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Find the *Schneider Electric / Eurotherm 8705* at our website: *Click HERE*

CONTROL SYSTEM

All in One.



Dimension® Model 8705

- Multi-loop PID control
- Sequential, digital control
- Process monitoring
- Setpoint ramping and event outputs
- Data communications
- Secondary operator station able to communicate over modem or cable
- User configurable display screen
- Memory card data storage

EUROTHERM CONTROLS

The DIMENSION®

Model 8705 Data Bulletin

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All in ONE DIMENSION®

When your control application calls for just a little bit more, you can choose Dimension.

THERE IS A WHOLE WORLD of control needs. Some applications require closed loop, PID control. Others require sequencing logic. There are applications that need setpoint ramping, remote setpoints, process variable retransmission, multiple alarming strategies and digital communications. Then there are the more difficult applications that require cascade control, ratio control, combining multiple inputs for one process variable, math functions, custom displays, memory card storage, etc.

There are a number of dedicated controllers on the market that take care of each of the above functions. But what if your application requires more than just one of the above functions? If this is the case, you can now choose Dimension.

There are two ways to handle applications that require two or more of the above functions. The system designer can purchase loop controllers, a Programmable Logic Controller (PLC), frequency converters, signal conditioning equipment, etc. and then spend significant time designing a control system that combines these functions into the desired result. This is already taken care of with Dimension. You get a customized control system with only a fraction of the work.

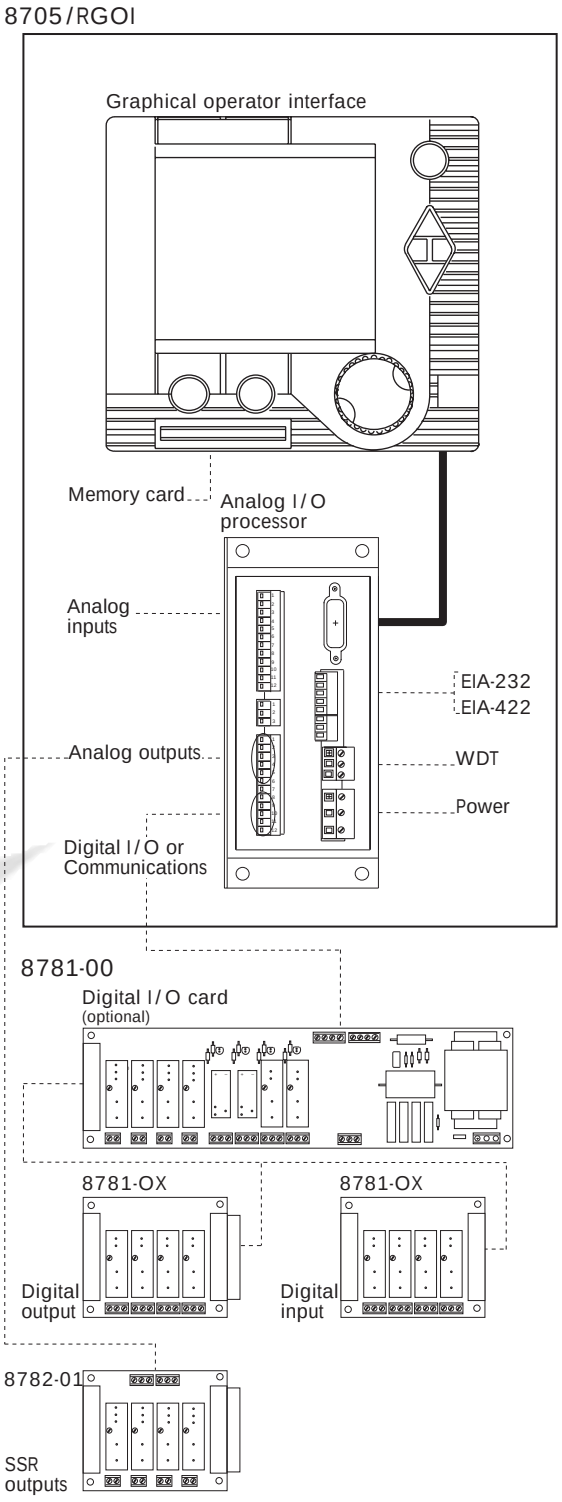
If your control application requires a mixture of control functions, call your Eurotherm representative to discuss how we can help. You owe it to yourself to take a look at Dimension.

