Ammonia Valve Station Controller

List of Acronyms

Avg	Average
CT Ratio	Current Transformer Ratio
DA	Delivery Air (Air-off)
Disc	Discharge
IP	Internet Protocol
Int	Interval
MLSV	Master Liquid Solenoid Valve
NC	Not Connected
NIU	Not in Use
OILF	Oil Failure
OL or O/L	Overload
PD	Pump Down
PID	Proportional Integral Differential / Derivative
PV	Process Value
PWM	Pulse Width Modulation
RA	Return Air (Air-on)
RH	Relative Humidity
SH	Superheat
SP	Setpoint
SPH	Setpoint High
SPL	Setpoint Low
SSF	Side Stream Filtration
TD	Temperature Differential
TE	Temperature Evaporation
Therm	Thermistor
TS	Temperature Suction
UL	Underload
VSD / VFD	Variable Speed Drive / Variable Frequency Drive

Technical Specifications

General Specifications

Required Power (Steady State)	84mA @ 24VDC
Required Power (Inrush)	30A for 1ms @24VDC
Primary Voltage Range	10-30VDC
Relative Humidity	5 to 95% Non-Condensing
Clock Accuracy	+/-90 seconds per month at 20°C
Operating Temperature	-10°C to +60°C
Storage Temperature	-20°C to +70°C
Weight	0.34kg
Approvals	cUL, UL, CE, FCC

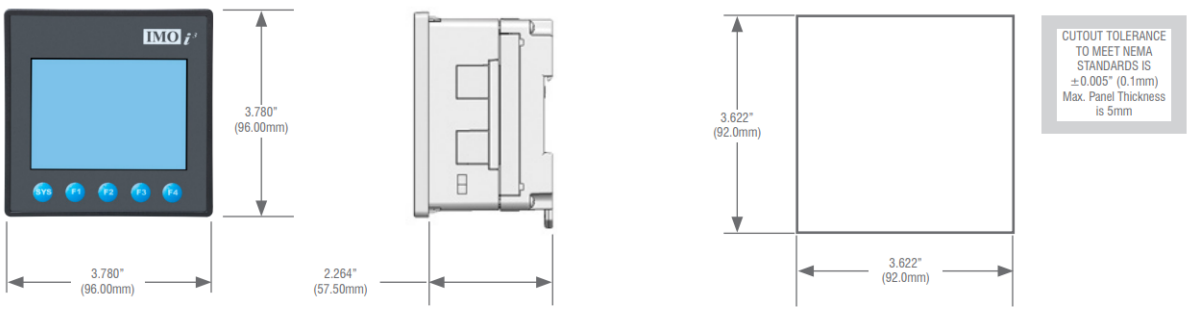
Display Specifications

Display Type	Trans-reflective Touchscreen LCD (Outdoor Readable)
Resolution	240 x 128 Pixels
Colour	Monochrome
Backlight	LED (30000 hrs life)
Touchscreen Life & Type	1 million touch + resistive type

Connectivity

Serial Ports – MJ1	1xRS232 or 1xRS485 (Modbus RTU)
Serial Ports – MJ2	1xRS232 or 1xRS485 (Modbus RTU
USB mini-B	Programming & Data Access
Ethernet	10/100MB (Auto-MDX) Modbus TCP

Dimensions & Panel Cut-out

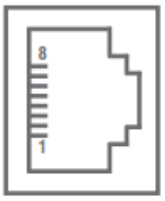


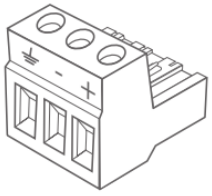
NOTE: Depth including modem = 2.559" (65.0mm)

Ports & Connectors

DC Input

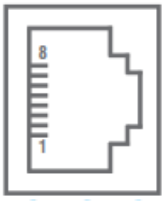
Pin	Signal	Description
1	Ground	Frame Ground
2	DC-	Power Supply Common

Pin	Signal	Direction	
8	TXD RS-232	Out	
7	RXD RS-232	In	
6	0V	Ground	
5	+5V@60mA	Out	
4	RTS RS-232	Out	
3	CTS RS-232	In	
2	RX-/TX- RS-485	In/Out	
1	RX+/TX+ RS-485	In/Out	

3	DC+	Power Supply Voltage	

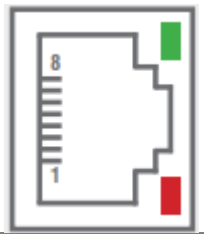
MJ1 Independent Serial Ports

MJ2 Independent Serial Ports

Pin	Signal	Direction	
8	TXD RS-232	Out	
7	RXD RS-232	In	
6	0V	Ground	
5	+5V@60mA	Out	
4	RTS RS-232	Out	
3	CTS RS-232	In	
2	RX-(RX-/TX-*) RS-485	In or In/Out	
1	RX+(RX+/TX+*) RS-485	In or In/Out	

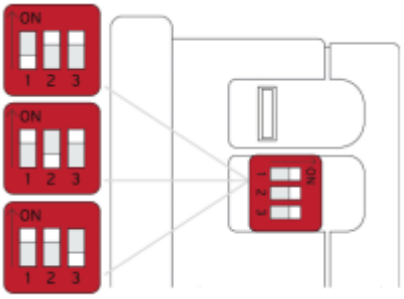
Ethernet Port : Modular Jack (RJ45)

	Link Indicator

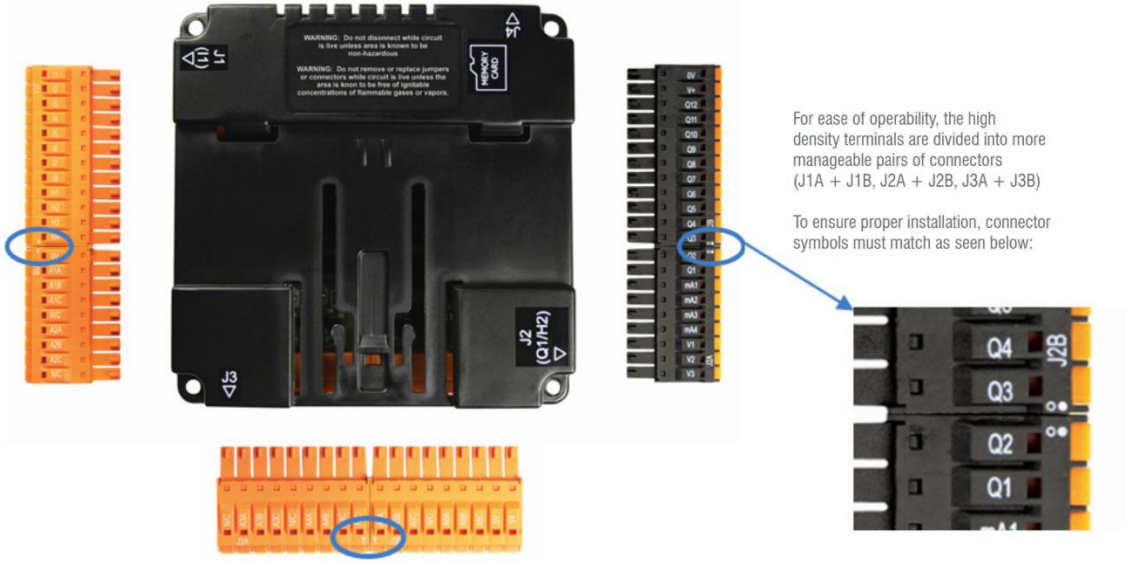
	Activity Indicator

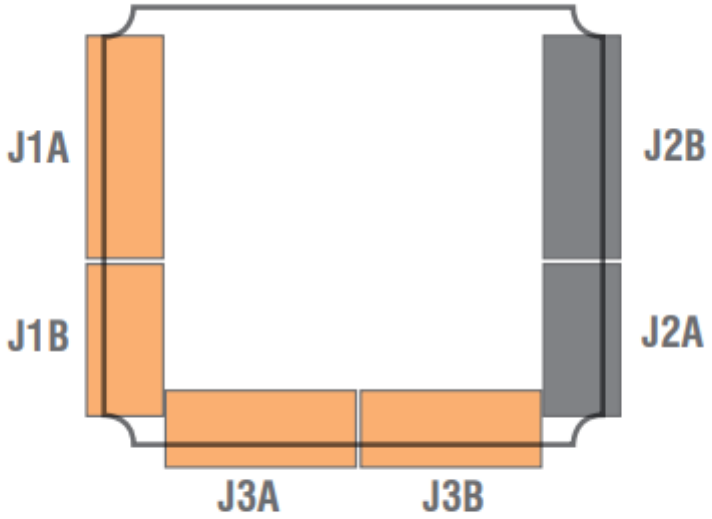
Dip Switches

Switch	Name	Function	Default
1	RS-485 Termination (MJ1)	ON = Terminated	OFF
2	RS-485 Termination (MJ2)	ON = Terminated	OFF
3	Factory Use	Always Off	OFF



