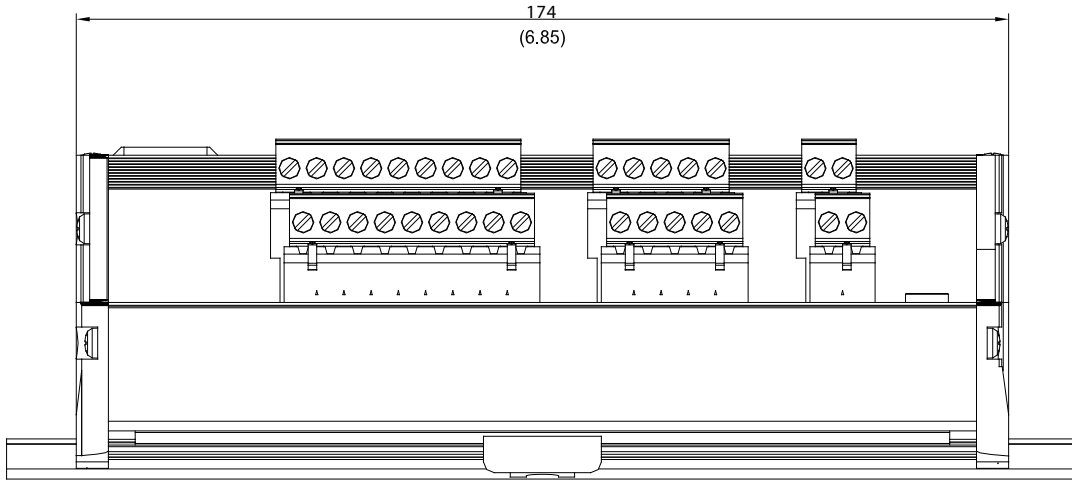
Architecture	Number of Inputs: 16.
Isolation	Optical Isolation up to: 5000 Vac.
External Power	Voltage Source for Inputs: 18 - 30 Vdc; Typical Consumption per group: 120 mA (all inputs ON); Power indicator: Green LED.
Inputs	ON State Level (True Logic): 15 - 30 Vdc; OFF State Level (False Logic): 0 - 5 Vdc; Typical Impedance: 3.9 K Ω ; Status display: Yellow LED.
Switching Information	Time from "0" to "1": 30 μ s; Time from "1" to "0": 50 μ s.
Wiring	One wire: 14 AWG (2 mm ²); Two wires: 20 AWG (0.5 mm ²).

Outputs

The outputs are designed with open collector NPN transistors that are able to drive relays, solenoids and other DC loads with up to 0.5 A per output. All channels within a group share the same ground whereas groups are isolated from each other and from the Profibus or Foundation fieldbus network.

