Digital Dual Driver Governor

HT-D³100

Benefits

- Dual Actuator Driver
- Speedcontrol integrated
- IP65
- USB PnP communication
- Multiple PID settings
- Variable chopper frequency
- 3 fixed speed and 1 variable speed
- Overspeed protection
- AUX input for synch/load sharing
- RPM adjustment via digital signal
- Current limitation for actuator
- Adjustable via Keypad and PC software
- Programmable Fuel Ramping Timing for black smoke minimisation
- Display with good visibility under extreme temperature and lighting conditions
- Simple user interface with 3 push buttons
- Intuitive PC application software for configuring all features.
- Differential Input for thermocouple sensors for better noise immunity
- Digital Control of Dual dual fuel pumps or throttle body actuators within the same unit

Smart Governing with Dual Driver

The **HT-D³100** is a Digital Dual Driver Governor for controlling motor rotation speed on single engines that require dual fuel pumps or throttle body actuators. The governor features fast and precise reaction to load changes.

HT-D³100 utilizes feedback from the Master and Slave Actuators and also the EGT (Exhaust Gas Temperature) via thermocouple to achieve optimum fuel equalization in each cylinder bank. The feedback from the Actuators allows the **HT-D³100** to know if there is any fuel supply imbalance to each of the cylinder banks. The EGT feedback provides an indication of the power produced from each cylinder, which further eliminates any possibility of fuel supply imbalance resulting from mechanical tolerances and friction. Any fuel imbalance will be compensated by the **HT-D³100** intelligent software algorithm to ensure that fuel supplies to each cylinder banks are always identical and balanced.

A closed control circuit using two actuators (Master and Slave), two temperature sensors (Master and Slave) and magnetic RPM sensor can be operated for a large number of motors in both an isochronous and static fashion. High precision and robust construction makes it possible to use in the harshest motor use conditions.

The microcontroller design provides precise and user-specific performance and functionality. The **HT-D³100** enables exact (<0.25%) isochronous rotation speed control. The permanent memory saves the settings even if the power supply is interrupted and thanks to a wide voltage range of 12-24VDC.

The **HT-D³100** digital dual driver governor is robust enough to be placed in a control cabinet with other operating control devices or installed on the motor. If water, mist or condensation can come into contact with the controller, it should be mounted vertically, allowing the liquid to flow away from the controller. Extremes of heat should be avoided.

