

< Temp. Autotuning Configuration >

Gain Scheduling (TIC-301)

gain schedule: 0.00

scheduling input: Setpoint

PID parameters

Kc: 5.000000

Ti (min): 0.000000

Td (min): 0.000000

Options

SP & PV range:

sp low: 0.00

sp high: 500.00

Output range:

out low: 0.00

out high: 100.00

Dr (s): 0.10

auto (T) - reverse acting

beta: 1.00

linearity: 1.00

-1: default using system clock

Gain Scheduling (TIC-302)

gain schedule: 0.00

scheduling input: Setpoint

PID parameters

Kc: 5.000000

Ti (min): 0.000000

Td (min): 0.000000

Gain Scheduling (TIC-303)

gain schedule: 0.00

scheduling input: Setpoint

PID parameters

Kc: 5.000000

Ti (min): 0.000000

Td (min): 0.000000

211 & 212	A	B	C	D	E	F	G
Series	Capacity	Pressure	Temp.	Material	Agitator	Power	Drive
211	1. 300mL	1. 50psig	1. 100 °C	1. 304SS	1. Turbine	1. 220/60/1	1. DC M.
&	2. 500mL	2. 100psig	2. 150 °C	2. 316SS	2. PBT	2. 220/60/3	2. AC M.
212	3. 1L	3. 150psig	3. 200 °C	3. Hast.C	3. Prople	3. 220/50/1	3. Air M.
	4. 2L	4. 200psig	4. 250 °C	4. Glass	4. Helical	4. Other	4. Other
	5. 5L	5. 220psig	5. Other	5. Titanium	5. Anchor		
	6. 10L	6. Other		6. Monel	6. Other		
	7. Other			7. Other			

<p>REACTION ENGINEERING, INC.</p>	<p>Chemito Chemito Technologies Pvt. Ltd.</p>	<p>OMEGA SCIENTIFIC PTE LTD</p>
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R-211 Series

Stirred Glass Reactor System and Pressure Vessel (R-201)



REACTION ENGINEERING, INC.

R-211 Series Glass Reactor System

R-211 Series Glass Reactor System



Cover Openings

- ▶ Two for Cooling Coil : 1/8" NPT and 1/4" NPT (F)
- ▶ Gas Inlet Nozzle and Valve : 1/8" ~ 1/4" NPT (F)
- ▶ Gas Vent Nozzle and Valve : 1/8" ~ 1/4" NPT (F)
- ▶ Sample Valve and Tube : 1/8" ~ 1/4" NPT (F)
- ▶ Pressure Gauge and Relief Valve : 1/8" ~ 1/4" NPT (F)
- ▶ Magnetic Drive : M-24-1.5 P
- ▶ Solid Charging Nozzle : 1/4" NPT

Heater Rating

- ▶ 0.5 kW ~ 0.8kW Band Heater to be used for 300mL Reactor.
- ▶ 0.8kW ~ 1kW Band Heater to be used for 500mL~1L Reactor.
- ▶ 1.2kW ~ 1.5kW Band Heater to be used for 2L ~ 4L Reactor.
- ▶ 4kW ~ 5kW Band Heater to be used for 8L~10L Reactor.
- ▶ Options : Reactor Vessel Jacket Type design also available for option. Oil Circulator is also available for option.

Applications

- ▶ Applications of our R-211 series Reactor System are for ;
 - Polymerization
 - Organic Synthesis
 - Hydrogenation
 - Catalytic Reaction
 - Oxidation
 - Isomerization
 - Amination
 - Dehydrogenation



Flash Bottom Valve

- ▶ Design Pressure : 1,000psig ~5,000 psig
- ▶ Design Temperature : 100°C ~ 400°C
- ▶ Material : 316SS, Hastelloy, C-276
- ▶ Size : 1/4" NPT, 1/2" NPT, 1" NPT, 2" NPT

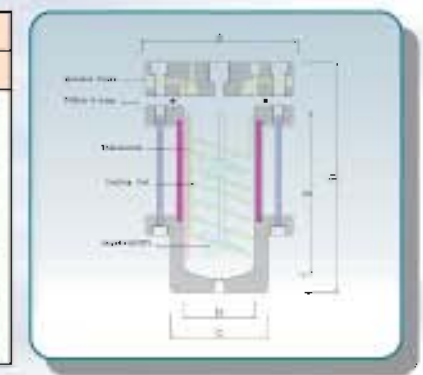
R-211 series Glass Reactor Specifications

