

Microprocessor Controller / Display CMD100

Versatile and networkable two channel graphic controller, display and power supply. Compatible with a wide range of transducers, including pressure and flow. The unit can also display two additional analogue process parameter, giving the device a four channel capability

- **Any of the analogue input channels can be configured and linearised to display units of choice.**

- **Process controller complete with self learning PID.**

- **Supplied with software to allow configuration and data reading on a PC.**

- **Networkable digital communications via Ethernet, also RS232 and RS 485**

- **+/- 15 volt 250mA or +24 volt 250mA transducer supplies**

- **16 bit resolution, 0.05 % reading accuracy**

- **Voltage and current input versions available**

- **Configurable voltage and current analogue retransmission, after linearisation**

Chell has used its considerable experience in the supply and calibration of pressure and flow transducers to develop what we consider to be the most versatile controller / display / power supply on the market.

The CMD100 can be used as a process controller as it incorporates a fully adjustable and self-learning PID algorithm. The CMD100 can be configured to control any of the 4 analogue inputs using the PID control. The process can be controlled by driving a standard 100 Ohm process valve (as commonly fitted to flow controllers) or it can control via the flow controller setpoint.

The PID control parameters can be set using the CMD100's autotune facility or the P, I and D values can be edited manually.

It can also be used as a self-contained power supply and display for gas mass flowmeters and controllers, pressure transducers or any other device with a voltage or current output. The transducer signal can be scaled displayed and then used to control another device or retransmitted in many different ways.



These include voltage or current analogue signals. Configuration extends to displayed units and real channel names, not just channel numbers. These channels can be configured to be displayed on the CMD100's bright VFD display or hidden from the user's view and simply retransmitted as an analogue or digital value.

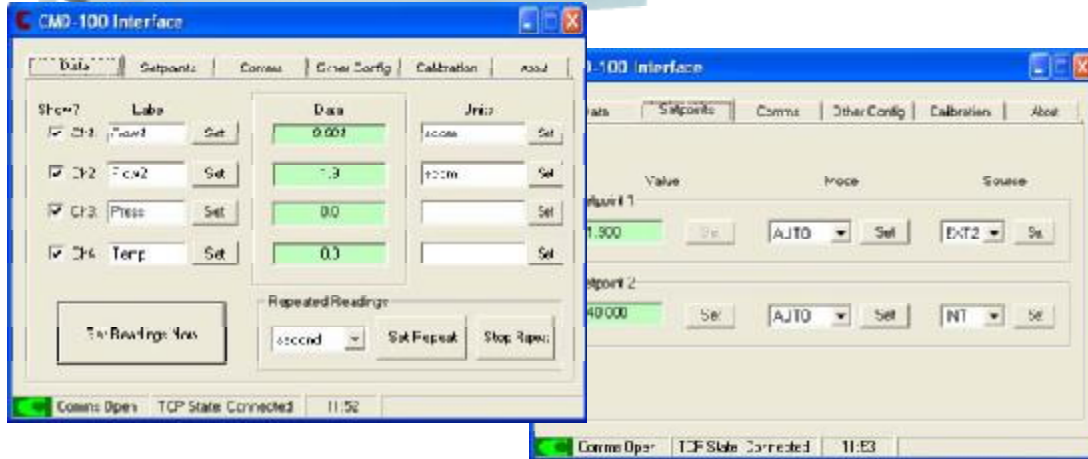
The display and power supply are housed in a metal case, mains power and process connections are located at the rear of the unit, with the user controls, membrane keypad and display on the front panel. When supplied by Chell with a transducer, the unit comes pre-configured, linearised as necessary, and displaying the required units.

