CHAMELEON

PROGRAMMABLE FUNCTION CONVERTER

- Completely user configurable in spreadsheet format
- 3 Analogue In, 2 Analogue Out Fully Configurable mA or Voltage
- 2 Digital In, 2 Digital Out
- Extensive Maths & Logic Capability
- Full 3-Port Isolation
- RS232 / 485 Comms including MODBUS protocol
- Mass and Energy Flow for Steam, Gases and Liquids
- Integration, Frequency Measuring and Frequency Generation
- Intelligent Trip Applications
- Linearisation of Signals
- Timing and Dosing Control
- PID Control

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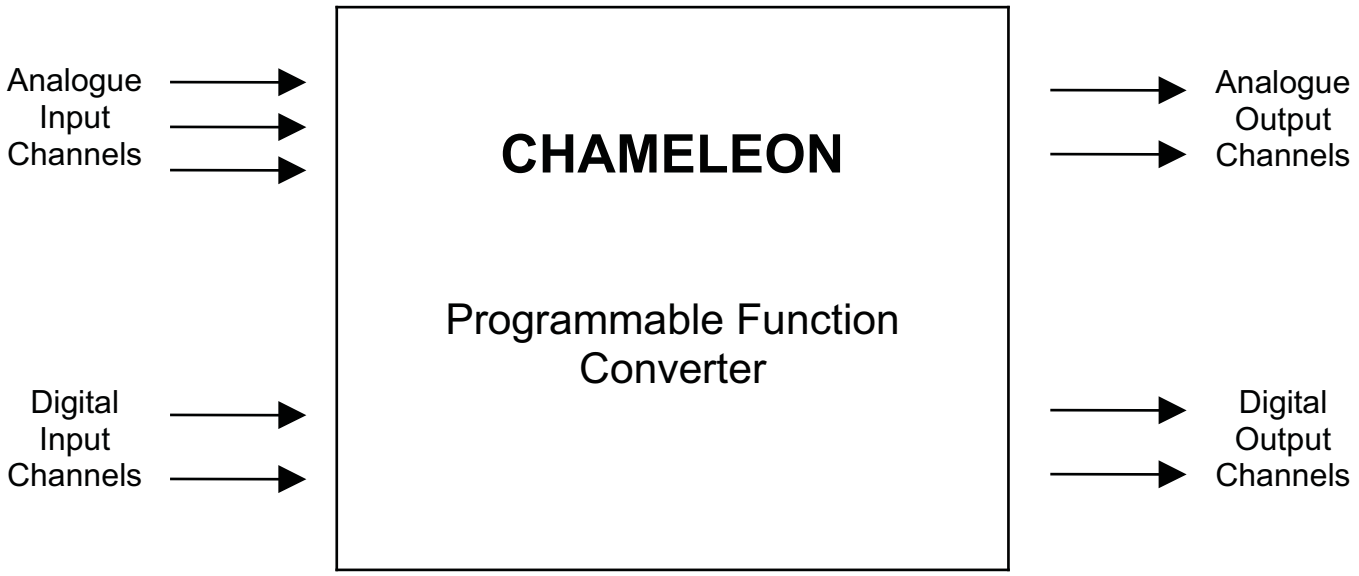
The Chameleon programmable function converter is a microprocessor based signal conditioning unit which allows the linearisation and conversion of multiple input channels. The Chameleon has three analogue input channels, two digital input channels, two digital output channels and two analogue output channels. The unit has a wide range of computational functions which are user selected to generate the required outputs.

The Chameleon can be factory set for dedicated applications or be configured by the end user. This configuration can be done using a variety of terminals, examples being any IBM compatible PC, a PSION II organiser, or any dumb terminal. The configuration is fully menu driven with a spreadsheet style format, allowing the Chameleon to be tailored very quickly and easily to each application.



In the simplest configuration the Chameleon could be used to linearise a single analogue input, invert it and re-transmit it in standard form and provide high and low alarm relay outputs. More complex operations are also possible. For example, the Chameleon could accept any input from a differential pressure transducer, extract the square root, linearise the result according to a second input (temperature for instance) and output this in both pulse and analogue outputs proportional to flow. A relay output would also be available for either a high or low alarm output.

Additionally information can be relayed by RS485 or RS232 data communication channels for remote monitoring and configuration.
The functions are pre-programmed and structured so that some may be combined with others to provide a very powerful and flexible solution to process computing problems. These functions include PID algorithms and timer functions.
The Chameleon is housed in an ultra compact custom enclosure which allows the device to be DIN-Rail or surface mounted in two different orientations.

