



DTAP

universal programmable controller

The DTAPG universal programmable controller provides a temperature and/or an analog input (0-10 VDC/0-20 mA/PWM) and a user-defined proportional analog output (0-10VDC/0-20 mA/PWM) with two setpoints. This controller is equipped with digital readout and output indication with LED's.

KEY FEATURES

- Built-in PT500 or PT1000 temperature sensor (*DTAPG-500 and DTAPG-1K0 version*)
- Digital readout and output indication with LED's
- 2 user-definable setpoints
- Selectable off-level
- Modbus RTU (RS485)

TECHNICAL SPECIFICATIONS

Article codes

	Temp. probe
DTAPG	order separately
DTAPG-500	PT500 built-in
DTAPG-1K0	PT1000 built-in
DTAPF	order separately
DTAPF-500	PT500 built-in
DTAPF-1K0	PT1000 built-in

Supply

DTAPG	15-24 VAC ±10 %/12-34 VDC
DTAPF	12-34 VDC

In & outputs

- Temperature input: PT500 or PT1000
- 1 analog input (0-10 VDC/0-20 mA)
- 1 analog (0-10 VDC/0-20 mA) or digital output (PWM, open collector) *

Range

- Temperature range: -30 to 70 °C *
- Analog input: 0 to 100 % *

Power consumption

- 12-34 VDC supply: 70 - 25 mA (no load)
- 15-24 VAC supply: 85 - 60 mA (no load)

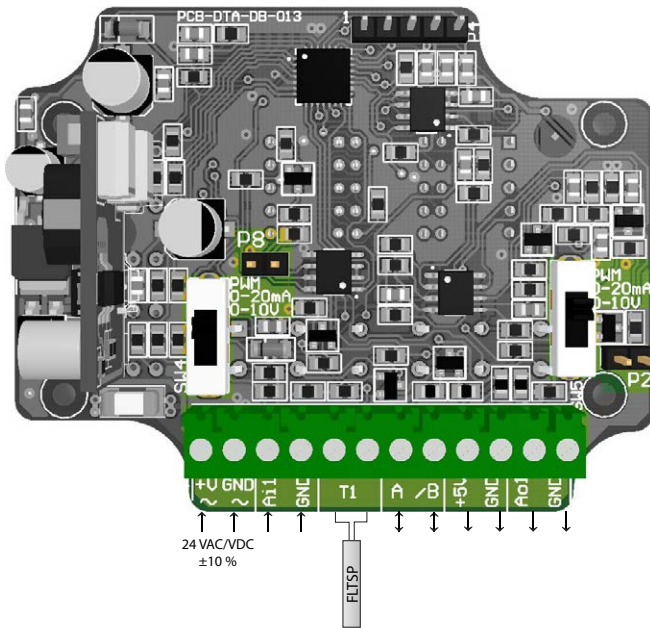
Other specifications

- Operating temperature: -10 to 50 °C

AREA OF USE

- Small industrial controls
- Energy management systems
- HVACR control for improved comfort and energy saving
- Proportional (temperature) control

WIRING DIAGRAM



+ V	power supply: 15-24 VAC \pm 10 %/12-34 VDC (DTAPG) or 12-34 VDC (DTAPF)
GND	ground
Ai1	analog (0-10 VDC/0-20 mA) or digital input (PWM)
GND	ground
T1	connection for temperature sensor
A / B	Modbus RTU (RS485) connection signals
GND	ground
+5V	output 5 VDC/max 20 mA
GND	ground
Ao1	analog (0-10 VDC/0-20 mA) or digital output (PWM)
GND	ground