Setpoint Operating Modes

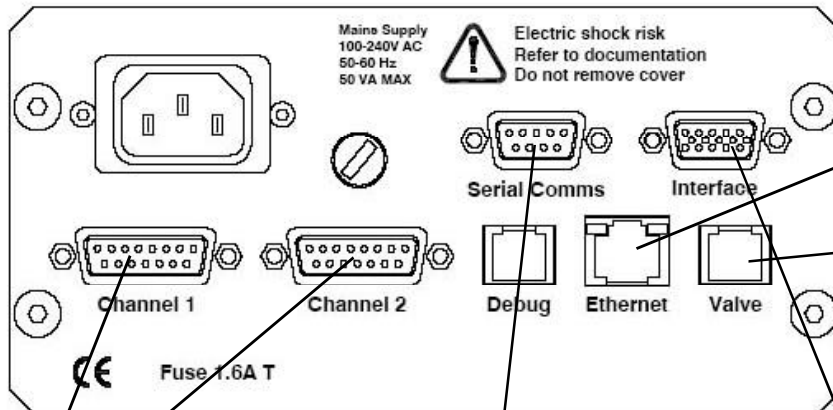
The CMD can generate a setpoint output in four ways. The first of these is where the setpoint is simply generated internally and set on the front panel (or from the PC). Alternatively, an external analogue process signal can be acquired and the setpoint can be a function of this. Thirdly, the setpoints can be configured in a master / slave fashion where the ratio of two controllers can be fixed and the master set by internal / external setpoints. Lastly, the setpoint can be a function of the PID control, either as a master or a slave.



The functionality of the CMD100 can be addressed by the buttons and encoder on the front panel aided by an easy-to-navigate menu system. In addition to this, the CMD100 is supplied with software that can configure the CMD100 and read data from it. This software can communicate with the CMD100 over Ethernet (TCP/IP), RS232 or RS485.



Connections



Ethernet
Use RJ45

100 Ohm Valve Drive
Use RJ10

- 1 - Reserved
- 2 - Reserved
- 3 - Valve +
- 4 - Valve -

Transducer
Use 15 Way D (male)

- 1 - Unused
- 2 - Signal+
- 3 - Reserved
- 4 - Reserved
- 5 - Power Ground
- 6 - -15 VDC
- 7 - +15 VDC
- 8 - Setpoint (volt)
- 9 - Setpoint (current)
- 10 - Unused
- 11 - Signal- isolated from pin5
- 12 - Signal- isolated from pin5
- 13 - +24 Volt (FFO)
- 14 - Unused
- 15 - Case GND

Serial Comms
Use 9 Way D (male)

- 1 - RS485 TX+
- 2 - RS232 RX
- 3 - RS232TX
- 4 - RS485 TX-
- 5 - RS232 COM
- 6 - RS485 RX+
- 7 - RS485 RX-
- 8 - Unused
- 9 - Chassis

Interface
Use 15 Way High Density D (male)

- 1 - CH1V0 - Voltage retransmission
- 2 - CH2V0 - Voltage retransmission
- 3 - CH1V0 - Current retransmission
- 4 - CH2V0 - Current retransmission
- 5 - 0v
- 6 - CH3 Signal -
- 7 - CH4 Signal -
- 8 - CH3 Signal +
- 9 - CH4 Signal +
- 10 - 0v
- 11 - Reserved
- 12 - Reserved
- 13 - Relay COM
- 14 - Relay NO
- 15 - Relay NC

| Parameter | CMD100 |
|-----------------------------|--|
| Full scale input | 5 Volt, 10 Volt (0/4-20mA factory fitted option) |
| Input impedance | >1Mohm |
| Measurement resolution | 16 bit |
| Acquisition speed | 10 readings / second |
| Error | 0.05% of reading plus 5mV |
| Display type | Graphical VFD. Up to 5 digits per channel |
| Display range | -9999 to +99999 |
| Analogue retransmission | 4 channels, assignable to any parameter |
| Voltage | 2 scalable 16 bit channels, +/-10 volt nominal |
| | Current |
| Transducer power | +/-15 volts at 250mA (24 volts at 220mA factory fit options) |
| Valve Drive | 150mA drive signal for 100Ohm process control valve |
| Operating temperature range | +5 to+50°C |
| Storage temperature range | -20 to+70°C |
| Maximum relative humidity | 95% at 50°C (non-condensing) |
| Warm up tme | 20 mins |
| Power supply | 100-240 VAC 50/60Hz |
| Dimensions | 205mm x 89mm x 136mm |
| Weight | 2 Kg |



Digital Communications

| | |
|-------------------|---|
| Ethernet (TCP/IP) | Configurable IP address and subnet mask. Single host stack. |
| Serial | Front panel configurable RS232 or RS485 |
| Baud | 300-57600, 8 data bits, no parity, 1 stop bit |
| Addressing | a to h |

Factory Fitted Options

- +24 Volt transducer power (in addition to +/-15 Volt)
- Current transducer signal (specify V or I for channels 1 to 4)
- Trip relay



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