Features

- Multi-loop PID control
- Sequential, digital control
- Process monitoring
- Setpoint ramping & event outputs
- Multiple alarm strategies
- Data communications
- PID values change based upon process condition
- Math functions
- Memory card for storage
- User configurable display screens
- Programmable function keys
- Context sensitive help key
- Real time, 7 day/week clock
- Digital inputs/outputs
- Secondary operator station, able to communicate over modem or cable
- Process variable retransmission

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Dimension Model 8705 Controller Specifications



Graphical operator interface

- 1-4 control loops
- 0-4 setpoint programmers
- Displays process control information, configurations and options
- Memory card
- Graphical display of setpoint programs

Analog input/output processor

- 6 analog inputs
- 4 analog or time proportioned outputs
- 2 digital I/O or expansion serial port to digital I/O cards (8781-00)
- EIA-232 and EIA-422
- Watch dog timer (WDT)

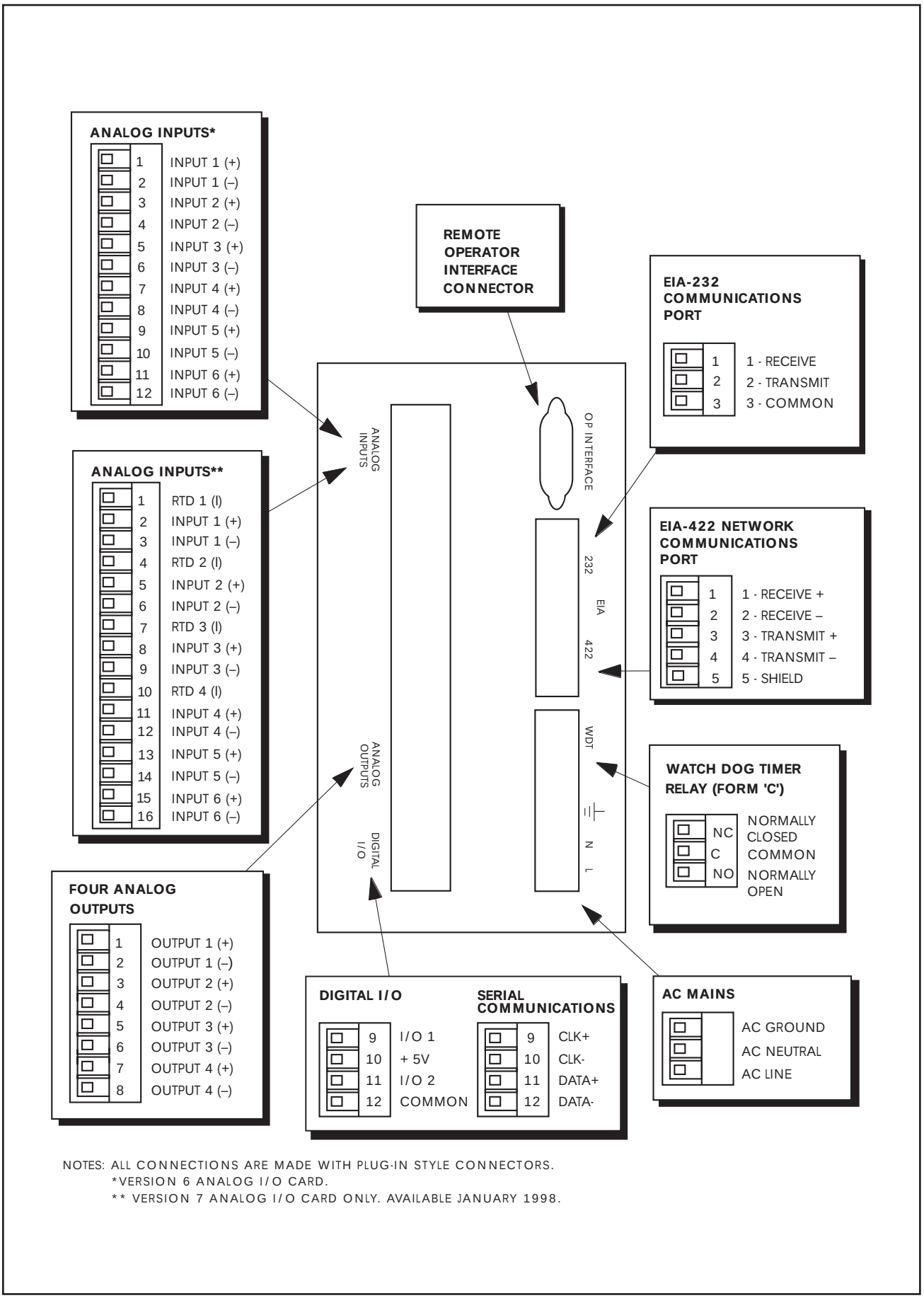
Digital input/output cards, Model 8781

- Up to 2 digital I/O cards, Model 8781-00 with 4 inputs and 4 outputs each (expandable to 32 digital I/O)
- Expansion card, 4 additional inputs
- Expansion card, 4 additional outputs
- Isolated solid state input/output modules or mechanical relays

Time proportioning solid state relay output, 8782-01

- 4 SSR outputs per card

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NOTES: ALL CONNECTIONS ARE MADE WITH PLUG-IN STYLE CONNECTORS.