OPERATION

Settings

Switch analog input mode selection



SW4 analog input mode selection:
0-10 VDC/0-20 mA/PWM

Switch analog output mode selection



SW5 analog output mode selection:
0-10 VDC/0-20 mA/PWM

Jumper network bus termination resistor



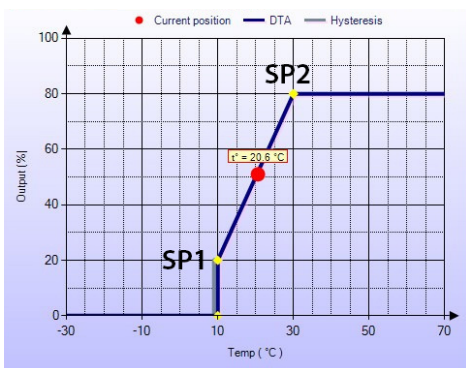
P8	Resistor
	connected
	disconnected

Jumper PWM

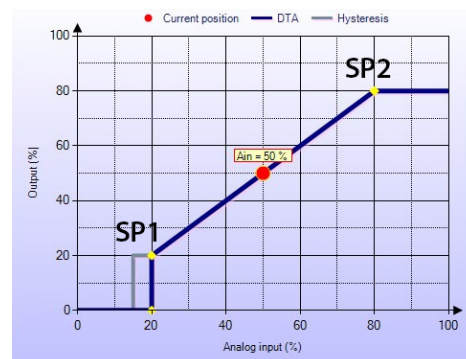


P2	PWM
	connected to 12,5 VDC
	connected to AO1 output

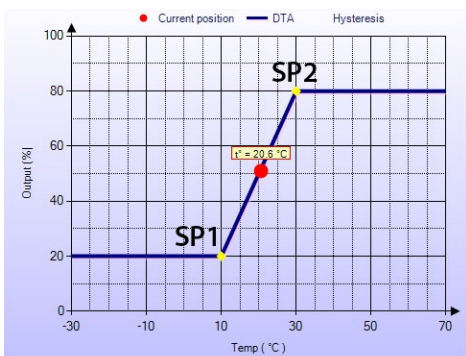
Operation graph



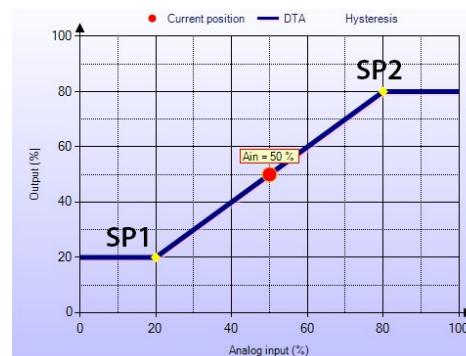
temperature mode, off-level on



analog mode, off-level on

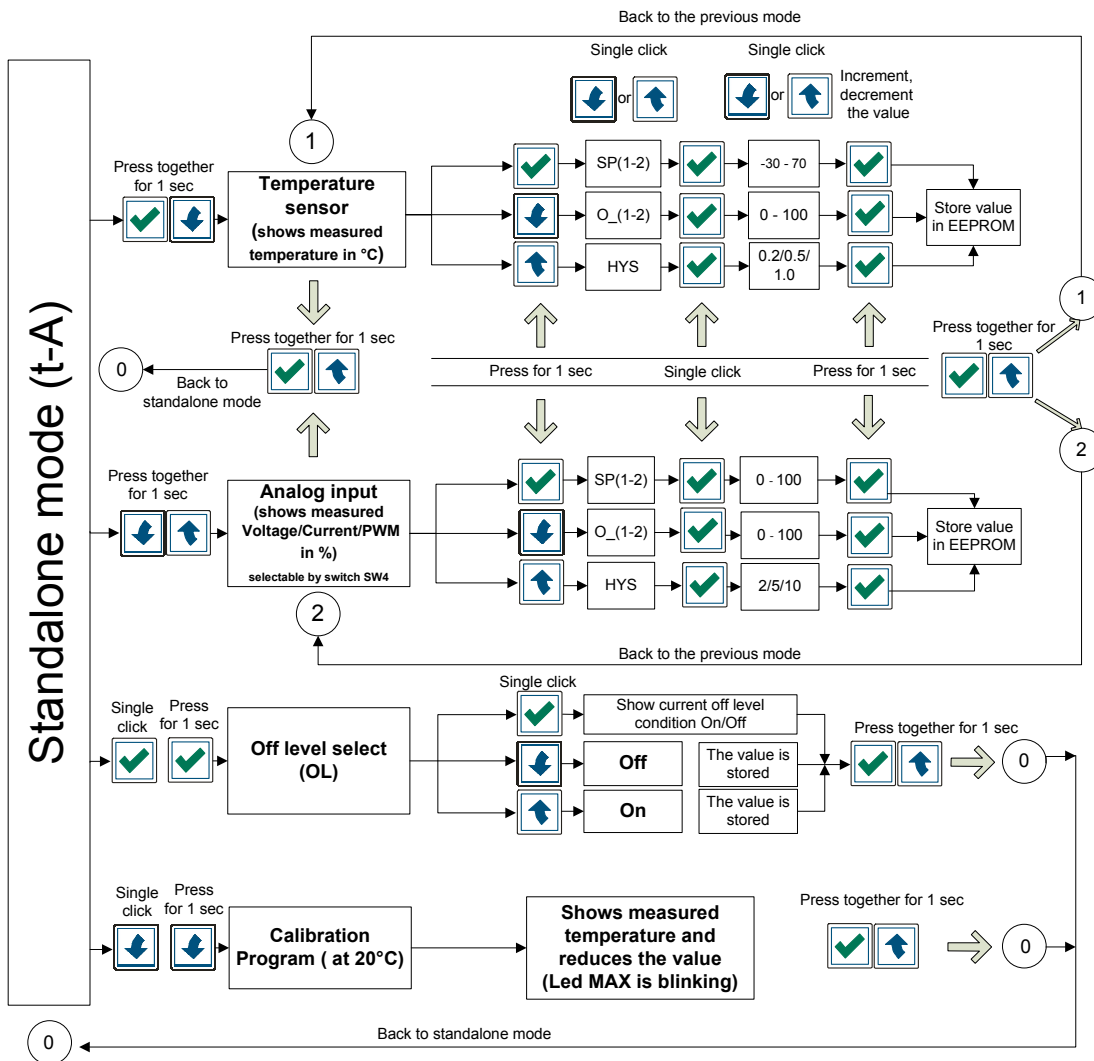


temperature mode, off-level off



analog mode, off-level off

Menu structure



Correspondence between displayed values and actual values of the variables

Ai/Ao	PWM %	Voltage 0-10VDC	Current 0-20mA
10	10	1	2
30	30	3	6
50	50	5	10
80	80	8	16
100	100	10	20

Example



3SMODBUS



Discover the new generation of Sentera controllers, which will bring the terms 'easy to use' and 'flexibility' to another level.

3SMdbus is a selected group of sensors and controllers equipped with Modbus RTU (RS485). This protocol opens a wide range of possibilities: BMS, networking ...

3SMdbus products are also designed for stand-alone use. To facilitate the whole configuration process Sentera developed the 3SM software configuration monitor.

3SM software

- Easy connection through Modbus RTU (RS485)
- Easy configuration of parameters
- Define control in and output(s)
- Advanced monitoring functions
- Possibility to change the working modes
- Operating systems: Windows XP, Vista, 7, 8, with Microsoft .Net Framework 2.0

More info: www.senteracontrols.com/3smodbus

MODBUS REGISTERS

Input registers (Read)