Series	Volum	ID	LL	Conn.Size	Stand	Power	Heater
201-1	300mL	55mm	130mm	1/8" NPT	Bench	220/60/1	0.5kW
201-2	500mL	65mm	150mm	1/8" NPT	Bench	220/60/1	0.8kW
201-3	1L	86mm	180mm	1/4" NPT	Bench	220/60/1	1.0kW
201-4	2L	107mm	220mm	1/4" NPT	Bench	220/60/1	1.5kW
201-5	5L	145mm	280mm	3/8" NPT	Floor	220/60/1	2.5kW
201-6	10L	210mm	360mm	3/8" NPT	Floor	220/60/1	3.5kW

Series	Mag.Drive	Mag.Drive	Motor	Jacket Design	Utility
201-1	220psig	16in-lbs	180W	-	Gas Intet & valve, Vent valve
201-2	220psig	16in-lbs	180W	50psig	Sample tube & Valve
201-3	220psig	16in-lbs	180W	50psig	Process(MD), Drain
201-4	150psig	16in-lbs	180W	50psig	Cooling Inlet & Outlet
201-5	100psig	32in-lbs	1/4Hp	50psig	Thermowell & Thermocouple
201-6	50psig	32in-lbs	1/2Hp	50psig	Spare Nozzle

R-211 series Glass Reactor Ordering Information

Order NO.	Capacity	Max. Pressue	Demensions(mm)				
			A	B	C	D	E
211-1	300mL	220psig	120mm	55mm	75mm	180mm	130mm
211-2	500mL	220psig	140mm	65mm	85mm	210mm	150mm
211-3	1L	220psig	170mm	86mm	115mm	210mm	150mm
211-4	2L	150psig	170mm	107mm	132mm	280mm	220mm
211-5	5L	100psig	220mm	145mm	175mm	350mm	280mm
211-6	10L	50psig	280mm	210mm	240mm	430mm	360mm



R-211 Series Glass Reactor Control System

This R-211 Series Reactor is designed for T-211, S-211 and P-211 to be used conveniently in the Control Box. Also is designed for the Cable between Reactor Control Box to be separated easily by using quick-connect couplings

1) Temperature Control (T-211)

- ▶ Size : 96mm x 96mm
- ▶ Calibration : Accuracy ±0.15% of reading
- ▶ Process : TC Inlet Type "K" (Chromel-Alumel) Standard
- ▶ Process : TC Range : 0~1200°C for Type "K" TC
- ▶ Indication : 16 Segment Green LFD, Digital-4 digits
- ▶ Cycle Time : 3 to 80 Seconds
- ▶ TC Break : Upscale Shutdown
- ▶ Output : 4-20mA & SCR
- ▶ Power : 220VAC, 60Hz, 1 Phase



2) Speed Control (S-211)

- ▶ Power : 220VAC, 60Hz, 1 Phase
- ▶ Indicator Accuracy : ± 1 Count
- ▶ Indicator : 4-digits
- ▶ Resolution : 1 rpm
- ▶ Motor Control Speed Range : 50 : 1
- ▶ Max. Motor Size : 3/4 hp
- ▶ Motor Voltage : 0-180VDC (220VAC Input)
- ▶ Output : 0-12VDC
- ▶ Size : 48mm x 96mm

3) Pressure Control (P-211)

- ▶ Transducer Excitation : 10VDC
- ▶ Type of Input Accepted : 1-5mV/L
- ▶ Transducer Current Drive : 120Ma
- ▶ Transducer Impedance : 120 Ω
- ▶ Analog Output : 5V, 10V, ± 10V, 4-20Ma
- ▶ Temperature Drift : 0.02% F-S/°C
- ▶ Display Size : 16mm Large
- ▶ Resolution Maximum : ± 19999
- ▶ Weight : 500g
- ▶ Size : 48mm x 96mm
- ▶ Power : 220VAC, 60Hz, 1 Phase