*VERSION 6 ANALOG I/O CARD.
** VERSION 7 ANALOG I/O CARD ONLY. AVAILABLE JANUARY 1998.

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SPECIFICATIONS

	Model 8705 Analog I/O Processor	Model 8705 Operator Interface
Dimensions (overall W x H x D)	2.78" x 6.375" x 9.875" (69mm x 162mm x 251mm)	6.75" x 6.06" x 2.27" (173mm x 155mm x 58mm)
Weight	3lbs (1.4kg)	2.5lbs (1.1kg)
Environmental Limits Operating temperature Storage temperature Relative humidity	 0°C to 50°C (32°F to 122°F) -25°C to 85°C (-13°F to 185°F) 0 to 90 percent, non-condensing	 0°C to 50°C (32°F to 122°F) -20°C to 60°C (-4°F to 140°F) 10 to 90 percent, non-condensing
Voltage	102-264Vac	
Frequency	47-63Hz	
Power	30W (typical)	
Process contol types Manual control Auto control	 0.0 to 100.0 percent reverse output and/or 0.0 to 100.0 percent direct output PID parameters (five groups for each loop of control except Manual Reset) Gain: 0.0 to 200.0 Auto Reset: 0.0 to 75.0 repeats per minute with anti-reset windup Manual reset: 0.0 to 100.0 percent, reverse and direct Rate: 0.00 to 99.99 minutes	
Control Loops Number	 One to four control loops	
Programmer Capacities Number of programmers Number of segments Number of events Number of programs Maximum segment time Minimum segment time Segment sequencing Number of cycles Programmer update rate	 Zero to four (one programmer for each loop of control) or one for all loops 750 (shared by all programmers) 12 (programmed on a per segment basis) 15 99hrs 0.2sec. Forward or backward jumps with nested recycling 255 0.2sec.	