		Data type	Description	Data	Values
1	Measured temperature	signed int.	Temperature input	-300 to 700	-300 = -30 °C 700 = 70 °C
2	Input signal	unsigned int.	Analog input	0 - 1.000	100 = 1,00 VDC 2,00 mA 10 % PWM
3	Output value	unsigned int.	Analog output	0 - 1.000	1.000 = 10,00 VDC 20,00 mA 10 % PWM
4	SP1	signed int.	Temperature/analog setpoint 1	-300 to 1.000	-300 = -30 °C 700 = 70 °C
5	SP2	signed int.	Temperature/analog setpoint 2	-300 to 1.000	0 = 0 VDC 1.000 = 10,00 VDC
6	Output 1	unsigned int.	Output 1	0 - 1.000	0 = 0 mA 1.000 = 20,00 mA
7	Output 2	unsigned int.	Output 2	0 - 1.000	0 = 0 % PWM 1.000 = 100 % PWM
8			Reserved, returns 0		
9			Reserved, returns 0		
10			Reserved, returns 0		

Holding registers (Read/Write)

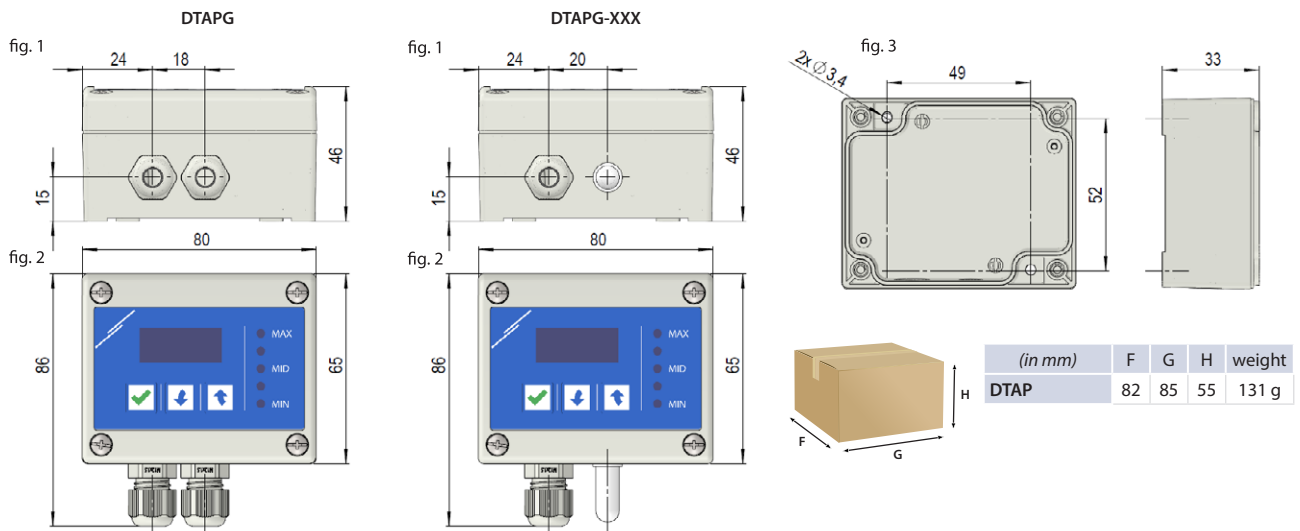
		Data type	Description	Data	Values
1	Address	unsigned int.	Device address	1-247 (default:1)	
2	RS485 baud rate	unsigned int.	Modbus communication baud rate	1=9.600 2=19.200 (default) 3=38.400	
3	RS485 parity mode	unsigned int.	Parity check mode	0=8N1 1=8E1 (default) 2=8O1	