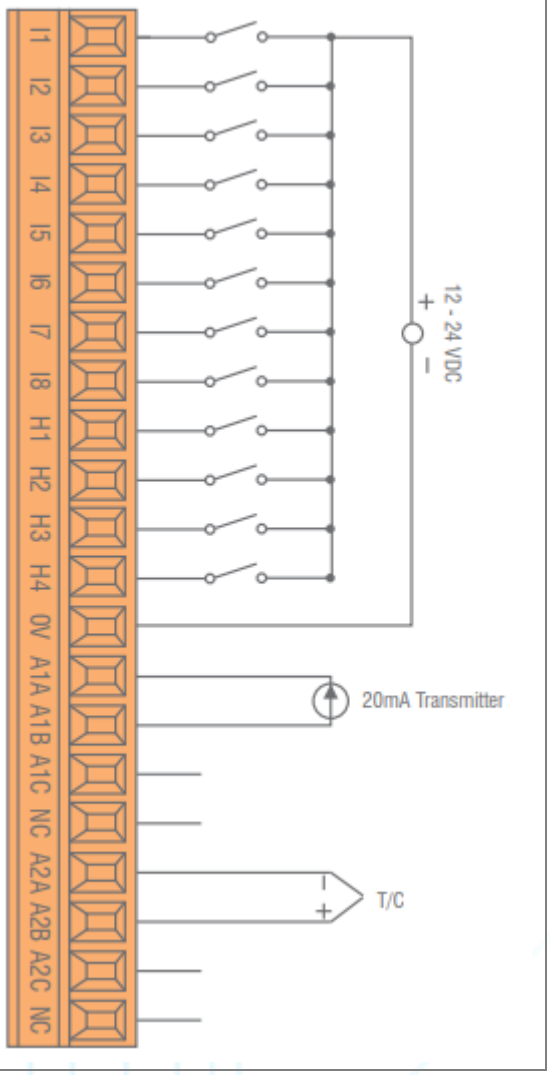
Inputs & Outputs



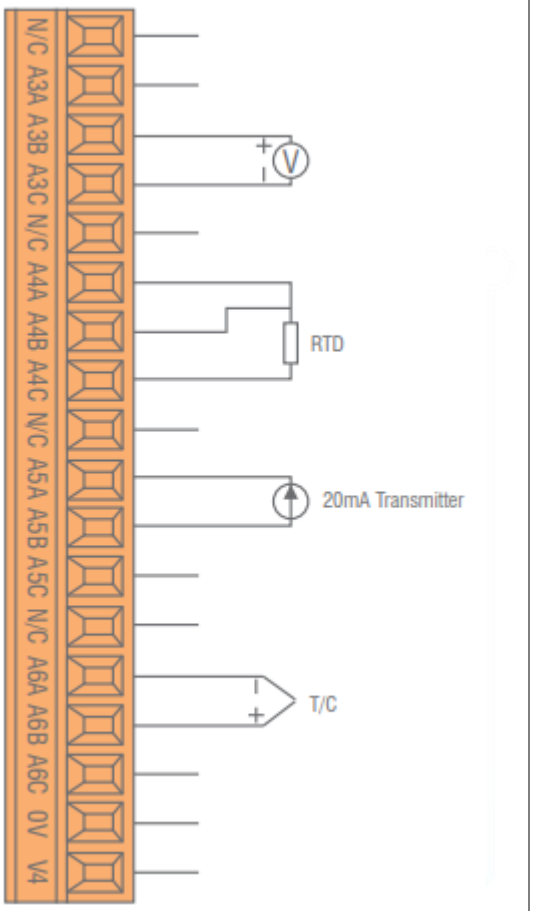


NOTE: * Both mA & V outputs are active for each output channel, however, only the configured output type is calibrated (maximum 4 channels simultaneously).

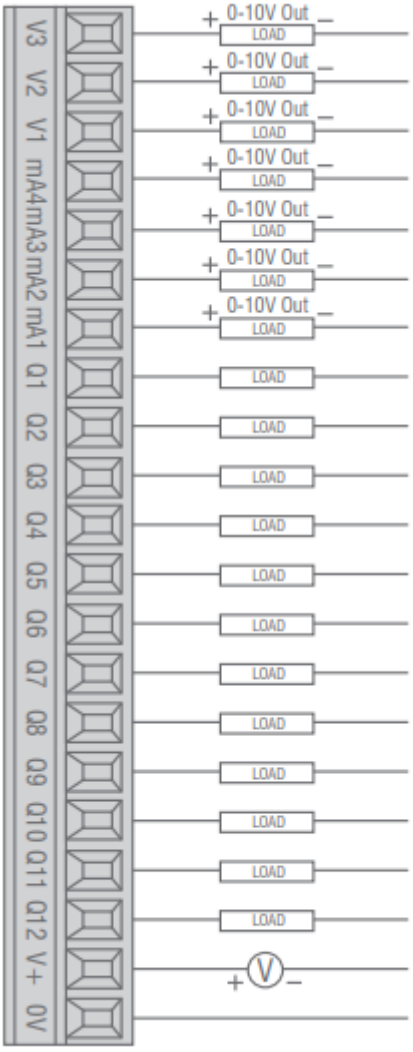
J1 (Orange)		Name
J1A	I1	Available/Auto Mode
	I2	Cooling (Manual)
	I3	Defrost (Manual)
	I4	Low Temp (OK)
	I5	Cooler Fans Trip
	I6	Cooler Fans Run
	I8	Pressure Fans Available
	H1	Pressure Fans Trip
	H2	Heater Trip
	H3	POD Trip
	H4	Fire Alarm (OK)
J1B	0V	Common
	A1A	Air Off (Red)
	A1B	Air Off (Red)
	A1C	Air Off (White)
	NC	No Connect
	A2A	Air On (Red)
	A2B	Air On (Red)
	A2C	Air On (White)
	NC	No Connect



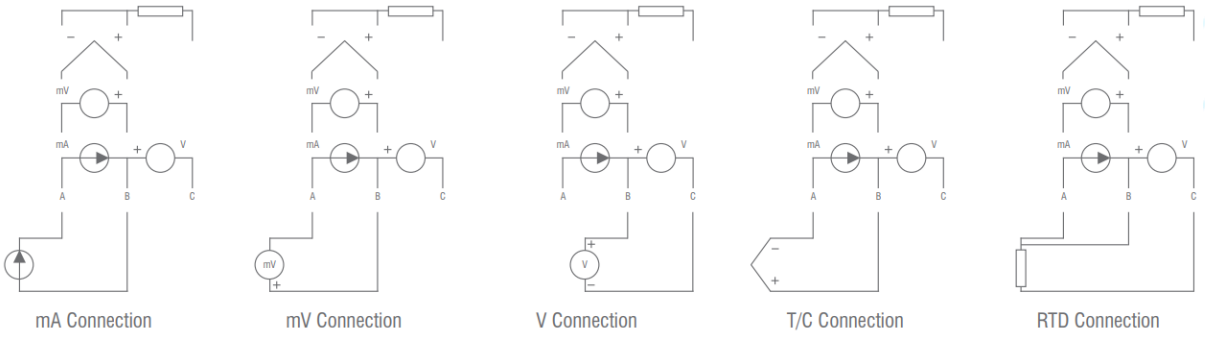
J3 (Orange)		Name
J3A	NC	No Connect
	A3A	Defrost (Red)
	A3B	Defrost (Red)
	A3C	Defrost (White)
	NC	No Connect
	A4A	Fruit Spike 1 (Red)
	A4B	Fruit Spike 1 (Red)
	A4C	Fruit Spike 1 (White)
	NC	No Connect
J3B	A5A	Fruit Spike 2 (Red)
	A5B	Fruit Spike 2 (Red)
	A5C	Fruit Spike 2 (Red)
	NC	Air Off (White)
	A6A	External SP (4-20mA) +
	A6B	External SP (4-20mA) -
	A6C	No Connect
	NC	No Connect
	V4	V OUT 4 - NC



J2 (Black)		Name
J2A	V3	V OUT 3 - NC
	V2	V OUT 2 - NC
	V1	V OUT 1 - NC
	mA4	Pressure Fans VFD
	mA3	Cooler Fans VFD
	mA2	Air Off Temperature
	mA1	ICAD Valve (4-20mA)
	Q1	System-On
	Q2	Suction Solenoid
J2B	Q3	Liquid Solenoid
	Q4	Hot gas Solenoid
	Q5	Bleed Solenoid
	Q6	Cooler Fans
	Q7	Pressure Fans
	Q8	Heater 1
	Q9	Heater 2
	Q10	Heater 2
	Q11	Soft Defrost
	Q12	POD
	V+	V External +
	0V	Common



Example of Universal Input Wiring Schematic



Modbus Registers for Remote Control (PC Controlled)

Input Words

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
Digital Input Word	INT	Read-Only	5050	-32768	32768	0

Bit	Name
0	Auto
1	Cooling
2	Defrost
3	Low Temp (OK)
4	Cooler Fan Trip
5	Cooler Fan Run
6	Pressure Fan AV
7	Pressure Fan Trip
8	Pressure Fan run
9	Heater Trip
10	POD Trip
11	Fire Alarm (OK)

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
Status Word 1	INT	Read-Only	5051	-32768	32768	0

Bit	Name
0	Shorted RTD AIR OFF
1	Open RTD AIR OFF
2	Out Of Limits AIR OFF
3	Shorted RTD AIR ON
4	Open RTD AIR ON
5	Out Of Limits AIR ON
6	Shorted RTD DEFROST
7	Open RTD DEFROST
8	Out Of Limits DEFROST
9	Shorted RTD PP1
10	Open RTD PP1
11	Out Of Limits PP1
12	Shorted RTD PP2
13	Open RTD PP2
14	Out Of Limits PP2
15	Out Of Limits mA

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
Status Word 2	INT	Read-Only	5052	-32768	32768	0

Bit	Name
0	Remote Control (Enabled)
1	AIR ON (Enable)
2	DEFROST (Enabled)
3	PP1 (Enabled)
4	PP2 (Enabled)
5	Pressure Fan (Enabled)
6	Pod (Enabled)
7	Heating (Enabled)
8	Emergency Stop
9	Diagnostics On
10	Heartbeat