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Analog inputs		
General	Number	Six (max of 4 RTDs)
	Range	±100mV and 0 to 10Vdc (auto ranging)
	Sample rate	5Hz (200ms)
	Calibration accuracy	0.1% of reading, ±1 LSD or ±.5°C/F
	Resolution	<1µV for ± 100mV range, < 0.2mV for 10Vdc range, 18 bit
	Linearization accuracy	No discernable error
	Zero drift with ambient temperature	<0.1µV per °C for ± 100mV range, 0.1mV per °C on 10Vdc range
	Gain drift with ambient temperature	<0.004% of reading per °C
	Input filter	1.0 to 999.9sec.
	Zero and span offset	User adjustable over the full display range
Thermocouple	Types	Refer to Sensor inputs and display ranges table
	Cold junction compensation	Automatic compensation typically >30 to 1 rejection of ambient temperature change
RTD/PT1000	Type	3-wire, Pt100 DIN43760
	Bulb current	0.2mA
	Lead compensation	No error for 22 ohms in all 3 leads
Process	Range	±100mV, 0 to 20mA or 0 to 10Vdc (All configurable between limits)
	Type	Linear or custom
	Application	Process value, remote setpoint, setpoint trim
Control outputs		
Range		0 to 20mA (into 600Ω max) or 0 to 10Vdc Time proportioning 0/10Vdc (20mA max.)
Number		Four analog
Output action		Configurable for reverse, direct or bi-modal (both reverse and direct)
Resolution		Analog: 13 bit (.015%) Time-proportioned: 8 bit (.4%)
Update time		200ms
Bi-Model band		-10.0% [overlapping to +10% (deadband)]
Output limiting		Separately adjustable high and low limits for each channel
Application		Heating, cooling, direct or reverse, bimodel, time proportioned or analog
Input filter		0-100sec.
Math functions		Mathematically combine 4 inputs to create a calculated process variable The process variable will be calculated by the following equation: [(Anlgln01 * Mult01) + (Anlgln02 * Mult02) + (Anlgln03 * Mult03) + (Anlgln04 * Mult04)]/scale
Alarms		
Control		Eight full-scale alarms per control loop (High, High-High, Low, Low-Low) Four full-scale deviation alarms (High, High-High, Low, Low-Low) Five groups of process alarm values Failed sensor alarm
Monitor input		Two alarms for each analog input (High and Low)

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Logic functions	
Logic boxes available:	
Con_Out	Contact output assignment (OutSet##) selections Allows four alarm conditions and/or contact inputs to be logically "OR'd" together to energize a contact relay output
Logic	Internal logic (OR/NOR, AND/NAND) selections. Allows four alarm conditions and/or contact inputs to be logically combined (OR/NOR, AND/NAND) to operate an internal logic function
Out_Off	Control outputs off assignment (OFFSet##) selections. Allows four alarm conditions and/or contact inputs to be logically "OR'd" together to force all control outputs of the loop number specified by ## to off
Digital Outputs	
Number	Two without Model 8781 Digital I/O card 16 with Model 8781 Digital I/O card
Type	Low level, TTL, 20mA without 8781; 3A solid state or mechanical relay with 8781
Function	User configurable for programmer event outputs and alarms
Digital Inputs	
Number	Two without Model 8781 Digital I/O card 16 with Model 8781 Digital I/O card
Type	Contact closure or TTL Level signal without 8781 12-280Vac and 5-200Vdc with 8781
Function	Program run/hold, program abort, controller auto/manual, alarm knowledge, logic inputs
Communications	
Types	Standard EIA-232 single drop, optional EIA-422 multidrop and IEEE-488 All 3 types of communication are available on one unit
Protocol	ENQ/ACK
Baud Rate	300, 1200, 2400, 9600, 19.2K
Maximum distance	EIA-232: 50ft (15m) EIA-422: 4000ft (1200m)
Operator interface	
Interconnection cable	10ft (3.3m) (used to connect the operator interface panel to the 8705 analog I/O processor)
Type of display	LCD with backlighting
Display resolution	160 pixels wide x 128 pixels high

