IntelliTrace

Ambient Sensing

ITASC1D2 Base Panel

ITASC1D2-EXT Extender Panel

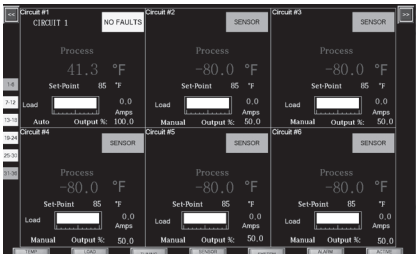
Line Sensing

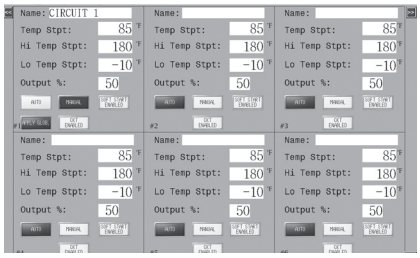
ITLSC1D2 Base Panel

ITLSC1D2-EXT Extender Panel

Heat Tracing Control Panel
Class I, Div. 2, 2-72 Circuits

- Class I, Division 2 Hazardous Environments - Groups A,B,C,D
- 7" or 10" Touch Screen HMI
- 40 Amps/Circuit @ 100 - 600 VAC
- SCR Control – PID, On/Off or Manual Control
- 2 to 72 Circuits
- NEMA 4 or NEMA 4X Enclosure
- User Selectable Soft Start Feature
- Customizable Sensor Mapping
- Full Communications
- Full Alarm & Monitoring Capabilities on GFEP, Temperature, Sensor, Current Load & Communications
- UL, cUL Listed
- Optional CE Certification





The 7" or 10" Touch Screen Computer provides real time display of process variable, set point, load current, load demand (%), operation mode type, alarm status and alarm type for any 2 or 6 circuits at a time as well as alarm status for all other circuits.

The Quick Launch buttons take you to any other 2 or 6 circuits real time display screen as well as the Setup, Fault, Log or Communication Screen. All set point, alarm, security, time, loop identification, sensor mapping, tuning, communications and control type mode settings are easily accomplished through the intuitive & familiar Windows based menu screens. All of these functions are achievable locally or remotely via wired or wireless communications.

Description

The IntelliTrace ITASC1D2 and ITLSC1D2 Series is a micro-processor based Control/Monitoring and Power Management system for Ambient Sensing, Line Sensing or a combination of Line and Ambient Sensing Heat Trace Applications and is suitable for use in Class I, Division 2 environments.

The base panels will handle 2 - 48 circuits and may be increased up to 72 circuits with the Extension Panels. A 2 or 4 circuit extension panel may be added to a 6-48 circuit panel but not vice versa. Each circuit has a 40 Amperage capacity and accepts 100 to 600 VAC service. The SCR Control may be set to Automatic, which includes PID or On/Off control or to Manual, which spans a 0% to 100% control output.

The HMI is a 10" (25 cm) or 7" (17 cm) user friendly touch screen computer. It displays the process variable, temperature setpoint, alarm status, current load, control mode, sensor failure manual override output for any 2 or 6 circuits at a time as well as the alarm status for all other circuits.

The standard enclosure is rated for NEMA 4 environments and an optional NEMA 4X 304 SS enclosure is available.

The ITASC1D2/ITLSC1D2 Control Panel Series provide alarms for high and low temperatures, current load, communications, sensor faults and ground fault leakage. There are several output/control behavior scenarios for the ground fault (GFEP) alarm condition. Choices include Trip and/or Latch options in which both, either or none may be enabled. Trip sets the output to zero %, while Latch requires a manual reset. Alarm events are automatically logged and stored for easy access.

Advanced standard features include a proprietary soft start function, off duty Auto Cycle maintenance program and either Modbus RTU/RS485 or Ethernet communications. Optional features include an industry leading Sensor Mapping** function, remote monitoring and wireless temperature sensing.

IntelliTrace

Ambient Sensing

ITASC1D2 Base Panel
ITASC1D2-EXT Extender Panel

Line Sensing

ITLSC1D2 Base Panel
ITLSC1D2-EXT Extender Panel

Heat Tracing Control Panel Class I, Div. 2, 2-72 Circuits

Advanced Features

Soft Start Feature
Certain heating cables exhibit inherent current inrush in colder temperatures. This inrush can cause nuisance breaker tripping. To limit inrush current on the overall system, a proprietary Soft Start algorithm is applied during system start-up. This will ONLY occur while the operation mode is set to AUTO. After the Soft Start program completes its cycle, the Control Mode of the system will either be PID or ON/OFF Control Mode, depending on what was selected by the user. The default setting of the Soft Start Feature for each circuit is "enabled". However, the Soft Start Feature may be disabled if so desired by the owner. The owner has the option to independently manage the Soft Start Feature on each circuit.

