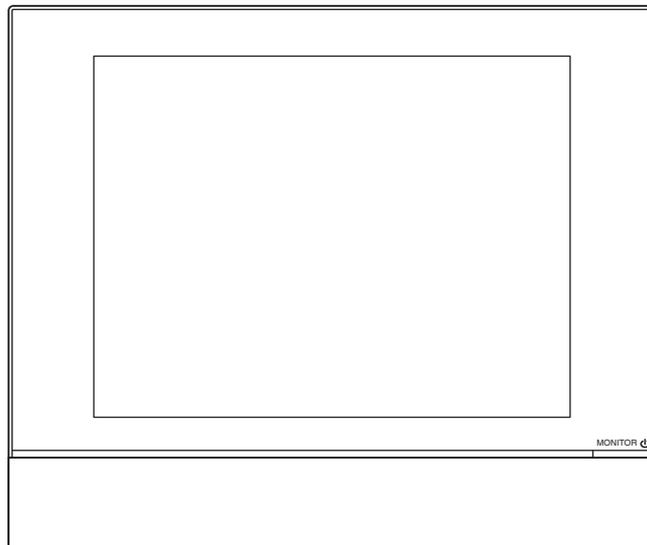

intelligent Touch Manager

External Management Points

Model

DCM601A51



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External Management Points

iTM allows you to register external I/O systems (WAGO I/O SYSTEM) as management points so that they can be monitored and managed.

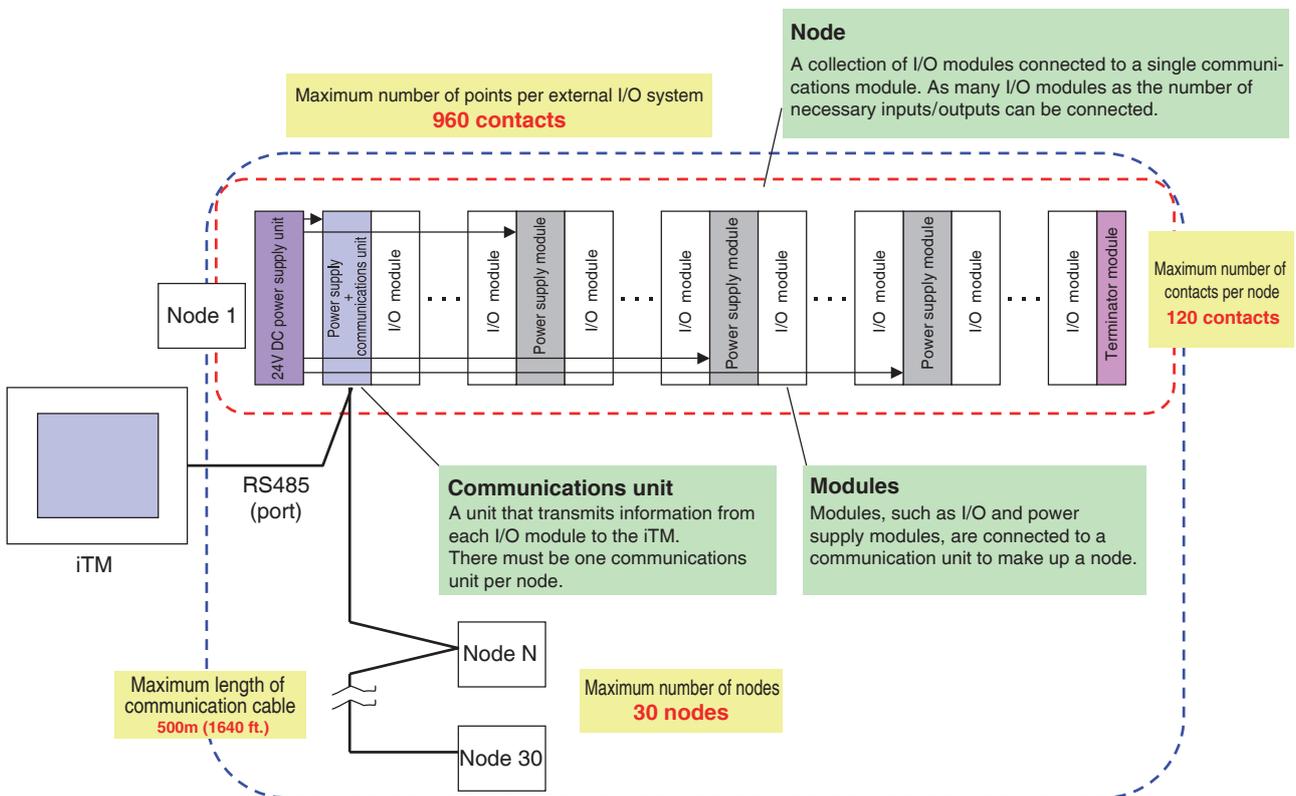
External Di, Do, and Ai management points are collectively referred to as “External management points”.

For more information on how to use and configure various modules, see the manuals that come with the respective products.

This manual describes how iTM handles External management points and provides procedures for registering as External management points.