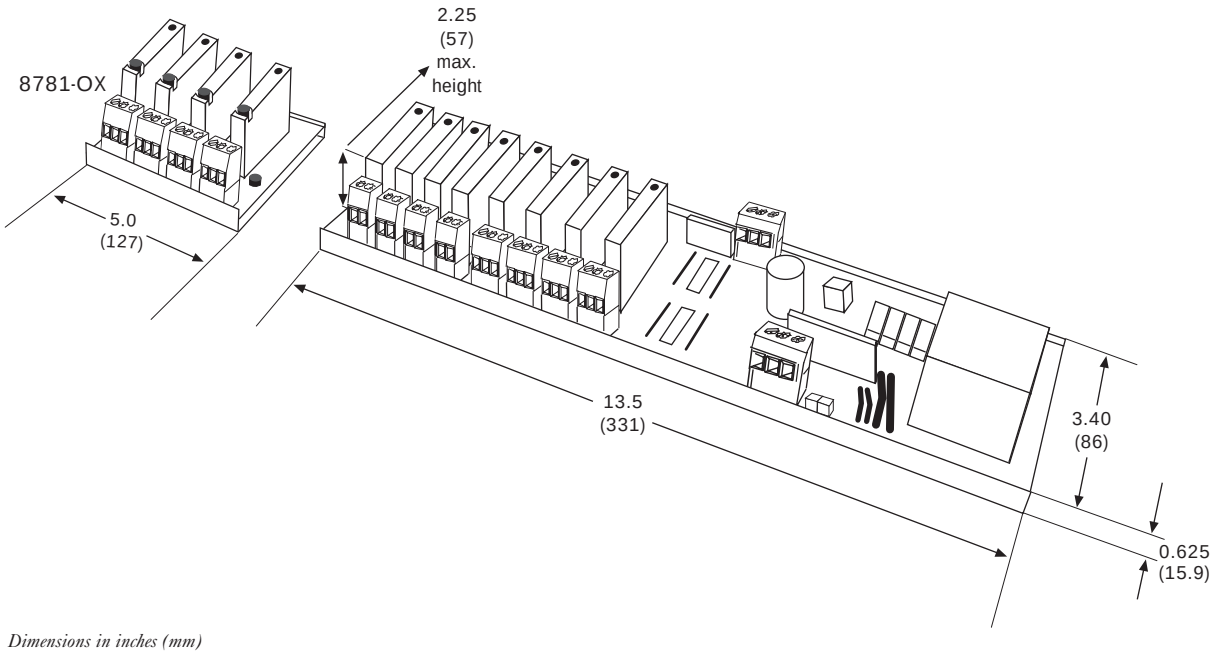
Altitude Input Conversion accuracy	**Range**	**Overall accuracy**	**Temperature Coefficient**	
Full scale	0 to 200Kft	@72°F or 22°C	±%FS Per °F	±%FS Per °C
Range segments	100 to 200Kft 80 to 100Kft	±1.00%FS ±0.75%FS	.015	.008
	50 to 80Kft 0 to 50Kft	±0.25%FS ±0.10%FS		

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Standard Dimension Input Types/Ranges

	Celsius		Fahrenheit	
Standard Sensor Inputs	Min	Max	Min	Max
J thermocouple	-22	760	-7	1400
K thermocouple	-20	1372	-5	2500
T thermocouple	-232	400	-380	750
N thermocouple	-23	1300	-11	2370
C thermocouple - W5%Re/W26%Re (Hoskins)	-18	2319	0	4200
R thermocouple	-20	1768	-5	3200
S thermocouple	-20	1768	-4	3200
B thermocouple	47	1820	117	3300
Platinel II thermocouple	-28	1450	-19	2640
RTD/PT100DIN 43760 European (.00385) or American (.00392)	-200	630	-345	1130
E thermocouple	-270	1000	-450	1830
Ni/Ni 18%Mo thermocouple	0	1350	32	2460
D thermocouple - W3%Re/W25%Re	23	2300	-9	4200
G thermocouple - W/W26%Re	-20	2315	0	4200
Linear Inputs	-999	9999		
Linear range Millivolt Voltage Current	 0mV to + 100mV 0V to + 10V 0mA to + 20mA			