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
11 Simulated Values 12 Available 13 Man Cooling 14 Man Defrost 15 Not In Use						
Air Off	INT	Read-Only	5053	-500	400	1
Air Off Offset	INT	Read-Only	5054	-500	400	1
Air On	INT	Read-Only	5055	-500	400	1
Air On Offs	INT	Read-Only	5056	-500	400	1
Defrost	INT	Read-Only	5057	-500	400	1
Defrost Offset	INT	Read-Only	5058	-500	400	1
Product Probe 1	INT	Read-Only	5059	-500	400	1
Product Probe 1 Offset	INT	Read-Only	5060	-500	400	1
Product Probe 2	INT	Read-Only	5061	-500	400	1
Product Probe 2 Offset	INT	Read-Only	5062	-500	400	1
mA Raw Input	INT	Read-Only	5063	0	32000	0
mA Input (mA)	INT	Read-Only	5064	400	2000	2
Current User	ARRAY[0..9] OF USINT	Read-Only	5065	A	Z	0
Digital Output Word Bit / Name 0 System On 1 Suction Solenoid 2 Liquid Solenoid 3 Hot Gas Solenoid 4 Bleed/Drain Solenoid 5 Cooler Fans 6 Pressure Fans 7 Heater 1 8 Heater 2 9 Heater 3 10 Soft Defrost 11 POD 12 Heartbeat 13 Spare 14 Spare 15 Spare	INT	Read-Write	5080	-32768	32768	0
AO1 Valve Raw	INT	Read-Write	5081	0	32000	0
AO2 Spare Raw	INT	Read-Write	5082	0	32000	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
A03 Cooler Fan Raw	INT	Read-Write	5083	0	32000	0
A04 Pressure Fan Raw	INT	Read-Write	5084	0	32000	0
Valve Percentage	INT	Read-Write	5085	0	1000	1
Cooler Fan Percentage	INT	Read-Write	5086	0	1000	1
Pressure Fan Percentage	INT	Read-Write	5087	0	1000	1
Control Status	INT	Read-Write	5088	0	14	0

0	Off
1	Startup Delay
2	Bleed
3	Cooling Low
4	Cooling High
5	Defrost
6	Drain
7	Fan Delay
8	Pre-Cooling
9	Fault
10	Pause
11	Delay After Pause
12	Soft Defrost

Offset Settings

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
Air Off Offset PC	INT	Read-Write	5089	-500	400	1
Air On Offset PC	INT	Read-Write	5090	-500	400	1
Defrost Offset PC	INT	Read-Write	5091	-500	400	1
Product Probe 1 Offset PC	INT	Read-Write	5092	-500	400	1
Product Probe 2 Offset PC	INT	Read-Write	5093	-500	400	1

Modbus Registers for SCADA applications

Registers that are sent to each controller to manage the load during peak and standard times, which are controlled by a master controller, whether it's a computer or a PLC.

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
R YEAR Read current year from controller	INT	Read-Only	5000	yyyy	yyyy	0
R MONTH Read current month from controller	INT	Read-Only	5001	1	12	0
R DAY Read current day from controller	INT	Read-Only	5002	1	31	0
R DOW	INT	Read-Only	5003	1	7	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
Read current day of week from controller 1 Sunday 2 Monday 3 Tuesday 4 Wednesday 5 Thursday 6 Friday 7 Sunday						
R HOUR Read current hour from controller	INT	Read-Only	5004	0	23	0
R MIN Read current minute from controller	INT	Read-Only	5005	0	59	0
R SEC Read current second from controller	INT	Read-Only	5006	0	59	0
W YEAR Write year to controller	INT	Read-Write	5007	yyyy	yyyy	0
W MONTH Write month to controller	INT	Read-Write	5008	1	12	0
W DAY Write day to controller	INT	Read-Write	5009	1	31	0
W DOW 1 Sunday 2 Monday 3 Tuesday 4 Wednesday 5 Thursday 6 Friday 7 Sunday Write day of week to controller	INT	Read-Write	5010	1	7	0
W HOUR Write hour to controller	INT	Read-Write	5011	0	23	0
W MIN Write minute to controller	INT	Read-Write	5012	0	59	0
W SEC Write second to controller	INT	Read-Write	5013	0	59	0
CONTROLW **Future use**	INT	Read-Write	5014	0	0	0
SETCLOCK If value is 1 then the clock is set according to the values in above registers	INT	Read-Write	5015	0	1	0
ROTATION NR 1 Switch Off in Cycle 1 2 Switch Off in Cycle 2 3 Switch Off in Cycle 3 4 Switch Off in Cycle 4 5 Switch Off in Cycle 5 6 Switch Off in Cycle 6 Demand Control	INT	Read-Write	5016	1	6	0
KVA ONOFF NR Demand Control	INT	Read-Write	5017	1	5	0
STANDARD Demand Control	INT	Read-Write	5018	0	1	0
PEAK Demand Control	INT	Read-Write	5019	0	1	0
GEN RUNW Demand Control	INT	Read-Write	5020	0	1	0
RST ALLW Reset All Errors	INT	Read-Write	5021	0	1	0
REFRIG OK Refrigeration is ok	INT	Read-Write	5022	0	1	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec
FIRE ALARM 1 Fire Alarm	INT	Read-Write	5023	0	1	0
FIRE ALARM 2 Fire Alarm	INT	Read-Write	5024	0	1	0

The following registers can all be adjusted on the controller itself or through SCADA using Modbus TCP or Modbus RTU.