System Configuration

The following diagram illustrates how the system can be configured using External management points:



Maximum Value Supported by the System

Item	Maximum
The number of the contacts of external I/O systems that can be monitored by a single iTM unit	960 contacts*
The maximum number of External management points that can be registered with iTM unit	512 management points
The number of contacts that can be monitored per external node	120 contacts
The number of external nodes that can be monitored by a single iTM unit	30 nodes

*Although there can theoretically be up to 960 contacts, iTM only accepts up to 512 External management points for registration. This means that, for example, the system can only manage up to 512 contacts when the ratio of contacts to management points is 1:1.

Communications Link Specifications

The communications link between the iTM unit and each external module must meet the following specifications:

Communications Link Specifications

Item	Specification	
Transfer/Medium	Shielded copper cable / 2 (4) x 0.25 mm ² (2 (4) x AWG 24)	
Electrical specification	RS-485	
Communications link type	Dual wire	
Synchronization method	Asynchronous communication	
Connection form	1:N	
Maximum number of connected nodes	30 nodes	
Communication distance	500 m (1640 ft.) at a maximum (total length)	
Communication rate	115,200 bps	
Data format	Data length	8 bit
	Stop bit	1 bit
	Parity	No parity
Error detection	CRC-16	

Management Point Mapping

The following table describes the mapping between External management points and I/O modules:

Mapping between management points and I/O modules

Management point	I/O	I/O modules		
		Di	Do	Ai
External Di	Operational state	<input type="radio"/>		
	Normal/error status	<input type="radio"/> *		
External Dio (constant contact)	Operational state	<input type="radio"/>		
	Normal/error status	<input type="radio"/> *		
	Stopped state		<input type="radio"/>	
External Dio (instantaneous contact)	Operational state	<input type="radio"/> *		
	Normal/error status	<input type="radio"/> *		
	Instantaneously ON		<input type="radio"/>	
	Instantaneously OFF		<input type="radio"/>	
External Ai	Analogue input			<input type="radio"/>

*These contacts can be optionally specified when External management points are registered. If a management point is registered without specifying a particular contact, then the system does not monitor that contact assuming that there is no input from the contact.

Supported I/O Modules

The following table provides a list of supported I/O modules along with the specifications of External management points that correspond to them:

Supported I/O Modules

I/O module type	Number of input /output contacts per module	Specification	Model number
Di	2 contacts / 4 contacts	No-voltage contact input Contact rating: 24 V DC / 4.5 mA	750-400 (2 contacts) 750-432 (4 contacts)
Do	2 contacts	No-voltage contact output Contact rating: 230 V AC / 30 V DC, 2 A	750-513/000-001 (2 contacts)
Ai	2 contacts	Rated at 4 to 20 mA: 12 bit accuracy Rated at -10 to 10 V: 13 bit accuracy	750-454 (2 contacts / current) 750-479 (2 contacts / voltage)
Thermistor	2 contacts	NTC20K thermistor*	750-461/020-000 (2 contacts)

*The input from a thermistor will be scaled automatically. Therefore, the maximum and minimum analog values are not set.

Also note that, besides the above I/O modules, there are required external modules as shown in the following table.

The optional power supply module listed in the table will be required when you connect 33 or more input / output contacts to a single node.

Required / Optional Modules Besides Supported I/O Modules

	Module type	Specification	Model number
Required Modules	24 V DC power supply unit	100/240 V AC→24 V DC, 2.5 A	787-712
	Communications unit (Bus coupler)	RS-485, Max:115.2kbps, not programmable	750-315/000-002/K190-6442 (Daikin custom) *1
	Connector (*2)	–	750-960
	Terminator module	–	750-600
Optional Modules	Power supply module	IN: 24 V DC, OUT: 5 V DC	750-613

*1. Connecting a node with a communications unit that does not match any of the model numbers specified above would cause a communication error in that node.

*2. This connector must be attached to a communications unit that is connected to the RS485 port (2-pin) of the iTM unit.

Connection with iTM

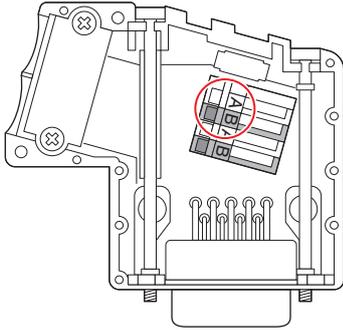
To connect iTM and the I/O module, use the connector (750-960).

Connect the A terminal of connector to the RS-485 “-” terminal on the back of iTM.

Connect the B terminal of connector to the RS-485 “+” terminal on the back of iTM.

See the conceptual connection diagram below before starting connection.