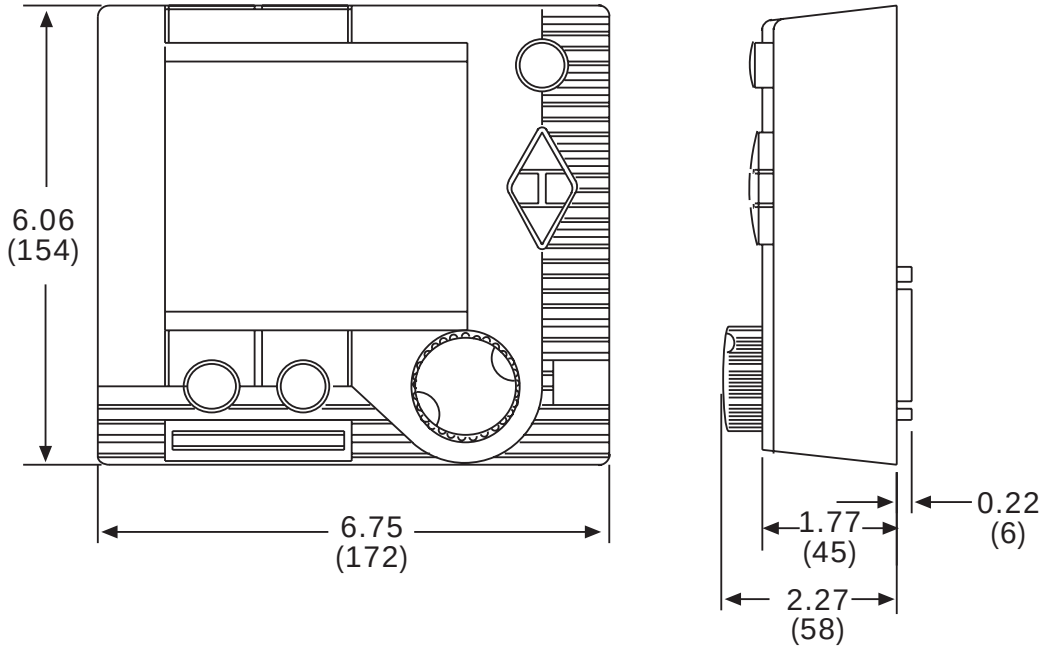
Model 8781-00
Digital I/O Card

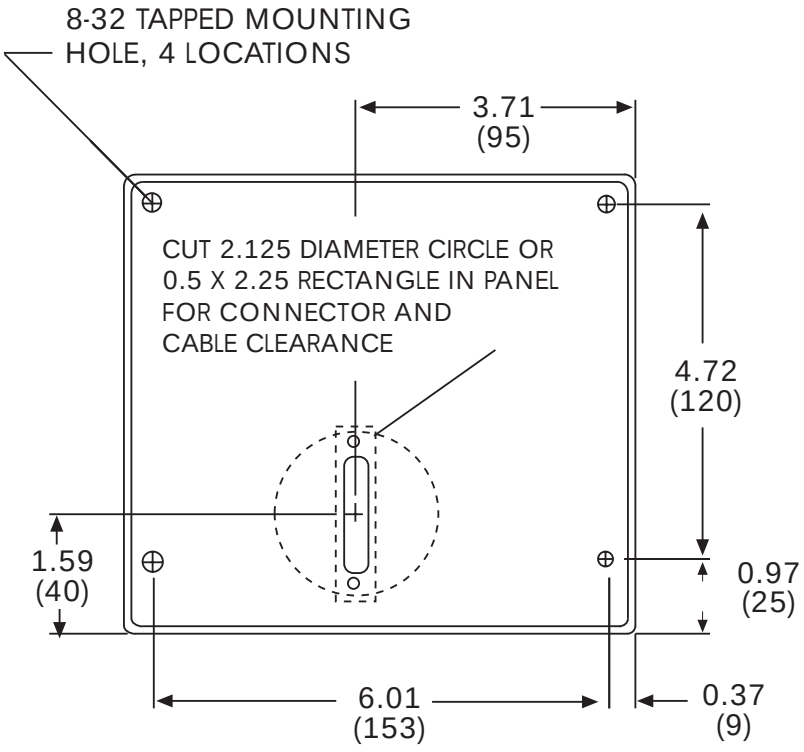


Dimensions in inches (mm)