Auto Cycle Feature
During prolonged downtime periods, typically during the summer months, it is advisable to intermittently exercise the system circuits. This exercising of the circuits is accomplished via the Autocycle feature. On a sequential circuit basis, the Autocycle feature periodically monitors system performance between 1-999 hours. This provides a certain level of predictive maintenance of the system as Faults (Alarms) will present themselves accordingly. Problem areas may be addressed during non-essential operating periods. The owner has the option to engage or disengage the Autocycle feature at any time.

Sensor Mapping**
When factory enabled, the ITLS & ITLSC1D2 Models provide the owner with customizable I/O Mapping. This becomes a very powerful and desirable feature when the owner needs added flexibility in controlling the circuit outputs beyond the standard single sensor input.

Sensor Mapping is the assignment of one or more Sensor Inputs to one or more output circuits.

More on Sensor Mapping

Ambient or Line Sensing - Single Sensor:
A single sensor (RTD) may be mapped (or linked) to multiple Output Circuits. This allows several circuits to be controlled by a single sensor.

Minimum, Maximum, Averaging
Several sensors may be mapped to a single output circuit. This allows a single circuit to be controlled by the Minimum or the Maximum or the Average temperature of all of the sensors mapped to that output circuit. This may be desirable on long runs or zones which realize varying temperatures or weather conditions at different times of the day.

Multiple Sensor Mapping
A single sensor may be used independently or combined with other sensors to control more than one circuit.

Combining Sensing Types

The owner may need to have multiple Line and/or Ambient Sensing control scenarios occurring simultaneously.

Touch Screen Computer:

- 2 or 6 Circuits displayed/screen
- Quick launch to any 2 or 6 circuit group, Setup Menu or System Screens
- Full User Setting Capabilities - Specific Loop Naming/Identification, Baud rate, set points, units, alarms, etc.
- Remote Desktop Monitoring

Optional Features:

- NEMA 4X 304 SS Enclosure
- Fully Customizable Sensor Mapping**
- Enclosure Heater

***Available only on ITLSC1D2 & ITLSC1D2-EXT*

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Ambient Sensing

ITASC1D2 Base Panel
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Line Sensing

ITLSC1D2 Base Panel
ITLSC1D2-EXT Extender Panel

Heat Tracing Control Panel Class I, Div. 2, 2-72 Circuits

Technical Specifications

Panel Specifications

Supply Voltage: .....100 - 600 VAC, 3 phase

Operating Environment: .....-40 to +104°F (-40 to +40°C)

Enclosure: .....NEMA 4 or Optional NEMA 4X 304 SS

Enclosure Size: .....See Model Description Tables

Communications: .....Modbus RTU/RS-485, Ethernet

Alarms: .....Hi/Lo Temp, GFEP – 20mA to 150 mA, Hi/Lo Current – 0.1 to 50A or off

Input: .....100Ω Platinum 3-wire RTD

Output: .....SCR, Zero cross fired

Current Maximum: .....40 Amps/Circuit at 104°F (40°C)

Auto-Cycle: .....1-999 hours/off

Failed Sensor Output Setting: .....0 – 100%

Control Mode: .....Auto, Manual (Hand), Off
Auto: PID or ON/OFF with adjustable dead band
Manual: 0% - 100% output, 1% increment

Load Management: .....DOT (Demand On Transfer) timing, with Soft Start

Approvals: .....UL, cUL Listed. Optional CE Certification

Area Classifications: .....HAZ Class 1 Div 2

Temperature Rating.....T4A (uL) (Derate to T3 & Groups B,C,D when using enclosure heater)

IntelliTrace

Ambient Sensing

ITASC1D2, ITLSC1D2 Base Panels

Heat Tracing Control Panel Class I, Div. 2, 2-72 Circuits

Technical Notes:

1. Refer to PK497 for Installation and Operation details
2. Our standard SCCR is 5 kA. Consult sales if a different SCCR is needed.
3. For CID2 Panels 120-264V customer suppl. instrument power supply
4. See ITLS/ITAS-EXT to increase circuits up to 8 circuits for 2-4 Circuit Panels & up to 72 Circuits for 6-48 Circuit Panels.
5. 6-48 Circuit Extension Panels can not be added to 2-4 Circuit Panels but 2-4 circuit extension paels can be added to 6-8 Circuit Panels (up to 72 circuits)

Model Product Description

ITASC1D2 or ITLSC1D2 ITLS/ITASC1D2 series Intelligent Line/Ambient Sensing Heat Trace Panel. Designed for Industrial applications and suitable for Class I, Division 2 Hazardous Areas. The ITLS/ITASC1D2 series offers the following standard features: NEMA 4 enclosure, Industrial 10" (7" for 2 and 4 Loop Models) Digital CE Computer Touchscreen Controller, PID SCR Power Controller Rated at 40A Per Circuit at 104°F (40°C) Ambient, Two to Forty-Eight Circuits (Expandable to Seventy-Two Circuits*), Common Alarm Output, Hand/Off/Auto Operation, Current Monitoring, 30 mA Ground Fault Equipment Protection, Modbus RTU/RS485 or TCP/Ethernet Communications, Remote Monitoring Capability, Selectable Soft Start Operation, UL & cUL Third Party Compliance. Options Include: NEMA 4XSS Enclosure, Thermostat Controlled Enclosure Heater and CE Certification

Code	Circuits		
02	2 Circuits	24	24 Circuits
04	4 Circuits	30	30 Circuits
06	6 Circuits	36	36 Circuits
12	12 Circuits	42	42 Circuits
18	18 Circuits	48	48 Circuits

Code	Line Voltage	Cable Voltage
1	208/120 VAC, 3 Phase 4 Wire	120 V- 1 Pole or 208 V - 2 Pole
2	240/120 VAC, Single Phase 3 Wire	120 V- 1 Pole or 240 V - 2 Pole
3	480/277 VAC, 3 Phase 4 Wire	277 V- 1 Pole or 480 V - 2 Pole

Code	Enclosure Heater (Anti-Condensation Heater Recommended at a Minimum)
0	No Enclosure Heater
1	Thermostat Controlled Enclosure Heater (Anti-Condensation Heater)
2	Thermostat Controlled Enclosure Heater (Needed for 0°F, -18°C Minimum Ambient Temperature)
3	Thermostat Controlled Enclosure Heater (Needed for -40°F /°C Minimum Ambient Temperature

Code	Panel Options	Code	
1	HMI Sunshield (Req'd. if Panel is to be Outdoors)	**8**	Loss of Power Relay
2	Panel Weathershield	**A**	Floor Stands for 10" Deep Panel
3	RTD Terminal Blocks	**B**	Floor Stands for 12" Deep Panel
5	Panel Light (on separate breaker)	**C**	Floor Stands for 16" Deep Panel
6	Powered Receptacle (on separate breaker)	**X**	Other (if multiple options needed, contact factory)
7	Copper Ground Bar		

Code	Number of 100 Ohm RTD Sensor Inputs (must be multiple of 6, up to 48 inputs, MAXIMUM 3 RTD's per heater circuit)	Code	
1	6 (Select if Ambient Sensing ITAS panel)	**6**	36
2	12	**7**	42
3	18	**8**	48
4	24	**9**	Other (contact factory for assistance)
5	30		

Code	Communications
1	Standard: Modbus RTU/RS485 or Modbus TCP/Ethernet
2	ModBus TCP/Wireless
3	BACnet
9	Other

Code	Temperature Sensing Options
1	Standard Wired Sensing
2	Wireless Sensing
3	Dry Contact Closure for Ambient Sensing Thermostat

Code	Enclosure (size determined by table 1)
1	NEMA 4 Single-Door Wall-Mount Steel Enclosure 24 X 20 X 10
2	NEMA 4 Single-Door Wall-Mount Steel Enclosure 30 X 30 X 10
3	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 12
4	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 16
5	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 12
6	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 16
A	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 24 X 20 X 10
B	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 30 X 30 X 10
C	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 42 X 36 X 12
D	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 42 X 36 X 16
E	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 60 X 36 X 12
F	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 60 X 36 X 16

ITASC1D2 -	**06**	**3**	**1**	**3**	**1**	**1**	**1**	**5**	**Typical Model Number**

*42 - 72 circuit service via ITASC1D2-EXT Extension Panel. See ITASC1D2-EXT heat Tracing Extension Panel - Ambient Sensing - Class 1, Division 2 Order Table.