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Sun Peak Hr 0 (Sunday Peak Hours)	BOOL	Read-Write	4000	0	1	0	0
Sun Peak Hr 1 (Sunday Peak Hours)	BOOL	Read-Write	4001	0	1	0	0
Sun Peak Hr 2 (Sunday Peak Hours)	BOOL	Read-Write	4002	0	1	0	0
Sun Peak Hr 3 (Sunday Peak Hours)	BOOL	Read-Write	4003	0	1	0	0
Sun Peak Hr 4 (Sunday Peak Hours)	BOOL	Read-Write	4004	0	1	0	0
Sun Peak Hr 5 (Sunday Peak Hours)	BOOL	Read-Write	4005	0	1	0	0
Sun Peak Hr 6 (Sunday Peak Hours)	BOOL	Read-Write	4006	0	1	0	0
Sun Peak Hr 7 (Sunday Peak Hours)	BOOL	Read-Write	4007	0	1	0	0
Sun Peak Hr 8 (Sunday Peak Hours)	BOOL	Read-Write	4008	0	1	0	0
Sun Peak Hr 9 (Sunday Peak Hours)	BOOL	Read-Write	4009	0	1	0	0
Sun Peak Hr 10 (Sunday Peak Hours)	BOOL	Read-Write	4010	0	1	0	0
Sun Peak Hr 11 (Sunday Peak Hours)	BOOL	Read-Write	4011	0	1	0	0
Sun Peak Hr 12 (Sunday Peak Hours)	BOOL	Read-Write	4012	0	1	0	0
Sun Peak Hr 13 (Sunday Peak Hours)	BOOL	Read-Write	4013	0	1	0	0
Sun Peak Hr 14 (Sunday Peak Hours)	BOOL	Read-Write	4014	0	1	0	0
Sun Peak Hr 15 (Sunday Peak Hours)	BOOL	Read-Write	4015	0	1	0	0
Sun Peak Hr 16 (Sunday Peak Hours)	BOOL	Read-Write	4016	0	1	0	0
Sun Peak Hr 17 (Sunday Peak Hours)	BOOL	Read-Write	4017	0	1	0	0
Sun Peak Hr 18 (Sunday Peak Hours)	BOOL	Read-Write	4018	0	1	0	0
Sun Peak Hr 19 (Sunday Peak Hours)	BOOL	Read-Write	4019	0	1	0	0
Sun Peak Hr 20 (Sunday Peak Hours)	BOOL	Read-Write	4020	0	1	0	0
Sun Peak Hr 21 (Sunday Peak Hours)	BOOL	Read-Write	4021	0	1	0	0
Sun Peak Hr 22 (Sunday Peak Hours)	BOOL	Read-Write	4022	0	1	0	0
Sun Peak Hr 23 (Sunday Peak Hours)	BOOL	Read-Write	4023	0	1	0	0
Sat Peak Hr 0 (Saturday Peak Hours)	BOOL	Read-Write	4024	0	1	0	0
Sat Peak Hr 1 (Saturday Peak Hours)	BOOL	Read-Write	4025	0	1	0	0
Sat Peak Hr 2 (Saturday Peak Hours)	BOOL	Read-Write	4026	0	1	0	0
Sat Peak Hr 3 (Saturday Peak Hours)	BOOL	Read-Write	4027	0	1	0	0
Sat Peak Hr 4 (Saturday Peak Hours)	BOOL	Read-Write	4028	0	1	0	0
Sat Peak Hr 5 (Saturday Peak Hours)	BOOL	Read-Write	4029	0	1	0	0
Sat Peak Hr 6 (Saturday Peak Hours)	BOOL	Read-Write	4030	0	1	0	0
Sat Peak Hr 7 (Saturday Peak Hours)	BOOL	Read-Write	4031	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Sat Peak Hr 8 (Saturday Peak Hours)	BOOL	Read-Write	4032	0	1	0	0
Sat Peak Hr 9 (Saturday Peak Hours)	BOOL	Read-Write	4033	0	1	0	0
Sat Peak Hr 10 (Saturday Peak Hours)	BOOL	Read-Write	4034	0	1	0	0
Sat Peak Hr 11 (Saturday Peak Hours)	BOOL	Read-Write	4035	0	1	0	0
Sat Peak Hr 12 (Saturday Peak Hours)	BOOL	Read-Write	4036	0	1	0	0
Sat Peak Hr 13 (Saturday Peak Hours)	BOOL	Read-Write	4037	0	1	0	0
Sat Peak Hr 14 (Saturday Peak Hours)	BOOL	Read-Write	4038	0	1	0	0
Sat Peak Hr 15 (Saturday Peak Hours)	BOOL	Read-Write	4039	0	1	0	0
Sat Peak Hr 16 (Saturday Peak Hours)	BOOL	Read-Write	4040	0	1	0	0
Sat Peak Hr 17 (Saturday Peak Hours)	BOOL	Read-Write	4041	0	1	0	0
Sat Peak Hr 18 (Saturday Peak Hours)	BOOL	Read-Write	4042	0	1	0	0
Sat Peak Hr 19 (Saturday Peak Hours)	BOOL	Read-Write	4043	0	1	0	0
Sat Peak Hr 20 (Saturday Peak Hours)	BOOL	Read-Write	4044	0	1	0	0
Sat Peak Hr 21 (Saturday Peak Hours)	BOOL	Read-Write	4045	0	1	0	0
Sat Peak Hr 22 (Saturday Peak Hours)	BOOL	Read-Write	4046	0	1	0	0
Sat Peak Hr 23 (Saturday Peak Hours)	BOOL	Read-Write	4047	0	1	0	0
Week Peak Hr 0 (Weekdays Peak Hours)	BOOL	Read-Write	4048	0	1	0	0
Week Peak Hr 1 (Weekdays Peak Hours)	BOOL	Read-Write	4049	0	1	0	0
Week Peak Hr 2 (Weekdays Peak Hours)	BOOL	Read-Write	4050	0	1	0	0
Week Peak Hr 3 (Weekdays Peak Hours)	BOOL	Read-Write	4051	0	1	0	0
Week Peak Hr 4 (Weekdays Peak Hours)	BOOL	Read-Write	4052	0	1	0	0
Week Peak Hr 5 (Weekdays Peak Hours)	BOOL	Read-Write	4053	0	1	0	0
Week Peak Hr 6 (Weekdays Peak Hours)	BOOL	Read-Write	4054	0	1	0	0
Week Peak Hr 7 (Weekdays Peak Hours)	BOOL	Read-Write	4055	0	1	0	0
Week Peak Hr 8 (Weekdays Peak Hours)	BOOL	Read-Write	4056	0	1	0	0
Week Peak Hr 9 (Weekdays Peak Hours)	BOOL	Read-Write	4057	0	1	0	0
Week Peak Hr 10 (Weekdays Peak Hours)	BOOL	Read-Write	4058	0	1	0	0
Week Peak Hr 11 (Weekdays Peak Hours)	BOOL	Read-Write	4059	0	1	0	0
Week Peak Hr 12 (Weekdays Peak Hours)	BOOL	Read-Write	4060	0	1	0	0
Week Peak Hr 13 (Weekdays Peak Hours)	BOOL	Read-Write	4061	0	1	0	0
Week Peak Hr 14 (Weekdays Peak Hours)	BOOL	Read-Write	4062	0	1	0	0
Week Peak Hr 15 (Weekdays Peak Hours)	BOOL	Read-Write	4063	0	1	0	0
Week Peak Hr 16 (Weekdays Peak Hours)	BOOL	Read-Write	4064	0	1	0	0
Week Peak Hr 17 (Weekdays Peak Hours)	BOOL	Read-Write	4065	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Week Peak Hr 18 (Weekdays Peak Hours)	BOOL	Read-Write	4066	0	1	0	0
Week Peak Hr 19 (Weekdays Peak Hours)	BOOL	Read-Write	4067	0	1	0	0
Week Peak Hr 20 (Weekdays Peak Hours)	BOOL	Read-Write	4068	0	1	0	0
Week Peak Hr 21 (Weekdays Peak Hours)	BOOL	Read-Write	4069	0	1	0	0
Week Peak Hr 22 (Weekdays Peak Hours)	BOOL	Read-Write	4070	0	1	0	0
Week Peak Hr 23 (Weekdays Peak Hours)	BOOL	Read-Write	4071	0	1	0	0
Sun Standard Hr 0 (Sunday Standard Hours)	BOOL	Read-Write	4072	0	1	0	0
Sun Standard Hr 1 (Sunday Standard Hours)	BOOL	Read-Write	4073	0	1	0	0
Sun Standard Hr 2 (Sunday Standard Hours)	BOOL	Read-Write	4074	0	1	0	0
Sun Standard Hr 3 (Sunday Standard Hours)	BOOL	Read-Write	4075	0	1	0	0
Sun Standard Hr 4 (Sunday Standard Hours)	BOOL	Read-Write	4076	0	1	0	0
Sun Standard Hr 5 (Sunday Standard Hours)	BOOL	Read-Write	4077	0	1	0	0
Sun Standard Hr 6 (Sunday Standard Hours)	BOOL	Read-Write	4078	0	1	0	0
Sun Standard Hr 7 (Sunday Standard Hours)	BOOL	Read-Write	4079	0	1	0	0
Sun Standard Hr 8 (Sunday Standard Hours)	BOOL	Read-Write	4080	0	1	0	0
Sun Standard Hr 9 (Sunday Standard Hours)	BOOL	Read-Write	4081	0	1	0	0
Sun Standard Hr 10 (Sunday Standard Hours)	BOOL	Read-Write	4082	0	1	0	0
Sun Standard Hr 11 (Sunday Standard Hours)	BOOL	Read-Write	4083	0	1	0	0
Sun Standard Hr 12 (Sunday Standard Hours)	BOOL	Read-Write	4084	0	1	0	0
Sun Standard Hr 13 (Sunday Standard Hours)	BOOL	Read-Write	4085	0	1	0	0
Sun Standard Hr 14 (Sunday Standard Hours)	BOOL	Read-Write	4086	0	1	0	0
Sun Standard Hr 15 (Sunday Standard Hours)	BOOL	Read-Write	4087	0	1	0	0
Sun Standard Hr 16 (Sunday Standard Hours)	BOOL	Read-Write	4088	0	1	0	0
Sun Standard Hr 17 (Sunday Standard Hours)	BOOL	Read-Write	4089	0	1	0	0
Sun Standard Hr 18 (Sunday Standard Hours)	BOOL	Read-Write	4090	0	1	0	0
Sun Standard Hr 19 (Sunday Standard Hours)	BOOL	Read-Write	4091	0	1	0	0
Sun Standard Hr 20 (Sunday Standard Hours)	BOOL	Read-Write	4092	0	1	0	0
Sun Standard Hr 21 (Sunday Standard Hours)	BOOL	Read-Write	4093	0	1	0	0
Sun Standard Hr 22 (Sunday Standard Hours)	BOOL	Read-Write	4094	0	1	0	0
Sun Standard Hr 23 (Sunday Standard Hours)	BOOL	Read-Write	4095	0	1	0	0
Sat Standard Hr 0 (Saturday Standard Hours)	BOOL	Read-Write	4096	0	1	0	0
Sat Standard Hr 1 (Saturday Standard Hours)	BOOL	Read-Write	4097	0	1	0	0
Sat Standard Hr 2 (Saturday Standard Hours)	BOOL	Read-Write	4098	0	1	0	0
Sat Standard Hr 3 (Saturday Standard Hours)	BOOL	Read-Write	4099	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Sat Standard Hr 4 (Saturday Standard Hours)	BOOL	Read-Write	4100	0	1	0	0
Sat Standard Hr 5 (Saturday Standard Hours)	BOOL	Read-Write	4101	0	1	0	0
Sat Standard Hr 6 (Saturday Standard Hours)	BOOL	Read-Write	4102	0	1	0	0
Sat Standard Hr 7 (Saturday Standard Hours)	BOOL	Read-Write	4103	0	1	0	0
Sat Standard Hr 8 (Saturday Standard Hours)	BOOL	Read-Write	4104	0	1	0	0
Sat Standard Hr 9(Saturday Standard Hours)	BOOL	Read-Write	4105	0	1	0	0
Sat Standard Hr 10 (Saturday Standard Hours)	BOOL	Read-Write	4106	0	1	0	0
Sat Standard Hr 11 (Saturday Standard Hours)	BOOL	Read-Write	4107	0	1	0	0
Sat Standard Hr 12 (Saturday Standard Hours)	BOOL	Read-Write	4108	0	1	0	0
Sat Standard Hr 13 (Saturday Standard Hours)	BOOL	Read-Write	4109	0	1	0	0
Sat Standard Hr 14 (Saturday Standard Hours)	BOOL	Read-Write	4110	0	1	0	0
Sat Standard Hr 15 (Saturday Standard Hours)	BOOL	Read-Write	4111	0	1	0	0
Sat Standard Hr 16 (Saturday Standard Hours)	BOOL	Read-Write	4112	0	1	0	0
Sat Standard Hr 17 (Saturday Standard Hours)	BOOL	Read-Write	4113	0	1	0	0
Sat Standard Hr 18 (Saturday Standard Hours)	BOOL	Read-Write	4114	0	1	0	0
Sat Standard Hr 19 (Saturday Standard Hours)	BOOL	Read-Write	4115	0	1	0	0
Sat Standard Hr 20 (Saturday Standard Hours)	BOOL	Read-Write	4116	0	1	0	0
Sat Standard Hr 21 (Saturday Standard Hours)	BOOL	Read-Write	4117	0	1	0	0
Sat Standard Hr 22 (Saturday Standard Hours)	BOOL	Read-Write	4118	0	1	0	0
Sat Standard Hr 23 (Saturday Standard Hours)	BOOL	Read-Write	4119	0	1	0	0
Week Standard Hr 0 (Weekdays Standard Hours)	BOOL	Read-Write	4120	0	1	0	0
Week Standard Hr 1 (Weekdays Standard Hours)	BOOL	Read-Write	4121	0	1	0	0
Week Standard Hr 2 (Weekdays Standard Hours)	BOOL	Read-Write	4122	0	1	0	0
Week Standard Hr 3 (Weekdays Standard Hours)	BOOL	Read-Write	4123	0	1	0	0
Week Standard Hr 4 (Weekdays Standard Hours)	BOOL	Read-Write	4124	0	1	0	0
Week Standard Hr 5 (Weekdays Standard Hours)	BOOL	Read-Write	4125	0	1	0	0
Week Standard Hr 6 (Weekdays Standard Hours)	BOOL	Read-Write	4126	0	1	0	0
Week Standard Hr 7 (Weekdays Standard Hours)	BOOL	Read-Write	4127	0	1	0	0
Week Standard Hr 8 (Weekdays Standard Hours)	BOOL	Read-Write	4128	0	1	0	0
Week Standard Hr 9 (Weekdays Standard Hours)	BOOL	Read-Write	4129	0	1	0	0
Week Standard Hr 10 (Weekdays Standard Hours)	BOOL	Read-Write	4130	0	1	0	0
Week Standard Hr 11 (Weekdays Standard Hours)	BOOL	Read-Write	4131	0	1	0	0
Week Standard Hr 12 (Weekdays Standard Hours)	BOOL	Read-Write	4132	0	1	0	0
Week Standard Hr 13 (Weekdays Standard Hours)	BOOL	Read-Write	4133	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Week Standard Hr 14 (Weekdays Standard Hours)	BOOL	Read-Write	4134	0	1	0	0
Week Standard Hr 15 (Weekdays Standard Hours)	BOOL	Read-Write	4135	0	1	0	0
Week Standard Hr 16 (Weekdays Standard Hours)	BOOL	Read-Write	4136	0	1	0	0
Week Standard Hr 17 (Weekdays Standard Hours)	BOOL	Read-Write	4137	0	1	0	0
Week Standard Hr 18 (Weekdays Standard Hours)	BOOL	Read-Write	4138	0	1	0	0
Week Standard Hr 19 (Weekdays Standard Hours)	BOOL	Read-Write	4139	0	1	0	0
Week Standard Hr 20 (Weekdays Standard Hours)	BOOL	Read-Write	4140	0	1	0	0
Week Standard Hr 21 (Weekdays Standard Hours)	BOOL	Read-Write	4141	0	1	0	0
Week Standard Hr 22 (Weekdays Standard Hours)	BOOL	Read-Write	4142	0	1	0	0
Week Standard Hr 23 (Weekdays Standard Hours)	BOOL	Read-Write	4143	0	1	0	0
Defrost En 1 (Defrost 1 Enabled)	BOOL	Read-Write	4144	0	1	0	1
Defrost En 2 (Defrost 2 Enabled)	BOOL	Read-Write	4145	0	1	0	1
Defrost En 3 (Defrost 3 Enabled)	BOOL	Read-Write	4146	0	1	0	1
Defrost En 4 (Defrost 4Enabled)	BOOL	Read-Write	4147	0	1	0	1
Defrost En 5 (Defrost 5 Enabled)	BOOL	Read-Write	4148	0	1	0	0
Defrost En 6 (Defrost 6 Enabled)	BOOL	Read-Write	4149	0	1	0	0
Scheduling En 1 (Scheduling 1 Enabled)	BOOL	Read-Write	4150	0	1	0	0
Scheduling En 2 (Scheduling 2 Enabled)	BOOL	Read-Write	4151	0	1	0	0
Scheduling En 3 (Scheduling 3 Enabled)	BOOL	Read-Write	4152	0	1	0	0
Scheduling En 4 (Scheduling 4 Enabled)	BOOL	Read-Write	4153	0	1	0	0
Scheduling En 5 (Scheduling 5 Enabled)	BOOL	Read-Write	4154	0	1	0	0
Scheduling En 6 (Scheduling 6 Enabled)	BOOL	Read-Write	4155	0	1	0	0
Scheduling On 1 (Scheduling 1 is Active)	BOOL	Read-Only	4156	0	1	0	-
Scheduling On 2 (Scheduling 2 is Active)	BOOL	Read-Only	4157	0	1	0	-
Scheduling On 3 (Scheduling 3 is Active)	BOOL	Read-Only	4158	0	1	0	-
Scheduling On 4 (Scheduling 4 is Active)	BOOL	Read-Only	4159	0	1	0	-
Scheduling On 5 (Scheduling 5 is Active)	BOOL	Read-Only	4160	0	1	0	-
Scheduling On 6 (Scheduling 6 is Active)	BOOL	Read-Only	4161	0	1	0	-
SchedulingOn (Any one of the 6 Scheduling Times is Active)	BOOL	Read-Only	4162	0	1	0	-
Cyc En 1 (Demand Control – Switch Off when Enabled and Rotation Nr = 1)	BOOL	Read-Write	4163	0	1	0	0
Cyc En 2 (Demand Control – Switch Off when Enabled and Rotation Nr = 2)	BOOL	Read-Write	4164	0	1	0	0
Cyc En 3 (Demand Control – Switch Off when Enabled and Rotation Nr = 3)	BOOL	Read-Write	4165	0	1	0	0
Cyc En 4 (Demand Control – Switch Off when Enabled and Rotation Nr = 4)	BOOL	Read-Write	4166	0	1	0	0
Cyc En 5 (Demand Control – Switch Off when Enabled and Rotation Nr = 5)	BOOL	Read-Write	4167	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Cyc En 6 (Demand Control – Switch Off when Enabled and Rotation Nr = 6)	BOOL	Read-Write	4168	0	1	0	0
System On Off (Switch the System On Or Off)	BOOL	Read-Write	4169	0	1	0	0
Auto Remote (Controller is Auto Remote and controlled by PC)	BOOL	Read-Only	4170	0	1	0	0
Reset (Reset all Fault Conditions)	BOOL	Read-Write	4171	0	1	0	0
Low Temp (Low Temperature Fault Condition)	BOOL	Read-Only	4172	0	1	0	0
Low Temp Ext (External Low Temperature Controller Fault)	BOOL	Read-Only	4173	0	1	0	0
Low Temp Soft (Low Temperature Fault Condition – Lower than Setpoint)	BOOL	Read-Only	4174	0	1	0	0
High Temp Soft (High Temperature Fault Condition – Higher than Setpoint)	BOOL	Read-Only	4175	0	1	0	0
Cooler Trip Ext (One or more of the Cooler Fans have an Overload Condition)	BOOL	Read-Only	4176	0	1	0	0
Auto Ext (Auto/Off/Cooling/Defrost Selector on Auto)	BOOL	Read-Only	4177	0	1	0	0
Cooling Ext (Auto/Off/Cooling/Defrost Selector on Cooling)	BOOL	Read-Only	4178	0	1	0	0
Defrost Ext (Auto/Off/Cooling/Defrost Selector on Defrost)	BOOL	Read-Only	4179	0	1	0	0
Pressure Fan Av Ext (Pressure is Available)	BOOL	Read-Only	4180	0	1	0	0
Pressure Trip Ext (One or more of the Pressure Fans have an Overload Condition)	BOOL	Read-Only	4181	0	1	0	0
T Above (All Product Probes Above Tunnel High Setpoint)	BOOL	Read-Only	4182	0	1	0	0
T In Range (All Product Probes is below Tunnel High Setpoint and above Tunnel Low Setpoint)	BOOL	Read-Only	4183	0	1	0	0
T Below (Any one of the Product Probes is below Tunnel Low Setpoint)	BOOL	Read-Only	4184	0	1	0	0
Pressure Fan On Off (Switch the Pressure Fans On or Off)	BOOL	Read-Write	4185	0	1	0	0
VFD Cooler HSpeed (Half-Speed is obtained from **T_Below** and **T_Inrange**, which takes the Cooler Fans VFD to minimum speed)	BOOL	Read-Only	4186	0	1	0	0
VFD Pressure HSpeed (Half-Speed is obtained from **T_Below** and **T_Inrange**, which takes the Pressure Fans VFD to minimum speed)	BOOL	Read-Only	4187	0	1	0	0
Next Stage (Moving to Next Stage as describe under **Status** and clear the bit)	BOOL	Read-Write	4188	0	1	0	0
Gen Run (Mains Supply is off and the Generator is running)	BOOL	Read-Write	4189	0	1	0	0
High Priority (When on Generator Supply and High Priority is not Selected the Cold Room will be Paused)	BOOL	Read-Write	4190	0	1	0	0
Standard On (Standard Time of use is active)	BOOL	Read-Only	4191	0	1	0	0
Standard En (Standard Time is Enabled and can be used for Demand Control)	BOOL	Read-Write	4192	0	1	0	0
Peak On (Peak Time of use is active)	BOOL	Read-Only	4193	0	1	0	0
Peak En (Peak Time is Enabled and can be used for Demand Control)	BOOL	Read-Write	4194	0	1	0	0
Air On Temp En (Air On Temperature Sensor is available)	BOOL	Read-Write	4195	0	1	0	1
Defrost Temp En (Defrost Temperature Sensor is available)	BOOL	Read-Write	4196	0	1	0	1
PP 1 Temp En (Product Probe 1 Temperature Sensor is available)	BOOL	Read-Write	4197	0	1	0	0
PP 2 Temp En (Product Probe 2 Temperature Sensor is available)	BOOL	Read-Write	4198	0	1	0	0
Pressure Fan En (Pressure Fans is used in the System)	BOOL	Read-Write	4199	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Pod En (POD is used in the System)	BOOL	Read-Write	4200	0	1	0	0
Time Defrost En (Defrosting of the cooler is based on time)	BOOL	Read-Write	4201	0	1	0	0
Auto Defrost En (Defrosting of the cooler is based on the temperature of the cooler measured from Defrost Sensor)	BOOL	Read-Write	4202	0	1	0	0
Heating En (Heaters will be used in the case for De-greening Rooms)	BOOL	Read-Write	4203	0	1	0	0
Heater Trip (One or more Heaters has trip)	BOOL	Read-Write	4204	0	1	0	0
Energy Disabled (All Demand Control Settings will be ignored)	BOOL	Read-Write	4205	0	1	0	0
Min FanSpeed On Std (When Active the fans will go to minimum fan speed during Standard Time instead of putting the Cold Room into Pause mode)	BOOL	Read-Write	4206	0	1	0	0
Min FanSpeed On Peak (When Active the fans will go to minimum fan speed during Peak Time instead of putting the Cold Room into Pause mode)	BOOL	Read-Write	4207	0	1	0	0
Switch Off Standard (Switch Cold Room Off during Standard Time)	BOOL	Read-Write	4208	0	1	0	1
Switch Off Peak (Switch Cold Room Off during Peak Time)	BOOL	Read-Write	4209	0	1	0	1
Force OP 1 (Force Output 1 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4210	0	1	0	0
Force OP 2 (Force Output 2 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4211	0	1	0	0
Force OP 3 (Force Output 3 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4212	0	1	0	0
Force OP 4 (Force Output 4 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4213	0	1	0	0
Force OP 5 (Force Output 5 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4214	0	1	0	0
Force OP 6 (Force Output 6 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4215	0	1	0	0
Force OP 7 (Force Output 7 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4216	0	1	0	0
Force OP 8 (Force Output 8 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4217	0	1	0	0
Force OP 9 (Force Output 9 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4218	0	1	0	0
Force OP 10 (Force Output 10 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4219	0	1	0	0
Force OP 11 (Force Output 11 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4220	0	1	0	0
Force OP 12 (Force Output 12 in the On State – Only when F2 Function is pressed on the Controller and in the Diagnostic Mode is)	BOOL	Read-Write	4221	0	1	0	0
Suction Sol Y (The Status of Suction Solenoid)	BOOL	Read-Only	4222	0	1	0	0
Valve Y (Only for internal use)	BOOL	Read-Only	4223	0	1	0	0
System On Y (The Status of System On Relay)	BOOL	Read-Only	4224	0	1	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Liquid Sol Y (The Status of Liquid Solenoid)	BOOL	Read-Only	4225	0	1	0	0
Hotgas Sol Y (The Status of Hot Gas Solenoid)	BOOL	Read-Only	4226	0	1	0	0
Bleed Sol Y (The Status of Bleed Solenoid)	BOOL	Read-Only	4227	0	1	0	0
Cooler Fan Y (The Status of Cooler Fans Relay)	BOOL	Read-Only	4228	0	1	0	0
Pressure Fan Y (The Status of Pressure Fans Relay)	BOOL	Read-Only	4229	0	1	0	0
Heating Y 1 (The Status of Heater Bank 1 Relay)	BOOL	Read-Only	4230	0	1	0	0
Heating Y 2 (The Status of Heater Bank 2 Relay)	BOOL	Read-Only	4231	0	1	0	0
Heating Y 3 (The Status of Heater Bank 2 Relay)	BOOL	Read-Only	4232	0	1	0	0
PWM Sol Y (Only for Internal Use)	BOOL	Read-Only	4233	0	1	0	0
Pod Y (The Status of the Pod Relay)	BOOL	Read-Only	4234	0	1	0	0
Pod Trip (Pod Fault Condition)	BOOL	Read-Only	4235	0	1	0	0
Comms Remote (For Internal Use Only)	BOOL	Read-Only	4236	0	1	0	0
Fire Alarm (Status of the Fire Alarm Input)	BOOL	Read-Only	4237	0	1	0	0
Simulate Inputs (When active the Temperatures and Inputs Can be simulated on the Controller)	BOOL	Read-Write	4238	0	1	0	0
Simulate HB (Simulate a Heartbeat signal to controller)	BOOL	Read-Write	4239	0	1	0	0
Soft Defrost Enabled (Enables or Disables the Soft Defrost Stage)	BOOL	Read-Write	4240	0	1	0	0
Soft Defrost Y (Status of the Soft Defrost Solenoids)	BOOL	Read-Write	4241	0	1	0	0
Fire Alarm Disabled (When Active or Fire Alarms are ignored)	BOOL	Read-Write	4242	0	1	0	0
Ratio SQR (Pulse Width Modulated Signal or Square Wave between the Current mA Value setting of the Valve and The Minimum mA Value)	BOOL	Read-Write	4243	0	1	0	0
Ratio SQR On SP (When the Temperature is higher than this Setpoint the Signal change from Square Wave to Square Wave Ratio)	BOOL	Read-Write	4244	0	1	0	0
Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
SQR Wave Enabled (The mA Signal change from a Continuous Signal to a Pulse Width Modulated Square Wave See Figures below)	BOOL	Read-Write	4245	0	1	0	0
Band Width Enabled (Pulse Width Modulated Signal or Square Wave between the Current mA Value setting of the Valve and Current-Bandwidth mA Value)	BOOL	Read-Write	4246	0	1	0	0
Cooler Fans Run (Running Signal of Cooler Fans)	BOOL	Read-Write	4247	0	1	0	0
Pressure Fans Run (Running Signal of Pressure Fans)	BOOL	Read-Write	4248	0	1	0	0
Status 0 Off 1 Startup Delay 2 Bleed 3 Cooling Low 4 Cooling High	INT	Read-Write	5100	0	15	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
5 Defrost 6 Drain 7 Fan Delay 8 Pre-Cooling 9 Fault 10 Pause 11 Delay After Pause 12 Cooling (Manual) 13 Defrost (Manual) 14 Critical Error 15 Soft Defrost							
SP (Setpoint °C)	INT	Read-Write	5101	-500	400	1	-5
SP Diff (Setpoint Differential °C)	INT	Read-Write	5102	0	200	1	1
Start Delay Sec (Start Delay in Seconds)	INT	Read-Write	5103	0	32767	0	10
Def Start Hr 1 (Defrost Start Hour 1)	INT	Read-Write	5104	0	23	0	0
Def Start Min 1 (Defrost Start Minute 1)	INT	Read-Write	5105	0	59	0	0
Def Start Hr 2 (Defrost Start Hour 2)	INT	Read-Write	5106	0	23	0	6
Def Start Min 2 (Defrost Start Minute 2)	INT	Read-Write	5107	0	59	0	0
Def Start Hr 3 (Defrost Start Hour 3)	INT	Read-Write	5108	0	23	0	12
Def Start Min 3 (Defrost Start Minute 3)	INT	Read-Write	5109	0	59	0	0
Def Start Hr 4 (Defrost Start Hour 4)	INT	Read-Write	5110	0	23	0	18
Def Start Min 4 (Defrost Start Minute 4)	INT	Read-Write	5111	0	59	0	0
Def Start Hr 5 (Defrost Start Hour 5)	INT	Read-Write	5112	0	23	0	0
Def Start Min 5 (Defrost Start Minute 5)	INT	Read-Write	5113	0	59	0	0
Def Start Hr 6 (Defrost Start Hour 6)	INT	Read-Write	5114	0	23	0	0
Def Start Min 6 (Defrost Start Minute 6)	INT	Read-Write	5115	0	59	0	0
Def Duration Sec (Defrost Duration in Seconds)	INT	Read-Write	5116	0	32767	0	2400
Drain Duration Sec (Drain Duration in Seconds)	INT	Read-Write	5117	0	32767	0	300
Bleed Duration Sec (Bleed Duration in Seconds)	INT	Read-Write	5118	0	32767	0	120
Cooler Fan Delay Sec (Fan Delay after Defrost in Seconds)	INT	Read-Write	5119	0	32767	0	300
Def Auto SP (Auto Defrost Setpoint °C)	INT	Read-Write	5120	-500	400	1	-60
Defrost Cycle Delay Sec (Minimum Delay between any two Auto Defrost Cycles in Seconds)	INT	Read-Write	5121	0	32767	0	21600
Low Temp SP (Low Temperature Setpoint °C)	INT	Read-Write	5122	-500	400	1	-20
Low Temp Diff (Low Temperature Differential °C)	INT	Read-Write	5123	-500	400	1	5
Low Temp Delay Sec (Delay in Seconds)	INT	Read-Write	5124	0	32767	0	60

