



Protocol Implementation Conformance Statement (PICS) **Tracer® UC400 Controller** BACnet® Protocol Implementation Conformance Statement (PICS)

Vendor Name:	Trane™
Product Name:	Tracer® UC400
Product Model Number	Tracer® UC400
Product Version:	Version 8.0
BACnet Protocol Revision:	Revision 14
Product Description:	The Tracer UC400 terminal unit controller is fully programmable to meet any control need or pre-loaded with standard applications. As a programmable controller, it is ideal for applications like VAV, fan coils, small air handlers, and many other applications. In addition, this controller can be used as a BACnet MS/TP communications interface for Trane IntelliPak™, ReliaTel™, and CH530 controls.

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



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Standardized Device Profile (Annex L)

BACnet Operator Workstation (B-OWS)	<input type="checkbox"/>
BACnet Building Controller (B-BC)	<input type="checkbox"/>
BACnet Advanced Application Controller (B-AAC)	<input type="checkbox"/>
BACnet Application Specific Controller (B-ASC)	<input checked="" type="checkbox"/>
BACnet Smart Sensor (B-SS)	<input type="checkbox"/>
BACnet Smart Actuator (B-SA)	<input type="checkbox"/>

Interoperability Building Blocks (Annex K)

Data Sharing	Supported
Data Sharing-ReadProperty-A (DS-RP-A)	<input checked="" type="checkbox"/>
Data Sharing-WriteProperty-A (DS-WP-A)	<input checked="" type="checkbox"/>
Data Sharing-ReadProperty-B (DS-RP-B)	<input checked="" type="checkbox"/>
Data Sharing-ReadPropertyMultiple-B (DS-RPM-B)	<input checked="" type="checkbox"/>
Data Sharing-WriteProperty-B (DS-WP-B)	<input checked="" type="checkbox"/>
Data Sharing-WritePropertyMultiple-B (DS-WPM-B)	<input checked="" type="checkbox"/>
Data Sharing-Change of Value-B (DS-COV-B)	<input checked="" type="checkbox"/>
Alarm and Event Management	Supported
Alarm and Event-Notification Internal-B (AE-N-I-B)	<input checked="" type="checkbox"/>
Alarm and Event-ACKI-B (AE-ACK-B)	<input checked="" type="checkbox"/>
Alarm and Event-Alarm Summary-B (AE-ASUM-B)	<input checked="" type="checkbox"/>
Alarm and Event-Information-B (AE-INFO-B)	<input checked="" type="checkbox"/>
Trending	Supported
Trending-viewing and Modifying Trends Internal-B (T-VMT-I-B)	<input checked="" type="checkbox"/>
Trending-Automated Trend Retrieval-B (T-ATR-B)	<input checked="" type="checkbox"/>
Device Management Description	Supported
Device Management-Dynamic Device Binding-A (DM-DDB-A)	<input checked="" type="checkbox"/>
Device Management-Dynamic Device Binding-B (DM-DDB-B)	<input checked="" type="checkbox"/>
Device Management-Dynamic Object Binding-B (DM-DOB-B)	<input checked="" type="checkbox"/>
Device Management-Device Communication Control-B (DM-DCC-B)	<input checked="" type="checkbox"/>
Device Management- Private Transfer-A (DM-PT-A)	<input checked="" type="checkbox"/>
Device Management- Private Transfer-B (DM-PT-B)	<input checked="" type="checkbox"/>
Device Management-TimeSynchronization-B (DM-TS-B)	<input checked="" type="checkbox"/>
Device Management-Reinitialize Device-B (DM-RD-B)	<input checked="" type="checkbox"/>
Device Management-Backup and Restore-B (DM-BR-B)	<input checked="" type="checkbox"/>
Device Management-List Manipulation-B (DM-LM-B)	<input checked="" type="checkbox"/>
Device Management-Object Creation and Deletion-B (DM-OCD-B)	<input checked="" type="checkbox"/>