<Connector (750-960)>



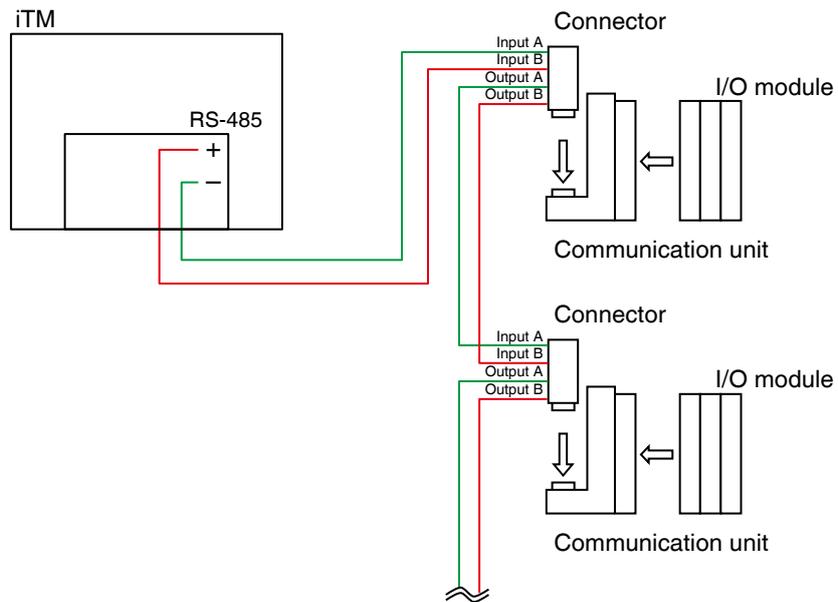
The connector has two sets of two A and two B terminals.

In the left figure, the one set circled is for input side.

Connect iTM to the input side.

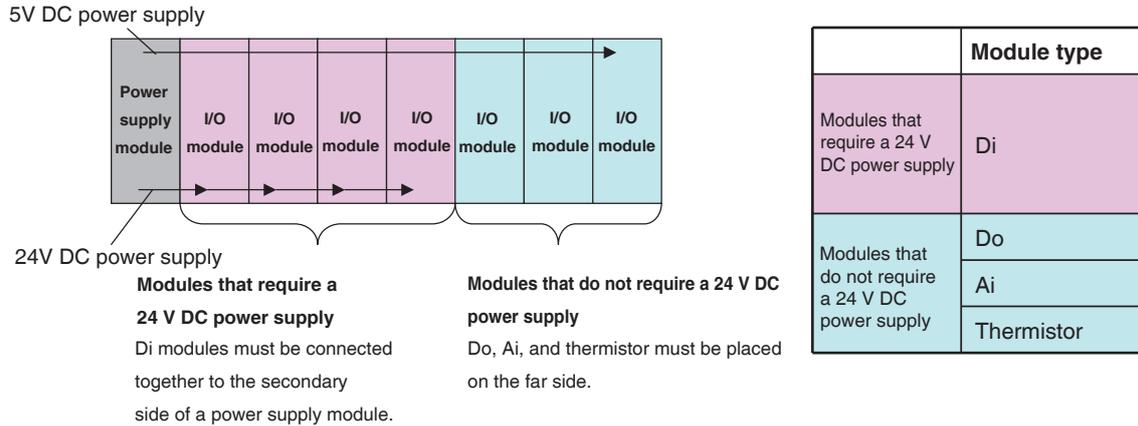
The other set is for output side, to which any other node is connected.

<Conceptual connection diagram>



Precautions for Connecting Modules to iTM

1. All nodes connected to a Pi module must be consisted of Pi modules only.
2. All modules that require a 24 V DC power supply must be connected together to the secondary side of a power supply module.



3. Every 32 input / output contacts that do not require a 24 V DC power supply must connected to a power supply module.

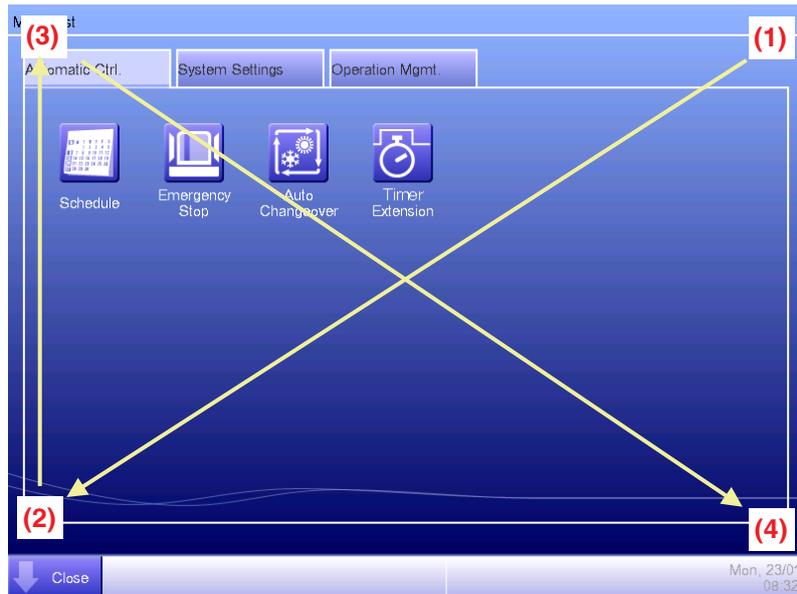
There can be up to 120 contacts per node.