R-211 Series Glass Reactor System

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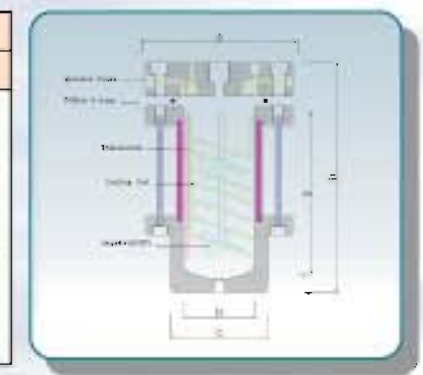
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R-211 Series Glass Reactor System

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REI-100S Software System

This REI - 100S which include ethernet port, is simple in shape and be easily able to install in your system.

It can be communicated high performance speed by ethernet port.

That has built in 24 Digital input and 16 Digital Output. When you want to built simple system, we can provide the optimum solution for you.

This controller be easily able to intergrate system of the various zone by internet.

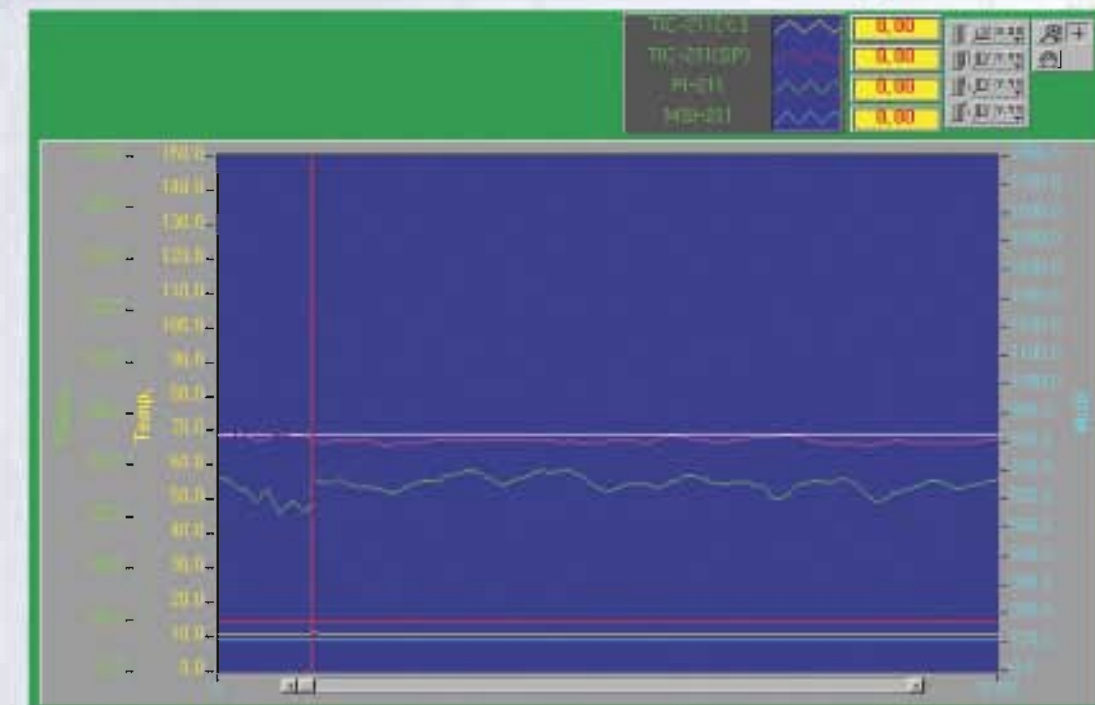
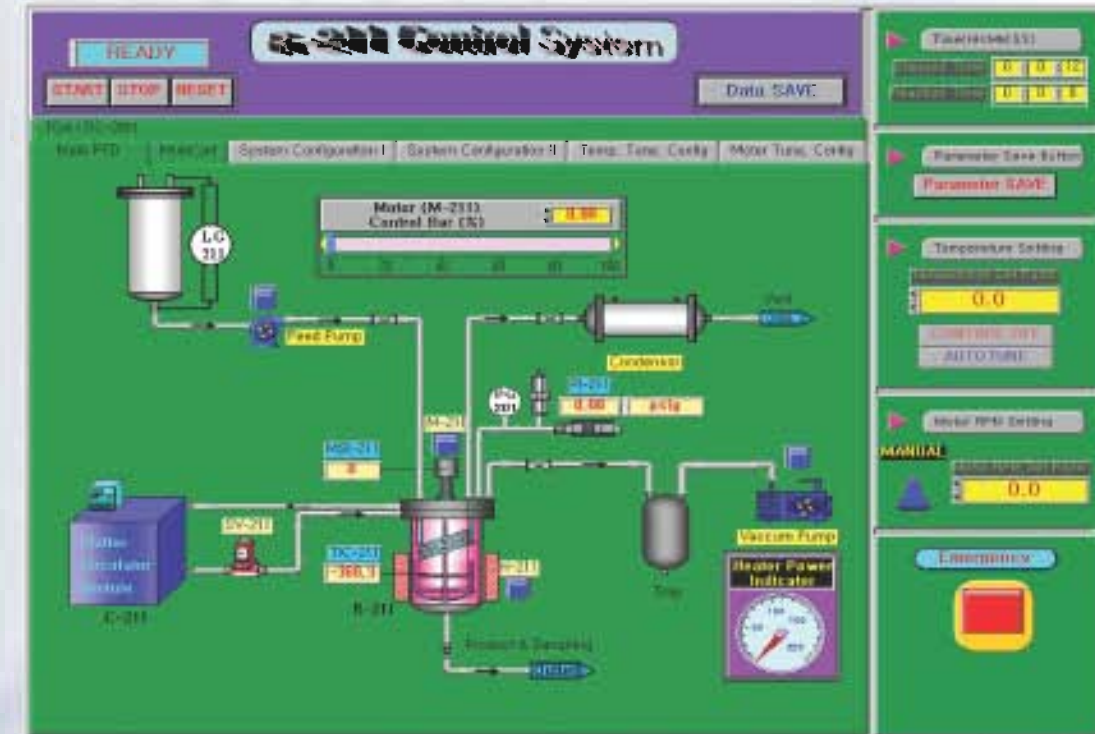
It makes an proffer TCP/IP, UDP/IP with RS - 232, RS - 485 and Ethernet port. It supports Digitl GPIO 40CH