CHAMELEON

TECHNICAL SPECIFICATION

Input Channels

Analogue

Number of Channels:	3
Types:	0-20mA 4-20mA 0-10V Software Selectable
Impedance:	Current - 300Ω Voltage - 100KΩ
Resolution:	10 bit or 0.1% of F.S.D.
Accuracy:	±0.15% of F.S.D.
Temperature Stability:	100ppm / ≡C
Transmitter Supplies:	20V ±15% @22mA per channel

Digital

Number of Channels:	2
Types:	Volt Free Contacts Open Collector Others Available - Contact Sales
Operating Modes:	Logic, Frequency, Pulse Count Software Selectable
Frequency Range:	0 to 1kHz
Measured Resolution:	1.333 µsec
Resolution Error:	0.0013% @ 10Hz 0.13% @ 1kHz
Temperature Stability:	50ppm / ≡C
Wetting Voltage:	22Vdc @ 5mA

Output Channels

Analogue

Number of Channels:	2
Types:	0-20mA 4-20mA 0-10V Software Selectable
Load Impedance:	Current - 500Ω Maximum Voltage - 1000Ω Minimum
Resolution:	11 bit or 0.05% of F.S.D.
Accuracy:	±0.2% of F.S.D.
Temperature Stability:	150ppm / ≡C

Digital

Number of Channels:	2
Types:	Volt Free Contacts -Standard Open Collector (Optional)
Operating Modes:	Logic, Frequency Software Selectable
Frequency Range:	0.0002 to 1kHz (50Hz Relay)
Output Resolution:	2.666 µsec
Resolution Error:	0.0026% @ 10Hz 0.26% @ 1kHz
Temperature Stability:	50ppm / ≡C
Relay Rating:	3A @ 240Vac

Communications

RS232 or RS485

Comms Type:	Half Duplex
Baud Rate:	9600 Baud
Data Bits:	8 (7 in Modbus Mode)
Parity:	None (Even in Modbus Mode)
Start Bits:	1
Stop Bits:	1
Protocols:	Proprietary Text Protocol Modbus ASCII Protocol

Other

Isolation

Full 3 Port Isolation to 500V
Inputs & RS232 / Outputs / PSU / RS485

Power Requirements

24Vdc ±10% at up to 350mA (Max Load Conditions)

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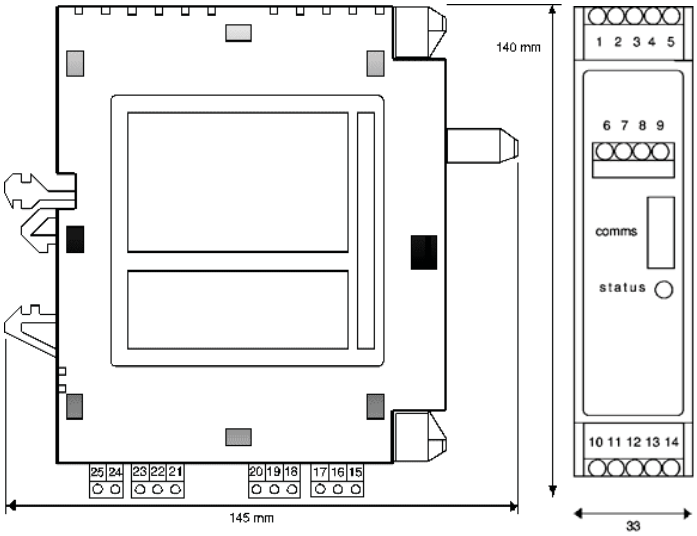
TYPICAL SPREADSHEET FORMAT

	A	B	C	D
1	SAI(1,VOLT0.10,0,14)	pH Input Value:	ALG.IN1	310
2	SAI(2,VOLT0.10,0,14)	Setpoint:	ALG.IN2	TIMER1
3	SAI(3,VOLT0.10,0,600)	Gain:	ALG.IN3	T1.STATUS
4				D7 OR D10 OR D11
5	SAO(1,VOLT0.10,0,14)	PID Loop:	PID(1,C1)	RST.TIMER(1,D4)
6	SAO(2,VOLT0.10,0,14)	Low Time:	300-(2.9*C5)	RUN.TIMER(1,D1)
7		High Time:	1+(0.198333*C3)	(D14=0)AND(D2>C6)
8	SDO(1,LOGIC)			(D14=1)AND(D2<=C7)
9	SDO(2,LOGIC)	pH Output:	ALG.OUT(1,C1)	
10		Setpoint Output:	ALG.OUT(2,C2)	(D14=1)AND(D2>C7)
11	SET.PID(1,C2,4,0,0)	Alarm Condition:	(C1<4.0)OR(C1>10.0)	(D3=3)OR(D2>300)
12		Alarm Output:	DIG.OUT(2,C11)	
13				
14			Pulse Mode:	IF(D7 OR D8,1,0)
15			Pulse Output:	DIG.OUT(1,D14)



Installation Data

Mounting	DIN Rail TS32/35
Orientation	Any
Connections	Screw Clamp with pressure plate
Conductor size	0.5-4.0mm
Insulation Stripping	12mm
Weight	Approx 180g
Max Terminal Torque	0.4Nm

Connection Details

Digital Inputs

10. Digital Input 1 Ground
11. Digital Input 1
12. N/C
13. Digital Input 2 Ground
14. Digital Input 2

Digital Outputs

1. Digital Output 1 Ground
2. Digital Output 1
3. N/C
4. Digital Output 2 Ground
5. Digital Output 2

Analogue Inputs

15. Analogue Input 1Ground
16. Analogue Input 1 +ve
17. 24V Tx Supply
18. Analogue Input 2 Ground
19. Analogue Input 2 +ve
20. 24V Tx Supply
21. Analogue Input 3 Ground
22. Analogue Input 3 +ve
23. 24V Tx Supply

Analogue Outputs

6. Analogue Output 1 Ground
7. Analogue Output 1 +ve
8. Analogue Output 2 Ground
9. Analogue Output 2 +ve

Power Supply

24. Power Supply -ve
25. Power Supply +ve