Registering External Management Points

iTM provides a feature to automatically register air conditioners but this function cannot be used to register External management points. Instead, you can register External management points either manually or loading a CSV file.

To register External management points with the iTM unit, use the following procedures:

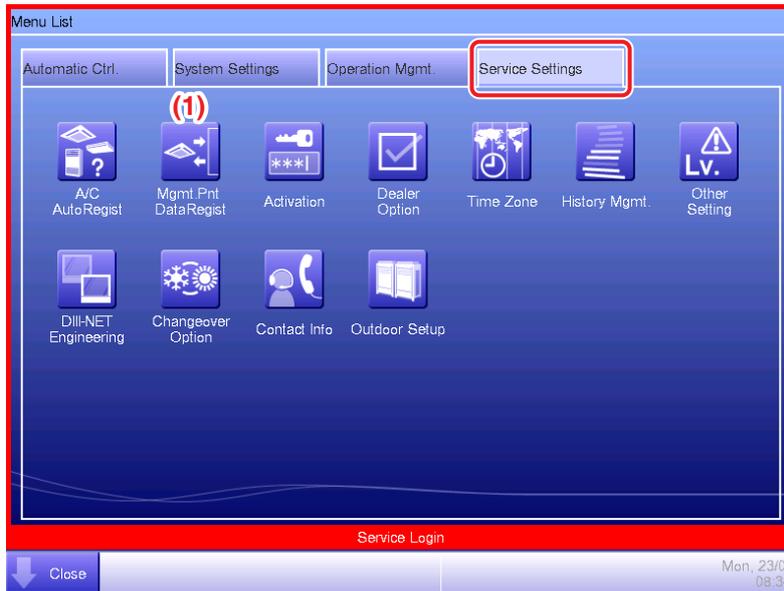
1. Display the Menu List screen.



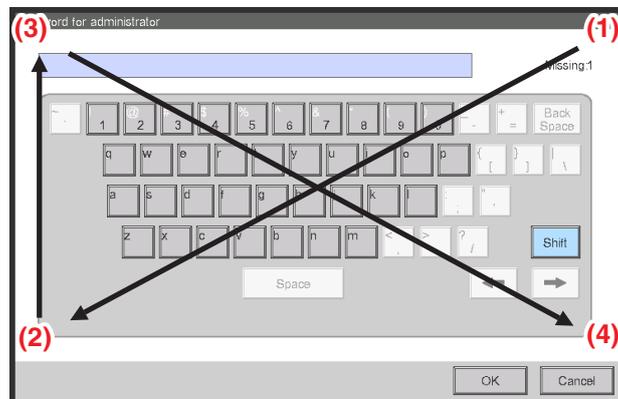
2. Touch the four corners of the screen in the indicated order. The Password Input dialog appears.



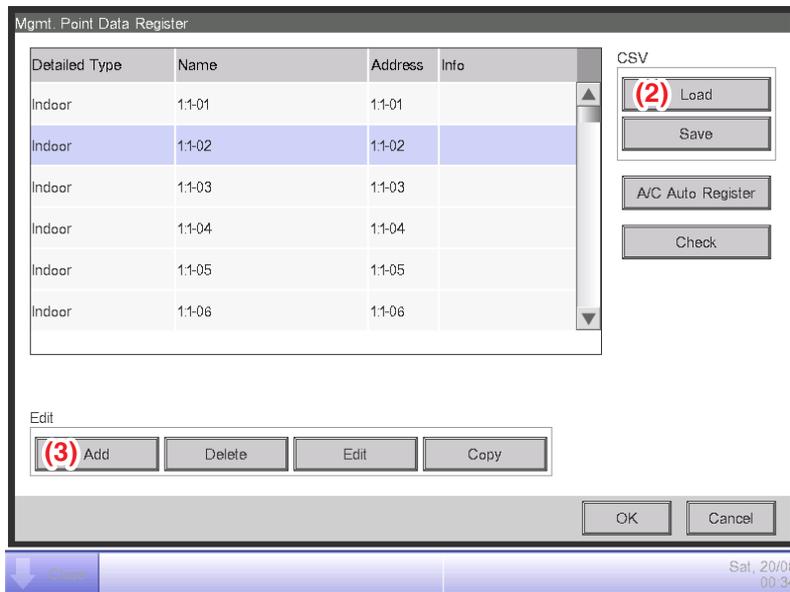
3. Enter the service password (daikin) and touch the OK button to log into the SE Mode.



Furthermore, if the screen is locked, entering the service password instead of the administrator password after carrying out the special operation indicated below, allows you to unlock the screen and log into the SE Mode.