IntelliTrace

Technical Notes:
1. Refer to PK497 for Installation and Operation details
2. Our standard SCCR is 5 kA. Consult sales if a different SCCR is needed.
3. For CID2 Panels 120-264V customer suppl. instrument power supply
4. See ITLS/ITAS-EXT to increase circuits up to 8 circuits for 2-4 Circuit Panels & up to 72 Circuits for 6-48 Circuit Panels.
5. 6-48 Circuit Extension Panels can not be added to 2-4 Circuit Panels but 2-4 circuit extension paels can be added to 6-8 Circuit Panels (up to 72 circuits)

Ambient Sensing

ITASC1D2-EXT & ITLSC1D2-EXT Extender Panels

Heat Tracing Control Panel Class I, Div. 2, 2-72 Circuits

Model Product Description

ITASC1D2-EXT or ITLSC1D2-EXT ITLS/ITASCID2-EXT series Intelligent Line/Ambient Sensing Heat Trace Extension Panel. Designed for Industrial applications and suitable for Class I, Division 2 Areas. Intended to be used with ITLS/ITASCID2 Heat Trace Line/Ambient Sensing Panel to increase circuit service. ITLS/ITASCID2-EXT series offers the following standard features: NEMA 4 enclosure, PID SCR Power Controller Rated at 40A Per Circuit at 104°F (40°C) Ambient, 2 to 48 Circuits, Common Alarm Output, Hand/Off/Auto Operation, Current Monitoring, 30 mA Ground Fault Equipment protection, Modbus RTU/RS485 or TCP/Ethernet Communications, UL & cUL Third Party Compliance. Options Include: NEMA 4XSS Enclosure, Copper Ground Bar (Standard is Aluminum), Remote Monitoring Capability, Thermostat Controlled Enclosure Heater, Heater Power and RTD Terminal Blocks, Wireless Ethernet Communications, CE Third Party Compliance.

Code	Circuits	Code	Circuits
02	2 Circuits	**24**	24 Circuits
04	4 Circuits	**30**	30 Circuits
06	6 Circuits	**36**	36 Circuits
12	12 Circuits	**42**	42 Circuits
18	18 Circuits	**48**	48 Circuits

Code	Line Voltage	Cable Voltage
1	208/120 VAC, 3 Phase 4 Wire	120 V- 1 Pole or 208 V - 2 Pole
2	240/120 VAC, Single Phase 3 Wire	120 V- 1 Pole or 240 V - 2 Pole
3	480/277 VAC, 3 Phase 4 Wire	277 V- 1 Pole or 480 V - 2 Pole

Code	Enclosure Heater (Anti-Condensation Heater Recommended at a Minimum)
0	No Enclosure Heater
1	Thermostat Controlled Enclosure Heater (Anti-Condensation Heater)
2	Thermostat Controlled Enclosure Heater (Needed for 0oF, -18oC Minimum Ambient Temperature)
3	Thermostat Controlled Enclosure Heater (Needed for -40oF / oC Minimum Ambient Temperature)

Code	Panel Options	Code	Panel Options
2	Panel Weathershield	8	Loss of Power Relay
3	RTD Terminal Blocks	A	Floor Stands for 10" Deep Panel
5	Panel Light (on separate breaker)	B	Floor Stands for 12" Deep Panel
6	Powered Receptacle (on separate breaker)	C	Floor Stands for 16" Deep Panel
7	Copper Ground Bar	X	Other (if multiple options needed, contact factory)

Code	Number of 100 Ohm RTD Sensor Inputs (must be multiple of 6, up to 48 inputs, MAX. 3 RTD's per heater circuit, 72 RTD's per system max.)	Code	Number of 100 Ohm RTD Sensor Inputs (must be multiple of 6, up to 48 inputs, MAX. 3 RTD's per heater circuit, 72 RTD's per system max.)
1	6 (for Ambient Sensing ITAS panel)	**6**	36
2	12	**7**	42
3	18	**8**	48
4	24	**9**	Other (contact factory for assistance)
5	30		

Code	Communications
1	Standard: Modbus RTU/RS485 or Modbus TCP/Ethernet
2	Modbus TCP/Wireless
3	BACnet
9	Other

Code	Temperature Sensing Solutions
1	Standard Wired Sensing
2	Wireless Sensing
3	Dry Contact Closure for Ambient Sensing Thermostat