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Dimension® Graphical Operator Interface

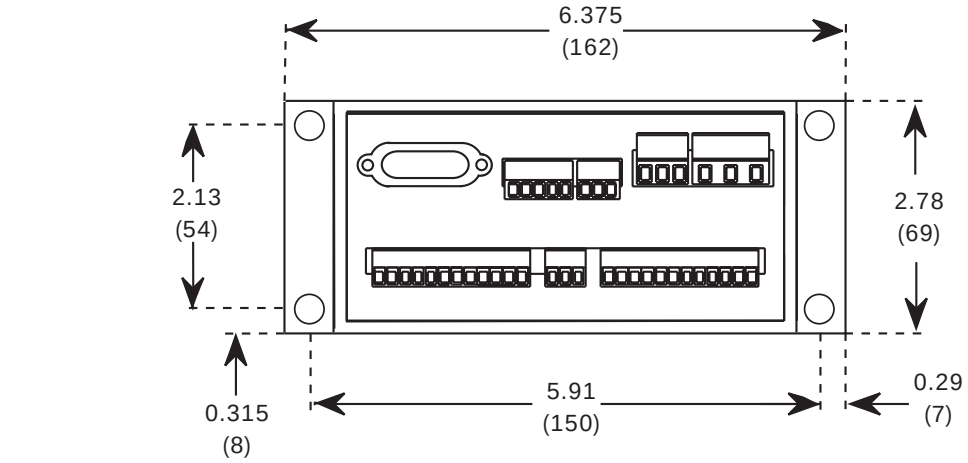


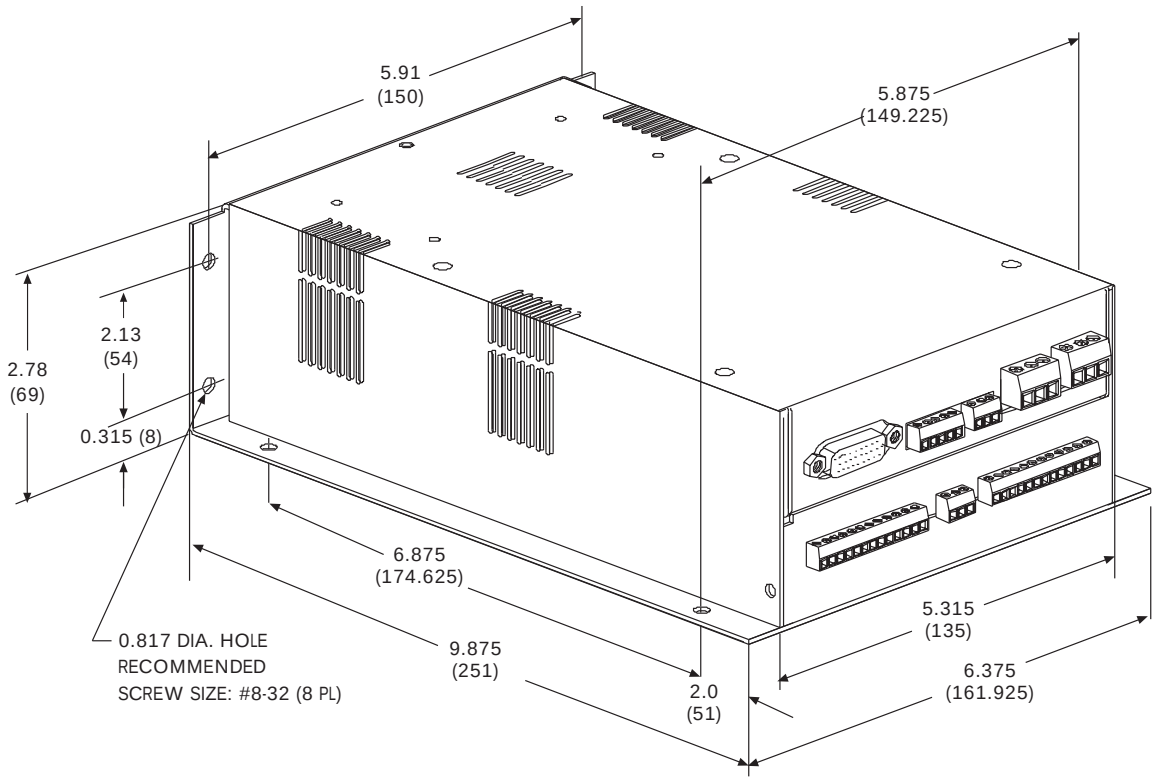


Dimensions in inches (mm)

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Dimension® 8705 Input/Output Processor





Dimensions in inches (mm)

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Coding

8705/RGOI/....

outputs (4 included)	*[3]*
X...	output 1
.X..	output 2
..X.	output 3
...X	output 4

control loops (maximum of 4)	
0	no control loops
CL1	one control loop
CL2	two control loops
CL3	three control loops
CL4	four control loops

programmer	
0	no programmers
PR1	one programmer
PR2	two programmers
PR3	three programmers
PR4	four programmers

communications	
232	EIA-232
422	EIA-422
488	IEEE-488

options/nonstandards	*[2] [4]*
@AD93	software v4.13 w/manual
@AD94	software v5.13 w/manual
@AD95	one digital input and one digital output, local
@AD96	two digital inputs on std. analog board, local
@AD97	two digital outputs on std. analog board, local

Notes:

[1] Digital I/O modules must be ordered separately.

[2] Consult factory for additional nonstandards.

[3] Specify "1" for 4-20mA or 0-20mA, "2" for 0-5Vdc, or "3" for 5V time proportioning.

[4] Blank space for standard unit.

Example:

Model	Operator interface	Output	Control loop	Prog	Comms	Options/ nonstandards
8705/	RGOI/	1133/	CL4/	PR1/	232/	@AD95../

Accessories

External expansion packages	*[1]*
SUBDIM	*base*
8782-01	4 CH T/P SSR output card
8781-00	4 IN/4 OUT digital I/O card
8781-03	4 CH input expansion card
8781-04	4 CH solid state output expansion card