FEATURES

• HARDWARE PROTOCOLS	TCP, UDP, ARP, ICMP, ETHERNET, MAC
• NETWORK INTERFACE	10M Base - T ETHERNET
• SERIAL PORT	RS - 232 1Port RS - 485 1Port RS 232 / RS 485 1Port
• FLASH	256K
• SRAM	128K
• CPU	22MHZ
• D/I	24CH
• D/O	16CH
• A/D	11CH [12bit, -10V ~ 10V] [4mA ~ 20mA]
• D/A	6CH [12bit, 0V ~ 10V]
• ADAPTOR	DC 9V ~ 24V 2A
• SIZE	182(W) X 130(L) X 40(D)mm

R-211 Series Software Control System



High Pressure Metering Pump & Mass Flow Control



High Pressure Metering Pump

- ▶ Max Pressure : 6000psig/1500psig
- ▶ Accuracy : ±2%
- ▶ Precision : 0.2%RSD
- ▶ Flow rate : 0.01-9.9mL/min, 0.04-40mL/min
- ▶ Size : 5.5" × 10.4" × 17.5"
- ▶ Power : 220V/50-60Hz
- ▶ Features : prime-purge valve, Pulse damper, LED display, RS-232 Input



High Pressure Metering Pump

- ▶ Max Pressure : 5880psig
- ▶ Accuracy : ±2%
- ▶ Flow rate : 0.01-9.9mL/min
- ▶ size : 400 × 295 × 165(mm)
- ▶ Dual heads type



Liquid Mass Flow Control

- ▶ Flow Capacity : 1-30mg/h
- ▶ Accuracy : ±2%
- ▶ Operating Temp. : 5-50 °C
- ▶ Maximum Pressure : 400bar(Liquid Flow meter), 100bar(Liquid Flow controller)
- ▶ Output & Input Signal : 0-5V/ 0-10Vdc/4-20mA
- ▶ Power : +15/+24Vdc