Segmentation Capability

Segmentation	Supported
Segmented Requests/ Window Size: 1	<input checked="" type="checkbox"/>
Segmented Responses/ Window Size: 1	<input checked="" type="checkbox"/>

Object Types

The table below lists the properties that are supported for each object type in this control device. The BACnet standard specifies many properties as optional, unless the device supports a particular BACnet feature. If the feature is supported then the optional properties are required. In the table, the properties that are defined as optional but required to support a specific functionality, have been placed in the Required Properties column

Table 1. Descriptions and configurations

Object Type	Required Properties	Optional Properties	Writable Properties ^(a)	Ability to Create	Ability to Delete
Analog Input	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Units • COV_Increment • Time_Delay • Notificatin Class • High_Limit • Low_Limit • Deadband • Limit_Enable • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property List 	<ul style="list-style-type: none"> • Description • Reliability • Min_Pres_Value • Max_Pres_Value 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Min_Pres_Value • Max_Pres_Value • COV_Increment • Time_Delay • Notification_Class • High_Limit • Low_Limit • Deadband • Limit_Enable • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects
Analog Output	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Units • Priority_Array • Relinquish_Default • COV_Increment • Time_Delay • Notificatin Class • High_Limit • Low_Limit • Deadband • Limit_Enable • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property List 	<ul style="list-style-type: none"> • Description • Reliability • Min_Pres_Value • Max_Pres_Value 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Min_Pres_Value • Max_Pres_Value • Relinquish_Default • COV_Increment • Time_Delay • Notification_Class • High_Limit • Low_Limit • Deadband • Limit_Enable • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects

Table 1. Descriptions and configurations (continued)

Object Type	Required Properties	Optional Properties	Writable Properties ^(a)	Ability to Create	Ability to Delete
Analog Value	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Units • Priority_Array • Relinquish_Default • COV_Increment • Time_Delay • Notificatin Class • High_Limit • Low_Limit • Deadband • Limit_Enable • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property List 	<ul style="list-style-type: none"> • Description • Reliability • Min_Pres_Value • Max_Pres_Value 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Min_Pres_Value • Max_Pres_Value • Relinquish_Default • COV_Increment • Time_Delay • Notification_Class • High_Limit • Low_Limit • Deadband • Limit_Enable • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects
Binary Input	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Polarity • Active_Text • Inactive_Text • Change_Of_State_Time • Change_Of_State_Count • Time_of_State_Count_Reset • Elapsed_Active_Time • Time_of_Active_Time_Reset • Time_Delay • Notificatin Class • Alarm_Value • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property List 	<ul style="list-style-type: none"> • Description • Reliability 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Polarity • Inactive_Text • Active_Text • Change_of_State_Count • Elapsed_Active_Time • Time_Delay • Notification_Class • Alarm_Value • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects

Table 1. Descriptions and configurations (continued)

Object Type	Required Properties	Optional Properties	Writable Properties ^(a)	Ability to Create	Ability to Delete
Binary Output	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Polarity • Active_Text • Inactive_Text • Change_Of_State_Time • Change_Of_State_Count • Time_Of_State_Count_Reset • Elapsed_Active_Time • Time_of_Active_Time_Reset • Minimum_Off_Time • Minimum_On_Time • Priority_Array • Relinquish_Default • Time_Delay • Notificatin Class • Feedback_Value • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property List 	<ul style="list-style-type: none"> • Description • Reliability 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Polarity • Inactive_Text • Active_Text • Change_of_State_Count • Elapsed_Active_Time • Minimum_Off_Time • Minimum_On_Time • Relinquish_Default • Time_Delay • Notification_Class • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects
Binary Value	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Active_Text • Inactive_Text • Change_Of_State_Time • Change_Of_State_Count • Time_Of_State_Count_Reset • Elapsed_Active_Time • Time_of_Active_Time_Reset • Minimum_Off_Time • Minimum_On_Time • Priority_Array • Relinquish_Default • Time_Delay • Notificatin Class • Alarm_Value • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property List 	<ul style="list-style-type: none"> • Description • Reliability 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Inactive_Text • Active_Text • Change_of_State_Count • Elapsed_Active_Time • Minimum_Off_Time • Minimum_On_Time • Relinquish_Default • Time_Delay • Notification_Class • Alarm_Value • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects

Table 1. Descriptions and configurations (continued)

Object Type	Required Properties	Optional Properties	Writable Properties ^(a)	Ability to Create	Ability to Delete
Device	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • System_Status • Vendor_Name • Vendor_Identifier • Model_Name • Firmware_Revision • Application_Software_Version • Protocol_Version • Protocol_Revision • Protocol_Services_Supported • Protocol_Object_Types_Supported • Object_List • Max_APDU_Length_Accepted • Segmentation_Supported • Max_Segments_Accepted • Local_Time • Local_Date • UTC-Offset • Daylight_Savings_Status • APDU_Segment_Timeout • APDU_Timeout • Number_Of_APDU_Retries • Max_Master • Max_Info_Frames • Device_Address_Binding • Database_Revision • Configuration_Files • Last_Restore_Time • Backup_Failure_Timeout • Backup_Preparation_Time • Restore_Preparation_Time • Restore_Completion_Time • Backup_and_Restore_State • Active_COV_Subscriptions • Time_of_Device_Restart • Serial_Number • Property_List • Profile_Name 	<ul style="list-style-type: none"> • Location • Description 	<ul style="list-style-type: none"> • Object_Name • Location • Description • UTC_Offset • Backup_Failure_Timeout • APDU_Segment_timeout • APDU_Timeout • Number_Of_APDU_Retries 	No	No
Event Enrollment Object	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Event_Type • Notify_Type • Event_Parameters • Object_Property_Reference • Event_State • Event_Enable • Acked_Transitions • Notification_Class • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Status_Flags • Reliability • Property_List 	<ul style="list-style-type: none"> • Description 	<ul style="list-style-type: none"> • Object_Name • Description • Event_Parameters • Object_Property_Reference • Event_Enable • Notification_Class • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Reliability • Notify_Type 	Yes	Yes, only user created objects
File	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • File_Type • File_Size • Modification_Date • Archive • Read_Only • File_Access_Method • Property_List 	None	<ul style="list-style-type: none"> • File_Size (0 Only) • Archive 	No	No

Table 1. Descriptions and configurations (continued)

Object Type	Required Properties	Optional Properties	Writable Properties ^(a)	Ability to Create	Ability to Delete
Multistate Input	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Number_Of_States • Time_Delay • Notification_Class • Alarm_Values • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property_List 	<ul style="list-style-type: none"> • Description • Reliability • State_Text • Fault_Values 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Number_of_States • State_Text • Time_Delay • Notification_Class • Alarm_Values • Fault_Values • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects
Multistate Output	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Number_Of_States • Priority_Array • Relinquish_Default • Time_Delay • Notification_Class • Feedback_Value • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property_List 	<ul style="list-style-type: none"> • Description • Reliability • State_Text 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Number_of_States • Relinquish_Default • State_Text • Time_Delay • Notification_Class • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects
Multistate Value	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Present_Value • Status_Flags • Event_State • Out_Of_Service • Number_Of_States • Priority_Array • Relinquish_Default • Time_Delay • Notification_Class • Alarm_Values • Fault_Values • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit • Property_List 	<ul style="list-style-type: none"> • Description • Reliability • State_Text 	<ul style="list-style-type: none"> • Object_Name • Present_Value • Description • Reliability • Out_of_Service • Number_of_States • Relinquish_Default • State_Text • Time_Delay • Notification_Class • Alarm_Values • Fault_Values • Event_Enable • Notify_Type • Event_Detection_Enable • Event_Algorithm_Inhibit_Ref • Event_Algorithm_Inhibit 	Yes	Yes, only user created objects