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
High Temp SP (High Temperature Setpoint °C)	INT	Read-Write	5125	-500	400	1	250
High Temp Diff (High Temperature Differential °C)	INT	Read-Write	5126	-500	400	1	5
High Temp Delay (Delay in Seconds)	INT	Read-Write	5127	0	32767	0	300
Pressure Fan Start Fan SP (Pressure Fan Start Setpoint °C)	INT	Read-Write	5128	-500	400	1	50
Pressure Fan Cut Fan SP (Pressure Fan Stop Setpoint °C)	INT	Read-Write	5129	-500	400	1	-20
Pressure Fan Min On Delay (Minimum On Time in Seconds)	INT	Read-Write	5130	0	32767	0	60
Pressure Fan Min Off Delay (Minimum Off Time in Seconds)	INT	Read-Write	5131	0	32767	0	60
Pressure Fan Delay (Fixed Time Delay in Seconds to start Pressure Fans after Cooling Fans)	INT	Read-Write	5132	0	32767	0	900
NIU 1 (Not in use reserved for future use)	INT	Read-Write	5133	-	-	-	-
Pressure Fan Control Mode **0** Control on Setpoint (5128-5129) **1** Control on Time (5132)	INT	Read-Write	5134	0	1	0	0
Pod Open SP (Open POD Setpoint °C)	INT	Read-Write	5135	-500	400	1	20
Air Off T Offs (Air Off Temperature Offset °C)	INT	Read-Write	5136	0	1	0	0
Air On T Offs (Air On Temperature Offset °C)	INT	Read-Write	5137	-500	400	1	0
Defrost T Offs (Defrost Temperature Offset °)	INT	Read-Write	5138	-500	400	1	0
PP 1 T Offs (Product Probe 1 Temperature Offset °C)	INT	Read-Write	5139	-500	400	1	0
PP 2 T Offs (Product Probe 2 Temperature Offset °C)	INT	Read-Write	5140	-500	400	1	0
LoadShedding Start Hr 1 (Scheduled Time 1 to switch off Cold Room – Begin Hour)	INT	Read-Write	5141	0	23	0	0
LoadShedding Start Min 1 (Scheduled Time 1 to switch off Cold Room – Begin Minute)	INT	Read-Write	5142	0	59	0	0
LoadShedding Stop Hr 1(Scheduled Time 1 to switch on Cold Room – End Hour)	INT	Read-Write	5143	0	23	0	0
LoadShedding Stop Min 1(Scheduled Time 1 to switch on Cold Room – End Minute)	INT	Read-Write	5144	0	59	0	0
LoadShedding Start Hr 2 (Scheduled Time 2 to switch off Cold Room – Begin Hour)	INT	Read-Write	5145	0	23	0	0
LoadShedding Start Min 2 (Scheduled Time 2 to switch off Cold Room – Begin Minute)	INT	Read-Write	5146	0	59	0	0
LoadShedding Stop Hr 2 (Scheduled Time 2 to switch on Cold Room – End Hour)	INT	Read-Write	5147	0	23	0	0
LoadShedding Stop Min 2 (Scheduled Time 2 to switch on Cold Room – End Minute)	INT	Read-Write	5148	0	59	0	0
LoadShedding Start Hr 3 (Scheduled Time 3 to switch off Cold Room – Begin Hour)	INT	Read-Write	5149	0	23	0	0
LoadShedding Start Min 3 (Scheduled Time 3 to switch off Cold Room – Begin Minute)	INT	Read-Write	5150	0	59	0	0
LoadShedding Stop Hr 3 (Scheduled Time 3 to switch on Cold Room – End Hour)	INT	Read-Write	5151	0	23	0	0
LoadShedding Stop Min 3 (Scheduled Time 3 to switch on Cold Room – End Minute)	INT	Read-Write	5152	0	59	0	0
LoadShedding Start Hr 4 (Scheduled Time 4 to switch off Cold Room – Begin Hour)	INT	Read-Write	5153	0	23	0	0
LoadShedding Start Min 4 (Scheduled Time 4 to switch off Cold Room – Begin Minute)	INT	Read-Write	5154	0	59	0	0
LoadShedding Stop Hr 4 (Scheduled Time 4 to switch on Cold Room – End Hour)	INT	Read-Write	5155	0	23	0	0