8781-05	4 CH mechanical output card
092218-002	2ft cable (connects two 8781-00 together)
090478-002	optional 1ft cable for 8781-03, 8781-04, and 8781-05

Communications expansion packages	
SUBDIM	*base*
MODEM	modem comms pkg
SGOI	secondary graphic operator interface

Personal computer support packages	
SUBDIM	*base*
85106	DDE server and sample program
SVAUTO/XX	SpecView Auto
SV+/SP/XX	SpecView Plus— Supervisory software for Windows®
088541-002	10ft cable/EIA-232 comms
088547-002	10ft cable/EIA-422 comms

Digital I/O modules and accessories	
SUBDIM	*base*
8700-MC	memory card
086304-001	DC input 2.5-28V
086303-001	AC input 90-140V
086303-002	AC input 108-280V
086302-002	output SSR 12-140Vac 3A
086302-001	output SSR 24-280Vac 1A
086308-001	output SSR 5-200Vdc 3A
086308-002	output SSR 5-60Vdc 3A
085501-002	output mechanical relay 8A
094616-001	extra Users manual (one provided with each 8705)

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Ask about...

The Model 8725 is an expanded version of the 8705. It uses the same operator interface but has a higher input/output capacity. The capacity of the 8725 is:

- 8 PID control loops
- 8 programmers
- 18 analog inputs
- 12 analog outputs
- 32 digital I/O



In addition, all 3 communication ports EIA-232/422 and IEEE-488 are available on the same unit.

Dimension User Group E-mail List Server:

Dimension users and Eurotherm share application and product information over an E-mail list server.
To join, send an E-mail message to: DimLServ@Controls.Eurotherm.Com
Place only the word subscribe in the subject field.

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