	Data type	Description	Data	Values
4	Device type	Device type, read-only	1018	1018 = DTAPG
5	HW version	Hardware version of the device, read-only	XXX	120 = HW version 1.20
6	SW version	Software version of the device, read-only	XXX	100 = SW Version 1.00
7		Reserved, returns 0		
8	Input mode	Working mode depends on chosen input	0-2 (default: 0)	0 = main screen 1 = temperature input 2 = analog input
9	Off-level	Off-level	0-1 (default: 0)	0 = off-level off 1 = off-level on
10	Hysteresis	Output hysteresis	0-2 (default: 0)	0 = 2 %/0,2 °C 1 = 5 %/0,5 °C 2 = 10 %/1 °C
11	SP1	Temperature setpoint 1	-300 to 700 (default: 200)	-300 = -30 °C
12	SP2	Temperature setpoint 2	-300 to 700 (default: 300)	700 = 70 °C
13	Output 1	Output 1	0 - 1.000 (default: 0)	100 = 1,00 VDC 2,00 mA 10 % PWM
14	Output 2	Output 2	0 - 1.000 (default: 1.000)	1.000 = 10,00 VDC/20,00 mA/100 % PWM
15	SP1	Analog setpoint 1	0 - 1.000 (default: 0)	
16	SP2	Analog setpoint 2	0 - 1.000 (default: 1.000)	
17	Output 1	Output 1	0 - 1.000 (default: 200)	100 = 1,00 VDC/2,00 mA/10 % PWM
18	Output 2	Output 2	0 - 1.000 (default: 800)	1.000 = 10,00 VDC/20,00 mA/100 % PWM
19		Reserved, returns 0		
20		Reserved, returns 0		

ENCLOSURE

- Enclosure of reinforced ABS with fast locking screws
- Colour grey RAL 7035
- Protection: IP54 (according to EN 60529)

Dimensions & fixing




STANDARDS






- CE conform
- Electromagnetic compatibility according EMC Directive 2004/108/EC, EN 61326
- Low Voltage Directive 2006/95/EC

ACCESSORIES





Probes

	Supply	IP	Temp.	Range		
	FLTSN-P	-	66	✓	-55 to 50 °C	Temperature probe, stainless steel tube 53 * 8 mm, cable length 1 m

Room sensors

		Supply	Analog out	C/O relays	RS485	IP	Temp.	CO2	RH	Air quality	Range
	RXMF-G	24 VAC/VDC ±10 %	3	3	✓	30	✓	✓	✓	-	-30 to 70 °C/0-2000 ppm/0-100 %
	RXH-G	24 VAC/VDC ±10 %	1	1	✓	30	-	-	✓	-	0-100 %
	RXT-G	24 VAC/VDC ±10 %	1	1	✓	30	✓	-	-	-	-30 to 70 °C
	RXC-G	24 VAC/VDC ±10 %	1	1	✓	30	-	✓	-	-	0-2000 ppm
	RXQ-G	24 VAC/VDC ±10 %	1	1	✓	30	-	-	-	✓	0-2000 ppm






Duct sensors

		Supply	Analog out	RS485	C/O relays	IP	Temp.	CO2	RH	Air quality	Ranges
	DXH-G	24 VAC/VDC ±10 %	1	✓	1	54	-	-	✓	-	0-100 %
	DXT-G	24 VAC/VDC ±10 %	1	✓	1	54	✓	-	-	-	-30 to 70 °C
	DXC-G	24 VAC/VDC ±10 %	1	✓	1	54	-	✓	-	-	0-2000 ppm
	DXQ-G	24 VAC/VDC ±10 %	1	✓	1	54	-	-	-	✓	0-2000 ppm


To be used with DTAPG (DTAPG-500 and DTAPG-1K0 have built-in sensors).

COMBINE WITH



Electronic fan speed control

		Input	TK	Range	1-Phase	3-Phase	RS485	IP	DIN rail
	EVS	0-10 V/4-20 mA	-	< 10 A	✓	-	-	54	-
	EVSS	0-10 V/4-20 mA	✓	< 10 A	✓	-	-	54	-
	MVS	0-10 V/4-20 mA	-	< 10 A	✓	-	-	-	✓
	MVSS	0-10 V/4-20 mA	✓	< 10 A	✓	-	-	-	✓
	TVSS	0-10 V/4-20 mA	✓	< 6 A	-	✓	✓	-	✓



Frequency inverters

	FI	frequency inverters
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Relay modules