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
LoadShedding Stop Min 4 (Scheduled Time 4 to switch on Cold Room – End Minute)	INT	Read-Write	5156	0	59	0	0
LoadShedding Start Hr 5 (Scheduled Time 5 to switch off Cold Room – Begin Hour)	INT	Read-Write	5157	0	23	0	0
LoadShedding Start Min 5 (Scheduled Time 5 to switch off Cold Room – Begin Minute)	INT	Read-Write	5158	0	59	0	0
LoadShedding Stop Hr 5 (Scheduled Time 5 to switch on Cold Room – End Hour)	INT	Read-Write	5159	0	23	0	0
LoadShedding Stop Min 5 (Scheduled Time 5 to switch on Cold Room – End Minute)	INT	Read-Write	5160	0	59	0	0
LoadShedding Start Hr 6 (Scheduled Time 6 to switch off Cold Room – Begin Hour)	INT	Read-Write	5161	0	23	0	0
LoadShedding Start Min 6 (Scheduled Time 6 to switch off Cold Room – Begin Minute)	INT	Read-Write	5162	0	59	0	0
LoadShedding Stop Hr 6 (Scheduled Time 6 to switch on Cold Room – End Hour)	INT	Read-Write	5163	0	23	0	0
LoadShedding Stop Min 6 (Scheduled Time 6 to switch on Cold Room – End Minute)	INT	Read-Write	5164	0	59	0	0
mA SP Offs (Offset in °C for 4 – 20mA input when used as setpoint for the controller)	INT	Read-Write	5165	400	2000	2	0
mA SP T Max (Maximum Temperature in °C for 4 – 20mA input when used as setpoint for the controller – corresponds to 20mA)	INT	Read-Write	5166	-500	400	1	400
mA SP T Min (Minimum Temperature in °C for 4 – 20mA input when used as setpoint for the controller – corresponds to 4mA)	INT	Read-Write	5167	-500	400	1	-100
mA SP mA (The actual mA input on the controller displayed in mA)	INT	Read-Write	5168	400	2000	2	0
mA SP Cal (Calibration for the mA input in mA)	INT	Read-Write	5169	400	2000	2	0
mA SP Raw (Raw Value of 4-20mA input)	INT	Read-Only	5170	0	32000	0	-
Air Off T Y (Air Off Temperature + Offset °C)	INT	Read-Only	5171	-500	400	1	-
Air On T Y (Air On Temperature + Offset °C)	INT	Read-Only	5172	-500	400	1	-
Defrost T Y (Defrost Temperature + Offset °C)	INT	Read-Only	5173	-500	400	1	-
PP 1 T Y (Product Probe 1 Temperature + Offset °C)	INT	Read-Only	5174	-500	400	1	-
PP 2 T Y (Product Probe 2 Temperature + Offset °C)	INT	Read-Only	5175	-500	400	1	-
TD Y (Temperature Difference between Air Off and Air On °C)	INT	Read-Only	5176	-500	400	1	-
Air Off T X (Air Off Temperature °C)	INT	Read-Only	5177	-500	400	1	-
Air On T X (Air On Temperature °C)	INT	Read-Only	5178	-500	400	1	-
Defrost T X (Defrost Temperature °C)	INT	Read-Only	5179	-500	400	1	-
PP 1 T X (Product Probe 1 Temperature °C)	INT	Read-Only	5180	-500	400	1	-
PP 2 T X (Product Probe 2 Temperature °C)	INT	Read-Only	5181	-500	400	1	-
Valve Raw (Raw Value for ICAD 4-20mA)	INT	Read-Only	5182	0	32000	0	1
Valve Max Perc (Maximum Valve Opening degree %)	INT	Read-Write	5183	0	1000	1	1000
Valve Min Perc (Minimum Valve Opening degree %)	INT	Read-Write	5184	0	1000	1	0
Valve Perc (Valve Opening in %)	INT	Read-Only	5185	0	1000	1	-
Valve mA (Valve Opening in mA)	INT	Read-Only	5186	400	2000	2	-
Valve mA Cal (Calibration of output in mA)	INT	Read-Write	5187	400	2000	2	0
Valve mA Span Max (Maximum Span in mA e.g 16mA)	INT	Read-Write	5188	400	2000	0	2000