Table 1. Descriptions and configurations (continued)

Object Type	Required Properties	Optional Properties	Writable Properties ^(a)	Ability to Create	Ability to Delete
Notification Class	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Notification_Class • Priority • Ack_Required • Recipient_List • Property_List 	None	<ul style="list-style-type: none"> • Object_Name • Priority • Ack_Required • Recipient_List 	Yes	Yes, only user created objects
Trend	<ul style="list-style-type: none"> • Object_Identifier • Object_Name • Object_Type • Enable • Start_Time • Stop_Time • Log_Device_Object_Property • Log_Interval • COV_Resubscription_Interval • Stop_When_Full • Buffer_Size • Log_Buffer • Record_Count • Total_Record_Count • Logging_Type • Notification_Threshold • Records_Since_Notification • Last_Notify_Record • Event_State • Status_Flags • Notification_Class • Event_Enable • Acked_Transitions • Notify_Type • Event_Time_Stamps • Event_Detection_Enable Property_List 	<ul style="list-style-type: none"> • Reliability 	<ul style="list-style-type: none"> • Object_Name • Enable • Start_Time • Stop_Time • Log_Device_Object_Property • Log_Interval • COV_Resubscription_Interval • Stop_When_Full • Buffer_Size • Record_Count • Logging_Type • Notification_Threshold • Notification_Class • Event_Enable • Notify_Type 	Yes	Yes, only user created objects

(a) The following properties are only writable when the Out_Of_Service property is set to TRUE: **Reliability** property for all objects and the **Present_Value** property for the Analog Input, Binary Input, and Multistate Input objects.

BACnet Protocol

Data Link Layer Options

Data Link Layer	Options
BACnet IP, (Annex J)	<input type="checkbox"/>
BACnet IP, (Annex J), Foreign Device	<input type="checkbox"/>
ISO 8802-3, Ethernet (Clause 7)(10Base2, 10Base5, 10BaseT, Fiber)	<input type="checkbox"/>
ANSI/ATA 878.1, 2.5 Mb ARCNET (Clause 8)	<input type="checkbox"/>
ANSI/ATA 878.1, RS-485 ARCNET (Clause 8), Baud Rate(s)	<input type="checkbox"/>
MS/TP Master (Clause 9), Baud Rate(s): 9600, 19200, 38400, and 76800; 1.5% nominal baud rate	<input checked="" type="checkbox"/>
MS/TP Slave (Clause 9), Baud Rate(s)	<input type="checkbox"/>
Point-to-Point, EIA 232 (Clause 10), Baud Rate(s): 9600, 19200, 38400	<input type="checkbox"/>
Point-to-Point, Modem (Clause 10), Baud Rate(s): 9600, 19200, 38400	<input type="checkbox"/>
LonTalk, (Clause 11), Medium	<input type="checkbox"/>
BACnet/ZigBee (Annex O)	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Device Address Binding

Is static device binding supported? Yes No

Networking Options

Router	<input type="checkbox"/>
Annex H, BACnet Tunneling	<input type="checkbox"/>
BACnet/IP Broadcast Management Device (BBMD)	<input type="checkbox"/>
Does the BBMD Support Registrations by Foreign Devices?	<input type="checkbox"/>

Character Sets

Indicating support for multiple characters sets does not imply that all character sets are supported simultaneously. Maximum supported string length is 64 bytes (*any character set*).

ANSI X3.4	<input checked="" type="checkbox"/>
IBM/Microsoft DBCS	<input type="checkbox"/>
JIS C 6226	<input type="checkbox"/>
ISO 10646 (UCS-4)	<input type="checkbox"/>
ISO 10646 (UCS2)	<input checked="" type="checkbox"/>
ISO 8859-1	<input checked="" type="checkbox"/>

Additional Resources

- www.bacnet.org
- www.bacnetassociation.org
- www.ashrae.org
- Tracer TU Online Help

For further assistance, contact your local Trane sales office.

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.