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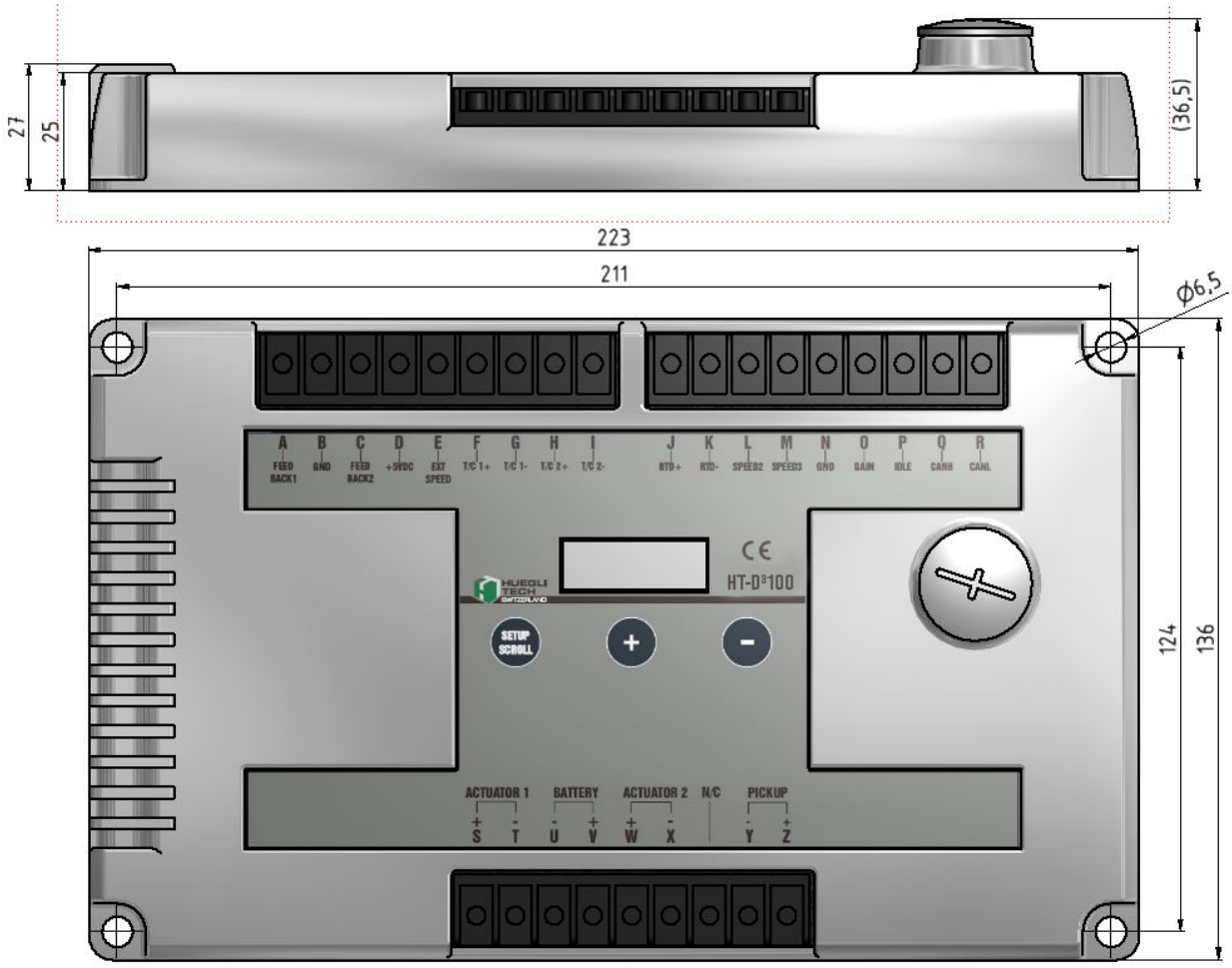
Technical Specification

Human Interface

Easy to use software for tuning.

Dimensions



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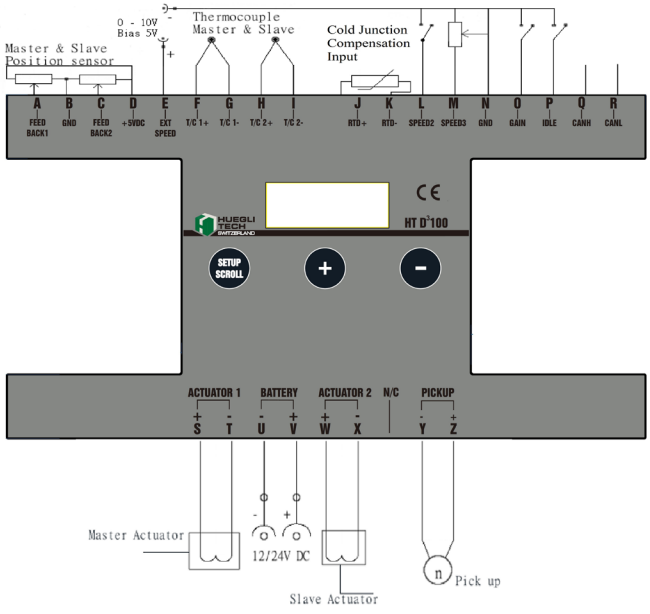
Configurable parameters, values in [ ] = factory settings