Code	Enclosure (size determined by table 1)
1	NEMA 4 Single-Door Wall-Mount Steel Enclosure 24 X 20 X 10
2	NEMA 4 Single-Door Wall-Mount Steel Enclosure 30 X 30 X 10
3	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 12
4	NEMA 4 Single-Door Wall-Mount Steel Enclosure 42 X 36 X 16
5	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 12
6	NEMA 4 Single-Door Wall-Mount Steel Enclosure 60 X 36 X 16
A	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 24 X 20 X 10
B	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 30 X 30 X 10
C	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 42 X 36 X 12
D	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 42 X 36 X 16
E	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 60 X 36 X 12
F	NEMA 4X 304 Stainless Steel Wall-Mount Enclosure 60 X 36 X 16

ITASC1D2-EXT -	**06**	**3**	**1**	**3**	**1**	**1**	**1**	**5**	**Typical Model Number**

IntelliTrace

Line Sensing
ITLSC1D2 Base Panel
ITLSC1D2-EXT Extender Panel

Heat Tracing Control Panel
Class I, Div. 2, 2-72 Circuits

Technical Notes:

1. Refer to PK497 for Installation and Operation details
2. Our standard SCCR is 5 kA. Consult sales if a different SCCR is needed.
3. For CID2 Panels 120-264V customer supplied instrument power supply
4. See ITLS/ITAS-EXT to Increase Circuits up to 8 loops for for 2-4 Loop Panels and up to 72 Loops for 6-48 Loop Panels .
5. 6-48 Loop Extension Panels can not be added to 2-4 Loop Panels but 2-4 loop extension paels can be added to 6-8 Loop Panels (up to 72 loops)

Table 1: Enclosure Size Selection

Panel Size	Enclosure Size - H x W x D In (cm)	
	Nema 4	Nema 4X
2 Loop 1P	24x20x10	24x20x10
2 Loop 2P	24x20x10	24x20x10
4 Loop 1P	24x20x10	24x20x10
4 Loop 2P	30x30x10	30x30x10
6 Loop 1P	24x20x12	24x20x12
6 Loop 2P	30x30x10	30x30x10
12 Loop 1P	30x30x10	30x30x10
12 Loop 2P	42x36x12	42x36x12
18 Loop 1P	42x36x12	42x36x12
18 Loop 2P	60x36x12	60x36x12
24 Loop 1P	42x36x12	42x36x12
24 Loop 2P	60x36x16	60x36x16
30 Loop 1P	60x36x12	60x36x12
30 Loop 2P	60x36x16	60x36x16
36 Loop 1P	60x36x12	60x36x12
36 Loop 2P	60x36x16	60x36x16
42 Loop 1P	60x36x16	60x36x16
42 Loop 2P	Consult factory	Consult factory
48 Loop 1P	60x36x16	60x36x16
48 Loop 2P	Consult factory	Consult factory

Note: Table above is a general guideline for Enclosure Size Selection. Adding certain options could cause enclosure size to differ. If Panel dimensions are critical Consult Factory for exact selection.

Spare/Replacement Parts for ITLSC1D2 & ITLSC1D2-EXT

Part Number	Description
N/A	SSR/GFI Power Control Assy, with Heat Sink
0135-02273	Control Module Board Assembly
0135-02262	RTD Sensor Input Board Assembly
0135-02263	Digital Distribution Comm Board Assembly (-EXT panels only)
0002-60054	SSR, 40 Amp rated
0029-00640	SSR Thermstrate Material
0025-05312	Common Alarm Relay
0025-05309	Common Alarm Relay (CID2 Panels Only)
0081-10063	Power Supply 5VDC 6A 30W DIN Rail Mount
0081-10047	Power Supply 24VDC 2.5A 60W DIN Rail Mount
0108-70509	ITLS/ITAS-10" Display
0108-70507	ITLS/ITAS-7" Display
0023-15097-0001	6" (15 cm) Ribbon Cable with Connectors
0023-15097-0002	72" (180 cm) Ribbon Cable with Connectors

Accessories for ITLSC1D2 & ITLSC1D2-EXT

Part Number	Description
N/A	Power Transformers
317315	RTD, Aluminum, NEMA 4
317340	RTD, Expl. Resist., Cast Iron/Alum., NEMA 4
308144	RTD Ext Wire, 3-wire, 16 ga, Cu, shielded, 50 FT
308152	RTD Ext Wire, 3-wire, 16 ga, Cu, shielded, 200 FT