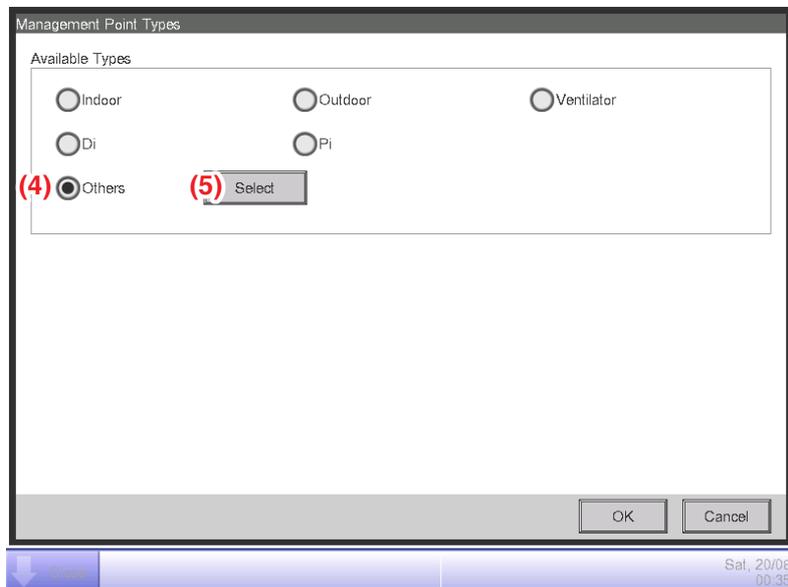


4. On the Service Settings tab, touch the **Mgmt. Pnt Data Regist** button (1) to bring up the Mgmt. Point Data Register window.

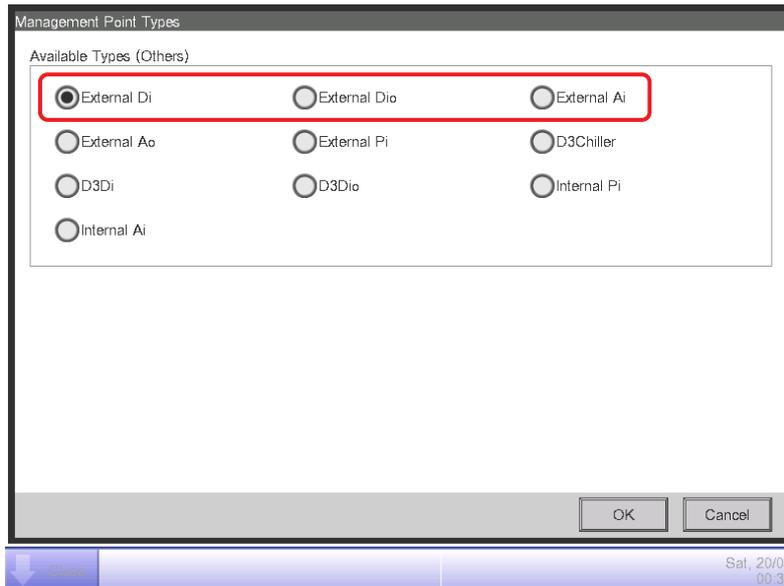


When you want to use a saved CSV file, touch the **Load** button (2).

If you choose to manually enter management point data, touch the **Add** button (3) to bring up the Management Point Types window.



Select **Others** (4) and touch the **Select** button (5) to bring up the window where you can select other management point types.



Select your desired External management point type. Then touch the OK button to save changes and return to the previous window.

Remark: External Ao or External Pi are not supported by this model.

Touch the OK button on the Management Point Types window to bring up the Management Point Attributes window.

NOTE

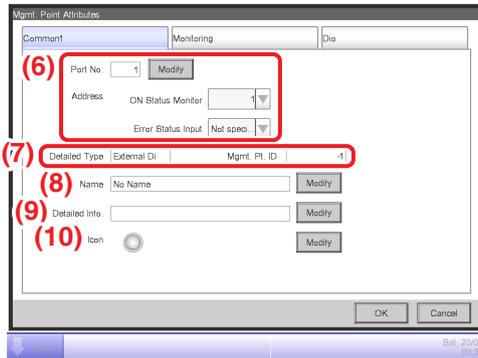
Register a thermistor on “External Ai”.

5. Configure the detailed External management point settings as instructed below:

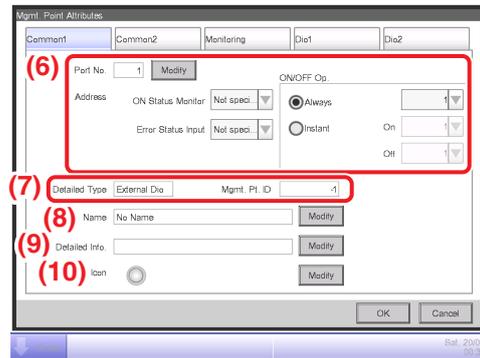
The Management Point Attributes window displays different tabs with different fields depending on your selected External management point type.

The following is the description of each tab and the fields displayed on the tab. To configure the detailed settings, you navigate from tab to tab and fill in all fields on each tab either by entering the appropriate information in an input dialog box that pops up when you touch the Modify button next to the field or by selecting one of the available choices if the field is a combo box or spin box.