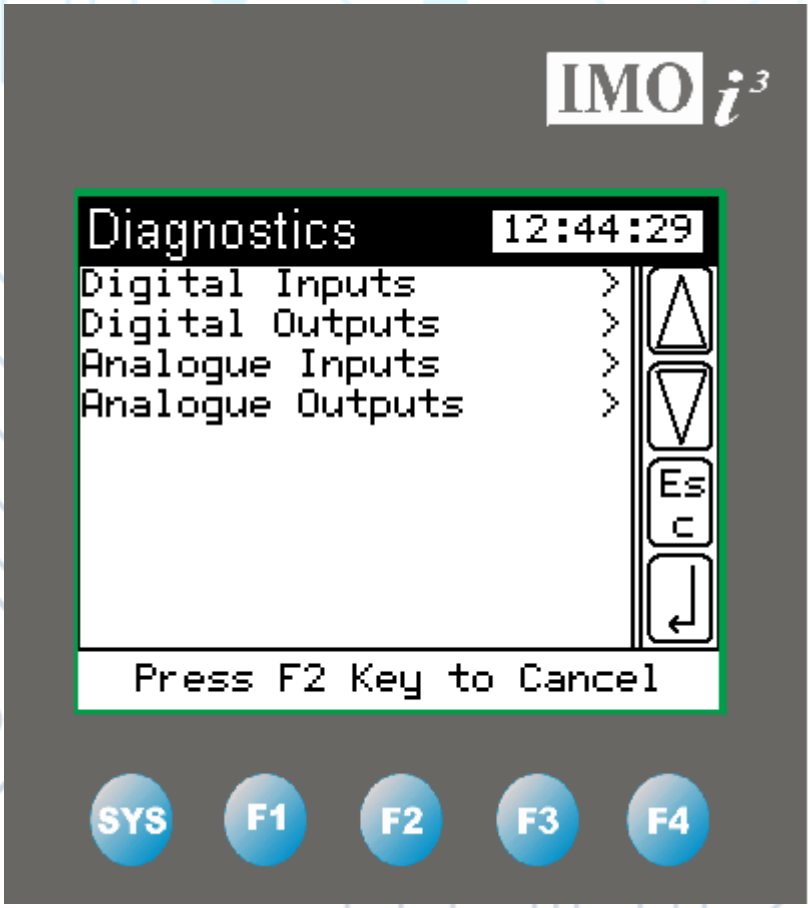
Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Valve mA Span Min (Minimum Span in mA e.g 8mA)	INT	Read-Write	5189	400	2000	0	400
Valve Raw Span Max (Fixed at 32000)	INT	Read-Only	5190	32000	32000	0	32000
Valve Raw Span Min (Fixed at 0)	INT	Read-Only	5191	0	0	0	0
VFD Cooler Fans Raw (Raw Value of 4-20mA Output for Cooler Fans VFD)	INT	Read-Only	5192	0	32000	0	-
VFD Cooler Fans Max Perc (Maximum Frequency of Cooler Fans VFD in %)	INT	Read-Write	5193	0	1000	1	1000
VFD Cooler Fans Min Perc (Minimum Frequency of Cooler Fans VFD in %)	INT	Read-Write	5194	0	1000	1	1000
VFD Cooler Fans Perc (Minimum Frequency of Cooler Fans VFD in %)	INT	Read-Only	5195	0	1000	1	600
VFD Cooler Fans mA (Current Frequency of the Cooler Fan VFD in mA)	INT	Read-Only	5196	400	2000	2	-
VFD Cooler Fans mA Cal (Calibration of mA Signal in mA)	INT	Read-Write	5197	400	2000	2	0
VFD Pressure Fan Raw (Raw Value of 4-20mA Output for Pressure Fans VFD)	INT	Read-Only	5198	0	32000	0	-
VFD Pressure Fan Max Perc (Maximum Frequency of Pressure Fans VFD in %)	INT	Read-Write	5199	0	1000	1	1000
VFD Pressure Fan Min Perc (Minimum Frequency of Pressure Fans VFD in %)	INT	Read-Write	5200	0	1000	1	600
VFD Pressure Fan Perc (Current Frequency of the Pressure Fan VFD in %)	INT	Read-Only	5201	0	1000	0	-
VFD Pressure Fan mA (Current Frequency of the Pressure Fan VFD in mA)	INT	Read-Only	5202	400	2000	2	1
VFD Pressure Fan mA Cal (Calibration of mA Signal in mA)	INT	Read-Write	5203	400	2000	2	0
mA Temp Eng Max (Maximum Temperature to be display by 20 mA signal in °C)	INT	Read-Write	5204	-500	400	1	400
mA Temp Eng Min (Minimum Temperature to be display by 4 mA signal in °C)	INT	Read-Write	5205	-500	400	1	-100
mA Temp Raw Out (Raw Value of 4-20mA Signal for Temperature Out)	INT	Read-Only	5206	0	32000	0	-
mA Temp Raw In (Raw Value of 4-20mA Signal for Temperature In (Setpoint))	INT	Read-Only	5207	0	32000	0	-
mA Temp mA Out (Value of temperature in mA)	INT	Read-Only	5208	0	2000	2	-
mA Temp Cal (Calibration of Temperature in mA)	INT	Read-Write	5209	0	2000	2	-
Kp Mod (P Value for PID Control)	UINT	Read-Write	5210	0	65535	1	10
Ki Mod (I Value for PID Control)	UINT	Read-Write	5211	0	65535	1	70
Kd Mod (D Value for PID Control)	UINT	Read-Write	5212	0	65535	0	80
Samp Time ms Mod (Execute PID Algorithm in milliseconds)	INT	Read-Write	5213	0	65535	0	200
Int Time Sec Mod (Integration Time in Seconds)	INT	Read-Write	5214	0	32767	0	10
LT Max Occ (Maximum Low Temperature Events Allowed before Critical Error)	INT	Read-Write	5215	0	32767	0	5
LT Occ Cnt (Low Temperature Events Counted)	INT	Read-Only	5216	0	32767	0	-
LT Occ Time (Time allowed for the maximum low-temperature events to occur in Seconds)	INT	Read-Write	5217	0	32767	0	3600
NIU (Reserved for Future Use)	INT	-	5218	-	-	-	-
NIU (Reserved for Future Use)	INT	-	5219	-	-	-	-
PWM Interval ms (Pulse Width Modulation's Interval in milliseconds)	INT	Read-Write	5220	0	65535	0	10000
PWM Duty Cycle ms (Pulse Width Modulation's Duty Cycle in milliseconds)	INT	Read-Only	5221	0	65535	-	-
Heating Delay (Time delay between the activation of heater elements in Seconds)	INT	Read-Write	5222	0	32767	0	20