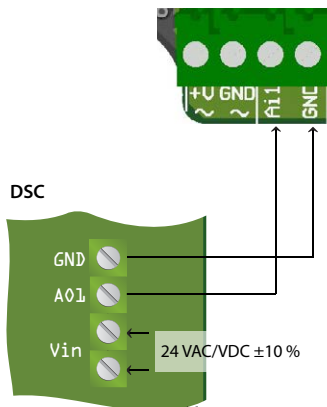
		Supply	Analog inputs	Output modes					
				C/O relays	RS485	Binary	High/Low	Raise/Lower	Modbus
	SRM2	18-32 VDC/15-24 VAC	1	2	✓	✓	✓	✓	✓
	SRM4	18-32 VDC/15-24 VAC	1	4	✓	✓	✓	✓	✓
	SRM8	18-32 VDC/15-24 VAC	1	8	✓	✓	✓	✓	✓

Transformer fan speed control

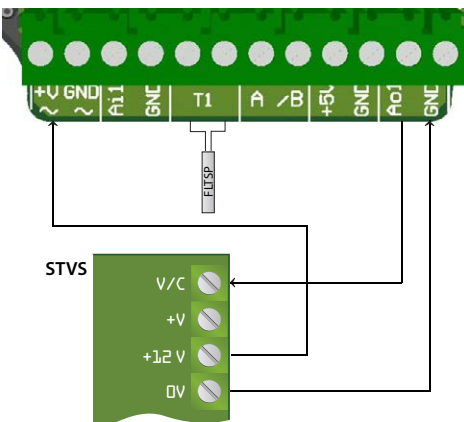
		Switch	Analog input	Thermal contacts	CC/OC contacts	Flow detection	Overload protection	Alarm output	3-wire output for actuator	Auto restart
	STVS1	input	0-10 VDC/0-20 mA	✓	-	-	-	✓	-	-
	STVS4	input	0-10 VDC/0-20 mA	✓	-	-	-	✓	-	-

APPLICATION EXAMPLES

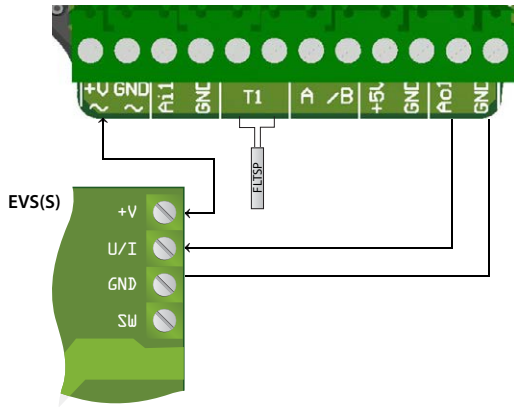
CO₂ control with DSC-G



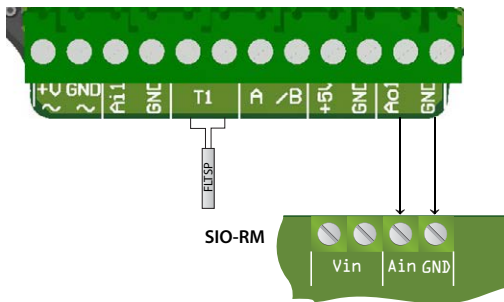
Temperature control with output to power module STVS



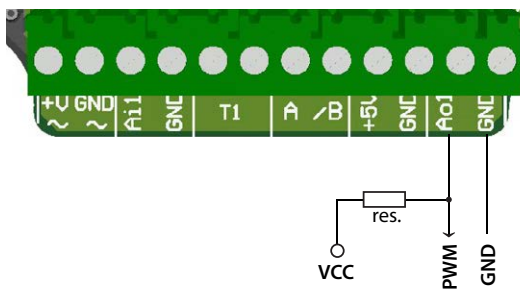
Temperature control with output to power module EVS(S)



Temperature control with output to relays module SRM



PWM (open collector) connection example



res.	external pull-up resistor 10-100 k
VCC	external VCC (5-50 VDC)