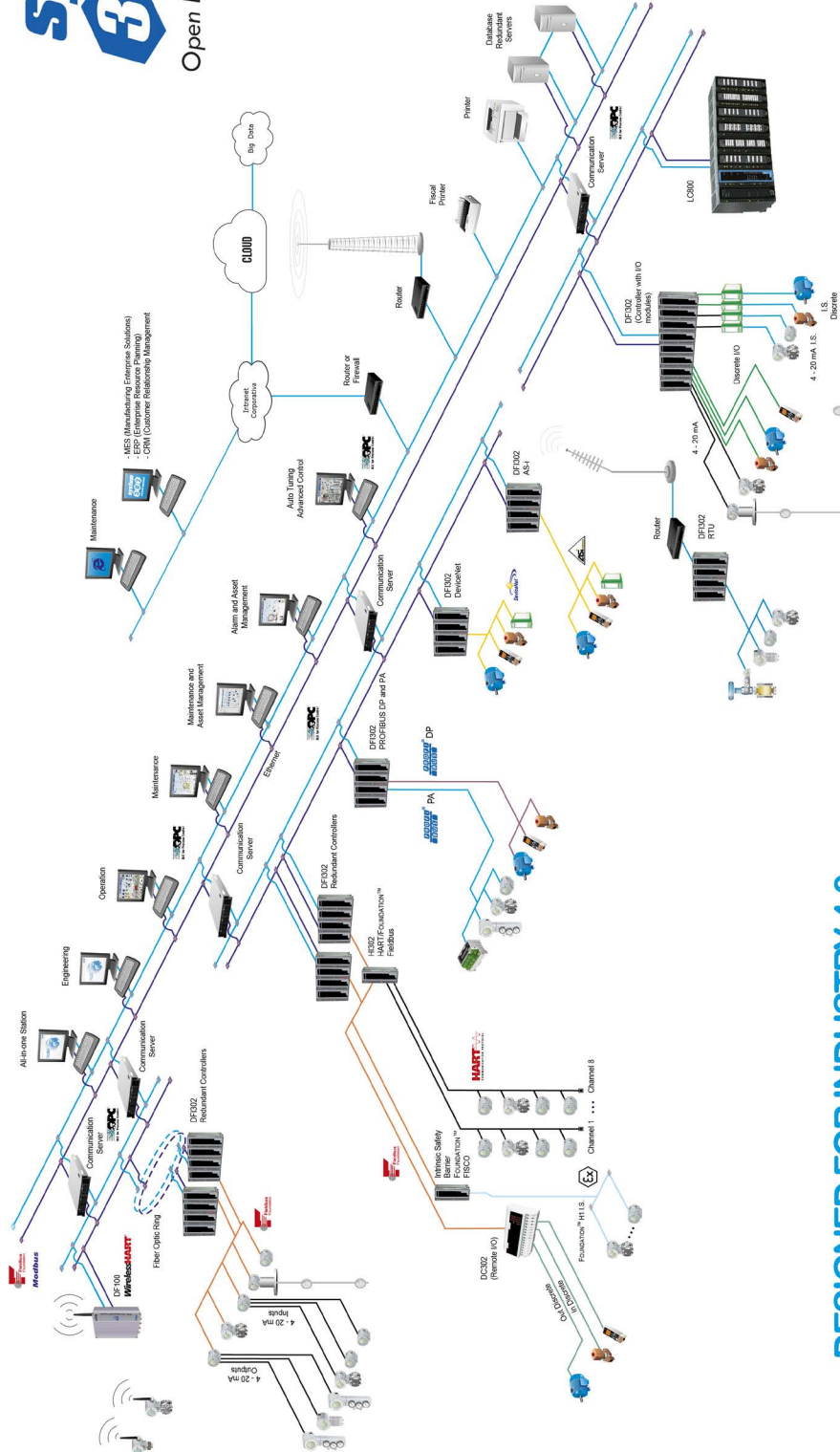
Architecture	Number of Outputs: 8.
Isolation	Optical Isolation up to: 5000 Vac.
External Power	Voltage Source for Outputs: 20 - 30 Vdc; Maximum Consumption 35 mA; Power indicator: Green LED.
Outputs	Maximum Switched Voltage: 30 Vdc; Maximum Saturation Voltage: 0.55 V @ 0.5 A; Maximum Current per Output: 0.5 A; Status Display: Red LED; Indicator Logic: ON when the transistor is on; Maximum Leakage Current: 100 μ A @ 35 Vdc.
Independent Protection per Output	Thermal Shutdown: 165 $^{\circ}$ C; Thermal Hysteresis: 15 $^{\circ}$ C; Overcurrent Protection: 1.3 A @ 25 Vdc maximum;
Switching Information	Time from "0" to "1": 250 μ s; Time from "1" to "0": 3 μ s.
Wiring	One wire: 14 AWG (2 mm ²); Two wires: 20 AWG (0.5 mm ²).

MODEL	DESCRIPTION
DC303	1 group of 16 24 Vdc optically isolated inputs. 1 group of 8 optically isolated open collector outputs.
DC302-10	1 group of 16 24 Vdc optically isolated inputs. 1 group of 8 optically isolated open collector outputs.



system 302

Open Digital Ecosystem



DESIGNED FOR INDUSTRY 4.0

PROVIDING RELIABLE CHOICES



DC300 Series

Remote I/O



Contact us



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