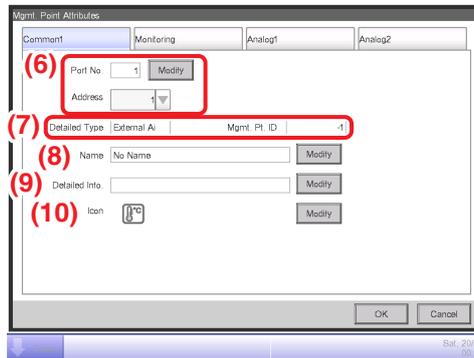
• **Common 1 Tab**



<External Di>



<External Dio>



<External Ai>

(6) Port No. text field, **Address** combo box

These fields should be filled in with the port number and address, respectively. Duplicated addresses cannot be registered. All addresses must be different. For the External Di and External Dio types, however, you can also specify “no address”. Also note that, between the Di and Do type modules, duplicated addresses may be registered.

The port number of an External management point must match the node address assigned to the communications unit and fall within the range of 1 to 30.

Ai modules and thermistor modules should be assigned consecutive addresses.

(7) Detailed Type / Mgmt. Pt. ID field

These fields are repopulated with the type of the External management point and the management point ID automatically assigned by the system, respectively. However, you cannot modify it here.

(8) Name text field

Fill in with the name of the External management point.

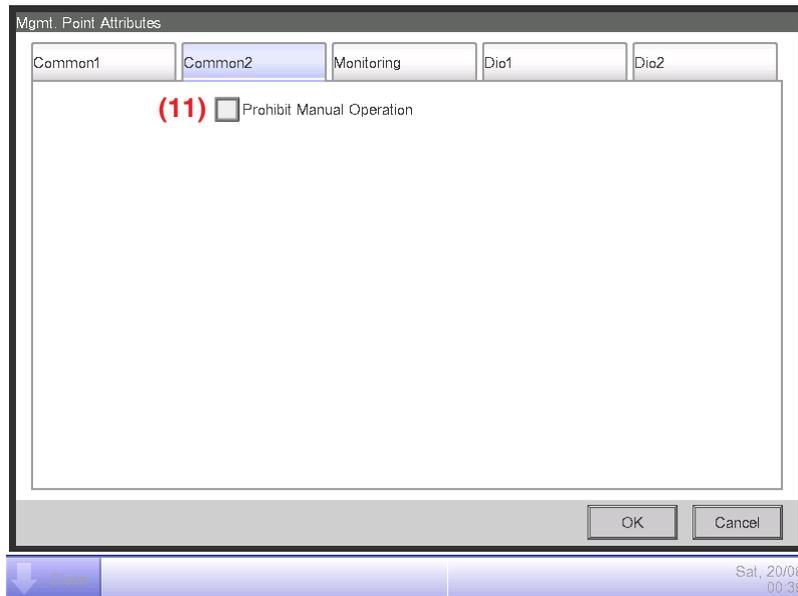
(9) Detailed Info. text field

Fill in with detailed information, up to 50 characters long, on the management point as needed.

(10) Icon field

Use this field to specify the icon for the External management point.

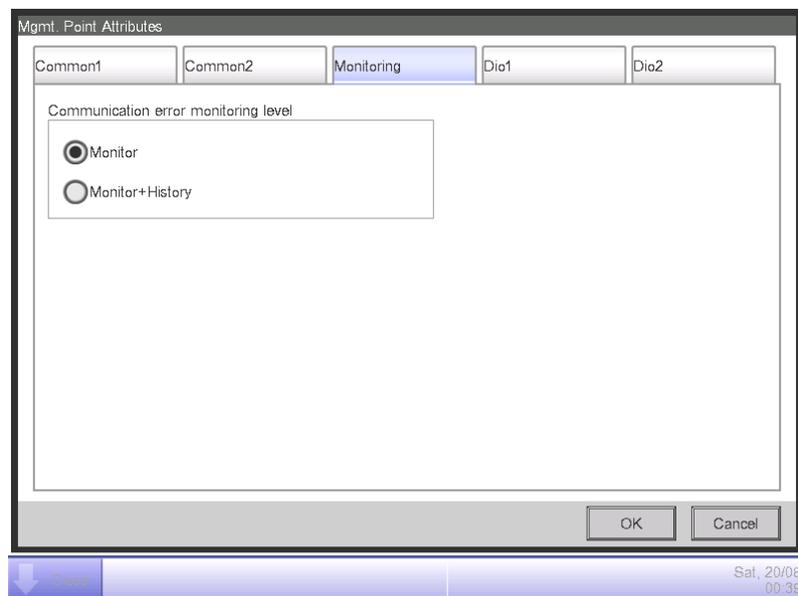
- **Common 2 Tab**



- **(11) Prohibit Manual Operation** check box

Select the check box when prohibiting manual operation from the iTM.

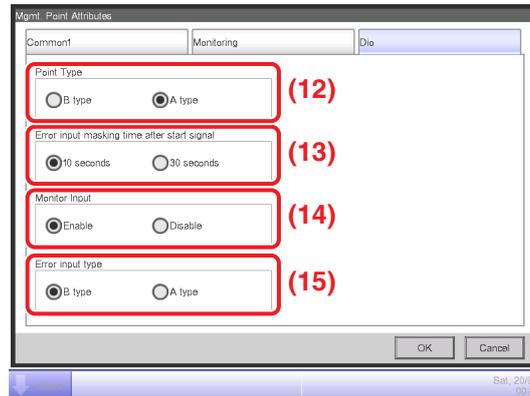
- **Monitoring Tab**



On this tab, you can specify at what level to monitor the External management point for any communication errors.