Name	Data Type	Access	Modbus Register	Minimum	Maximum	Dec	Fac
Pressure Fan Diff (Differential on Setpoint for Pressure Fans in °C)	INT	Read-Write	5223	0	200	1	5
NIU (Reserved for Future Use)	INT	-	5224	-	-	-	-
NIU (Reserved for Future Use)	INT	-	5225	-	-	-	-
KVA Level SP (In Case of Demand Control the Cooler will pause if Current KVA Level is Higher)	INT	Read-Write	5226	0	5	0	0
Current KVA Level (Value from Demand Controller – Panel PC or PLC)	INT	Read-Write	5227	0	5	0	0
Current Cycle (Rotate the numbers 1 to 6 to deactivate only certain cooler)	INT	Read-Write	5228	1	6	0	0
Shutdown Delay Sec (During demand control and after a pause period, there is a delay before the rooms switch on again – Delay in Seconds)	INT	Read-Write	5229	0	32767	0	30
Halfspeed HSP (When the temperature is higher than the HSP (High Setpoint), the VFD runs at full speed as determined by the VFD Max Percentage)	INT	Read-Write	5230	-500	400	1	10
Halfspeed LSP (When the temperature is lower than the LSP (Low Setpoint), the VFD runs at half-speed as determined by the VFD Min Percentage)	INT	Read-Write	5231	-500	400	1	-10
Comms Timeout (All outputs will be switched off if communication to the remote control station is lost - milliseconds)	INT	Read-Only	5232	0	32767	0	2000
Upper Band (If the temperature is higher than SP + Upper Band, then the valve opening will be at the maximum valve opening percentage)	INT	Read-Write	5233	0	200	1	10
Lower Band (If the temperature is lower than SP - Lower Band, then the valve opening will be at the minimum valve opening percentage)	INT	Read-Write	5234	0	200	1	4
Soft Defrost Delay (Short time delay between cooling and defrost to equalize pressure in Seconds)	INT	Read-Write	5235	0	32767	0	10
Ratio SP (When the Square wave option is selected and the temperature is higher than Ratio SP, the maximum amplitude of the wave is equal to the valve percentage and not the maximum percentage in °C)	INT	Read-Write	5236	-500	400	1	50
Band Width (When Band Width is enabled, a square wave is generated by subtracting the width of the band from the Maximum Valve in mA)	INT	Read-Write	5237	400	1600	2	0

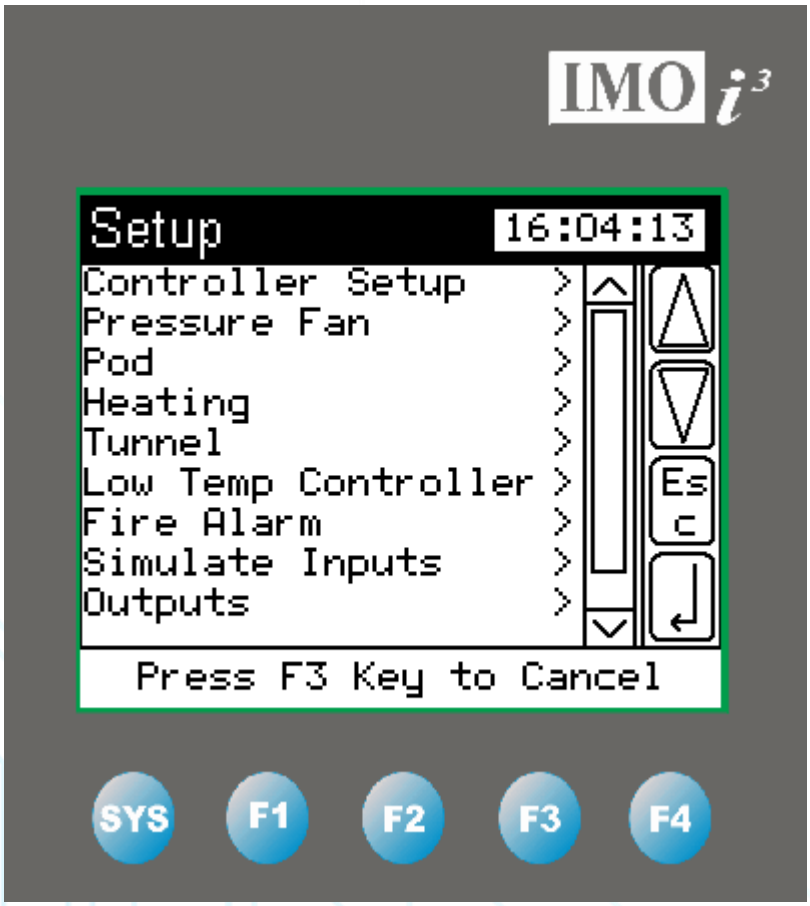
Function Keys

F1 – Emergency Stop

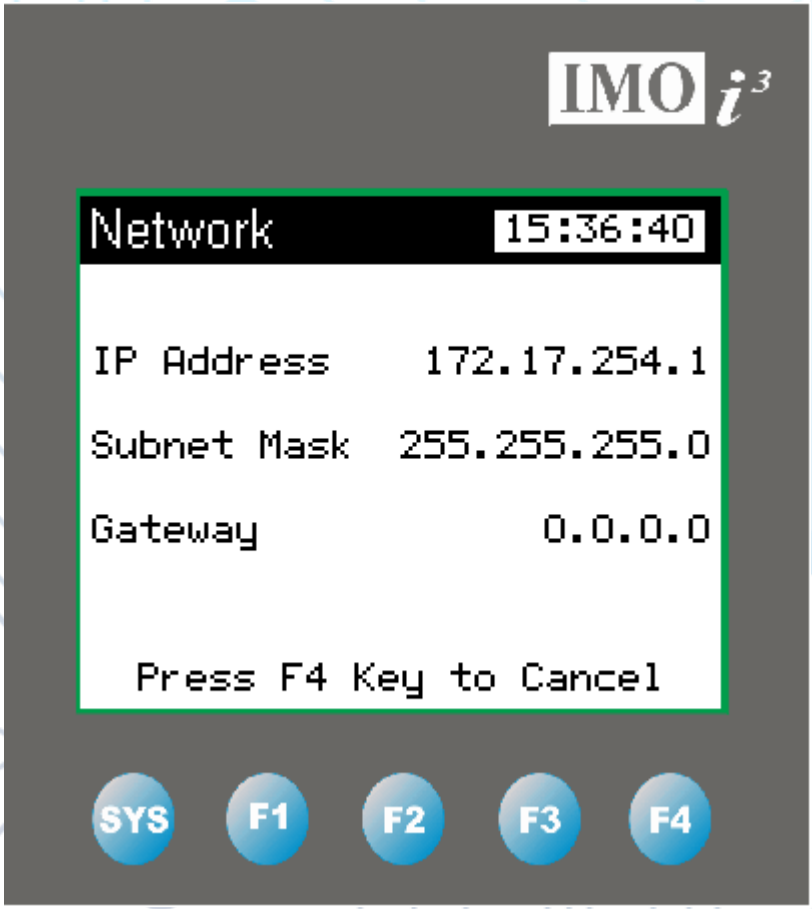
F2 – Diagnostics



F3 – Technician Setup Screen



F4 – Network Setup Screen



User Setup Screen