Connection terminal	Description	Definition	Range
A	FEED BACK1	Master Actuator position feedback	Speed Setting 2
B	GND	Ground	Speed Setting 3
C	FEED BACK2	Slave Actuator position feedback	Idle
D	+5VDC	Master and Slave actuator feedback sensor supply	GAIN Parameter Set 1 or 2
E	EXT SPEED	Load distribution / synchronisation	Input Common
F	T/C 1+	Master EGT input + (Thermocouple input+)	Digital I/O Supply
G	T/C 1-	Master EGT input - (Thermocouple input-)	Digital I/O Ground
H	T/C 2+	Slave EGT input (Thermo couple input+)	Digital Output 1
I	T/C 2-	Slave EGT input (Thermo couple input-)	Digital Output 2
J	RTD+	CJC temperature input +	0 – (Speed Trim FS -10) [1500]
K	RTD-	CJC temperature input -	0 – Overspeed rpm
L	SPEED2	Speed Setting 2	Feedback Sensor Input
M	SPEED3	Speed Setting 3	0 – 1500 ms
N	GND	Ground	+5VDC Supply
O	GAIN	GAIN parameter set 1 or 2	0 – (Speed MAX -10)
P	IDLE	Idle speed selection	Ground
Q	HI	CAN bus high	0 – Overspeed rpm
R	LOW	CAN bus low	Ground
S	S+	Master Actuator (Plus)	0 – 3000 rpm
T	T-	Master Actuator (Minus)	Actuator (Minus)
U	U-	Battery (Minus)	0 – 255 ms [10]
V	V+	Battery (Plus)	50 – 300 [120]
W	W+	Slave Actuator (Plus)	0 – 100,
X	X-	Slave Actuator (Minus)	Pickup (Plus)
Y	Y-	Pickup (Ground) (Mass)	CAN Low
Z	Z+	Pickup (Plus)	CAN High



Digital Dual Driver Governor

HT-D³100

Technical Data

Performance

Isochronous/stability.....±0.25%
RPM range.....300 - 8 KHz (112-4000 RPM for flywheel with 160 teeth)
RPM variation with temperature.....±0.25% max.
Idle adjustment.....Full Range
Speed Trim.....Programmable 0-100%, (default = 5%)

Surroundings

Temperature range.....-40° to 85°C (-40 to +180°F)
Relative humidity.....up to 95%
Surface finish.....Fungus Proof and Corrosion Resistant
CE certificate.....EN55011, EN50081-2, EN50082-2

Input/output parameters

Supply voltage.....12 or 24 VDC Battery, (6.5 VDC to 33 VDC)
Polarity.....Negative Mass (housing insulated)
Current Consumption.....100 mA max. continuous, (Excluding actuator drawn current)
Max permitted actuator current.....8 A continuous
Engine speed sensor signal.....1 – 120 V RMS
+5VDC Output (Terminal D).....up to 20 mA
Load Share/Synchronizer Input.....0-10 VDC (5V nominal, reversed, 5 rpm/V)
Reverse Power Protection.....Yes
Transient Voltage Protection.....60V

Norms/standards

Authorising office.....CE and RoHS requirements
Communication.....SAE J1939 (Option)

Reliability

Vibration.....7G, 20-100 Hz
Shock.....20G Peak
Inspection.....100% functionality inspection

Mass and weight

Dimensions.....223 x 136 x 36 mm
Weight.....1.000 kg
Installation.....direct on motor chassis, preferably vertical, with rubber shock absorbers, insulated, or in control cabinet

Configuration parameters

Number of flywheel teeth, range.....50 -250 teeth
Overspeed protection.....4000 rpm
Starter cut-out speed.....50 - 1000 Hz
Fixed RPM.....400 – 8 000 Hz
Variable RPM.....400 – 8 000 Hz
Prescribed start quantity.....0 - 100 %
Start ramp.....0 – 20 secs.
Speed ramp.....0 - 100 secs.

Local Distributor / Partner:

HUEGLI TECH
SWITZERLAND

HUEGLI TECH AG (LTD)
Murgenthalstrasse 30
4900 Langenthal Switzerland
Phone: +41 62 916 50 30
Fax: +41 62 916 50 35

e-mail: sales@huegli-tech.com
www.huegli-tech.com