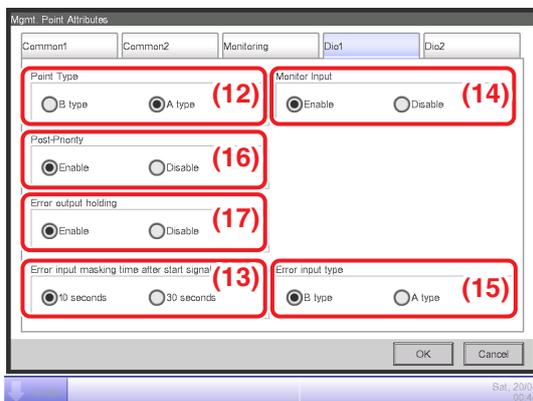
Select either the “Monitor” or “Monitor + History” radio button.

• Dio Tab

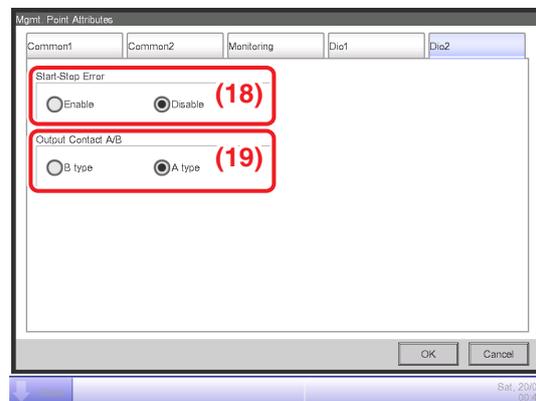


<External Dio>

Dio 1



Dio 2



<External Dio>

(12) Point Type radio button

Specify the contact type for the External management point by selecting either the “B type” or “A type” radio button.

(13) Error input masking time after start signal radio button

Set the error input masking time after start signal to either 10 seconds or 30 seconds. Start up error occurs if the External Dio cannot start even after the time set up here elapses from the moment the start signal has been received.

(14) Monitor Input radio button

Specify whether to Enable or Disable the error detection when the External management point is in stopped state.

(15) Error input type radio button

Specify the error input type by choosing either “B type” or “A type”.

(16) Post-Priority radio button

Specify whether to Enable or Disable post-priority.

(17) Error output holding radio button

Specify whether to shut down (stop) the output upon error detection by choosing either “Enable” or “Disable”.

(18) Start-Stop Error radio button

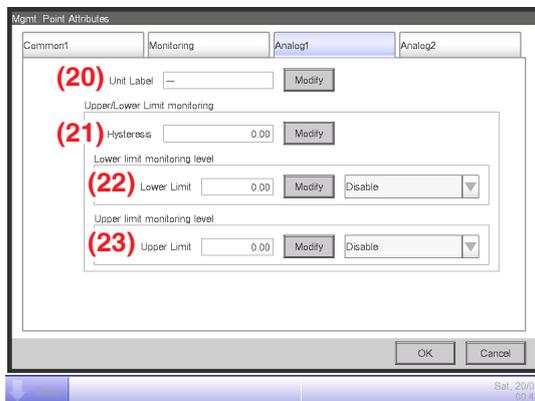
Specify whether to detect start-stop errors by choosing either “Enable” or “Disable”.

(19) Output Contact A/B radio button

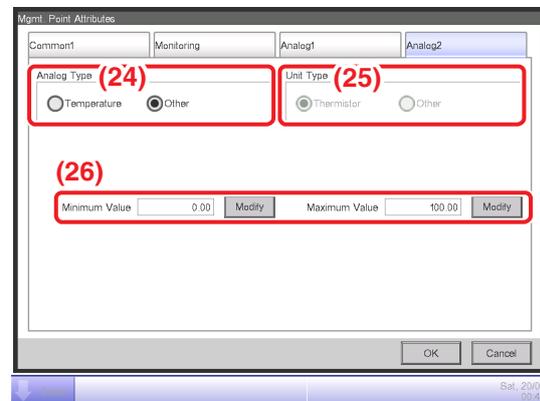
Specify the output contact type by choosing either “B type” or “A type”.

• **Analog Tab**

Analog 1



Analog 2



<External Ai>

(20) Unit Label text field

Enter the unit string, up to 8 characters long.

(21) Hysteresis text field

Sets up the hysteresis.

(22) Lower Limit field

Sets up the lower limit and monitoring status for lower limit error monitoring.

For the lower limit, touch the Modify button and enter it in the Numerical Input dialog that appears.

For the monitoring status, select from Disable, Monitoring, and Monitor + History from the combo box.

(23) Upper Limit field

Sets up the upper limit and monitoring status for upper limit error monitoring.

For the upper limit, touch the Modify button and enter it in the Numerical Input dialog that appears.

For the monitoring status, select from Disable, Monitoring, and Monitor + History from the combo box.

(24) Analog Type radio button

Specify the analogue value type by choosing either “Temperature” or “Other”.

(25) Unit Type radio button

Select the unit type of External Ai either “Thermistor” or “Other”. The unit type cannot be configured when Other is selected in Analog Type (24).

Selecting Thermistor sets the Minimum value and Maximum value text fields (26) to –512.0 and 512.0 (or –890 and 954 in Fahrenheit), respectively, which cannot be changed.

(26) Minimum Value / Maximum Value text fields

Sets up the physical quantities corresponding to the minimum and maximum analog value input signals.

NOTE

See the table below for the range settable by touching the Modify button.

Management point type	Classification	Item	For Celsius		For Fahrenheit		For analog value	
			Minimum / Maximum value (Default value)	Increments	Minimum / Maximum value (Default value)	Increments	Minimum / Maximum value (Default value)	Increments
External Ai	Upper / lower limit monitoring	Hysteresis	0.0 to 512.0 (0.0)	0.1	0 to 922 (0)	1	0.00 to 9999.99 (0.00)	0.01
		Lower limit	–512.0 to 512.0 (0.0)	0.1	–890 to 954 (32)	1	–9999.99 to 9999.99 (0.00)	0.01
		Upper limit	–512.0 to 512.0 (0.0)	0.1	–890 to 954 (32)	1	–9999.99 to 9999.99 (0.00)	0.01
	Analog value	Minimum value	–512.0 to 512.0 (0.0 / –512.0) *	0.1	–890 to 954 (32 / –890) *	1	–9999.99 to 9999.99 (0.00)	0.01
		Maximum value	–512.0 to 512.0 (100.0 / 512.0) *	0.1	–890 to 954 (212 / 954) *	1	–9999.99 to 9999.99 (100.00)	0.01

* The former or latter value will be used depending on whether Unit Type is Other or Thermistor, respectively.

(When loading a CSV file with Thermistor selected, the default value will be used regardless of the input data.)

When finished with all the tabs, touch the OK button to save the settings and return to the main Mgmt. Point Data Register screen.

You have now completed the registration of External management points by following the procedures above. For information on how to register and configure other management points, see the Commissioning Manual (EM11A021/EM11A022).

CSV file format

The format of the CSV file output from the iTM is as shown below. A CSV file output when no management point data is registered can be used as a template for new implementations since only the area used by the system and the header portion are output.

The following table shows the CSV format for management point data registration.

- Numeric values indicated in each item correspond to the column number in the CSV file (the first column is fixed and used for data type identification). Blank items indicate there is no applicable data.

Classification	Keyword	Description	Value	Management point type		
				External Ai	External Di	External Dio
Common	—	Header type identification	—	EXTERNAL AI-H	EXTERNAL DI-H	EXTERNAL DIO-H
	—	Data type identification	—	EXTERNAL AI-D	EXTERNAL DI-D	EXTERNAL DIO-D
	POINTID	Management point ID	101 to 1000000	2		
	NAME	Name	String (1 to 12 characters regardless of single or double byte)	3		
	DETAILEDINFO	Detailed information	String (0 to 50 characters regardless of single or double byte)	4		
	PROHIBITOP	Prohibit manual operation	0: Allowed, 1: Prohibited			5
	PORTNO	Port number	D3, Internal Pi, Main unit: 1 to 8 External: 1 to 30	5	5	6
	ADDRESS1	Upper level address (group)	D3: 1 to 4 External: 1 to 120 Internal Pi: 1 to 127 Outdoor unit: 1 to 127 Main unit: 1 to 4 (2 to 4 for Port 1)	6		
	ADDRESS2	Lower level address (unit)	D3Dio, D3Di, Indoor unit, Ventilator, Chiller: 0 to 15			
	STARTSTOPMON	ON Status Monitor	External Di: 1 to 120 External Dio: ON Status Monitor address 1 to 120 Not specified: 0		6	7
	NORMALABNORMALMON	Normal/Abnormal Monitor	Normal/Abnormal Monitor Input address 1 to 120 Not specified: 0		7	8
	STARTSTOP	ON/OFF operation	0: Always 1: Instant			9
	STARTSTOPADDR1	Start/Stop address 1	Always: 1 to 120 Instant: ON address 1 to 120			10
	STARTSTOPADDR2	Start/Stop address 2	Always: Handled as invalid Instant: OFF address 1 to 120			11
	ICON	Icon ID	100 to 999	7	8	12
ANADDR	ACNSS Address	Indoor unit (2 to 128, 1: Invalid)				
Monitoring	COMMONLV	Communication error monitoring level	1: Monitoring, 2: Monitor + History	8	9	13

Classification	Keyword	Description	Value	Management point type		
				External Ai	External Di	External Dio
Di/Dio	DIMODE	Di Operation mode	0: Normal, 1: Equipment error input			
	CPTYPE	Point type	0: B type, 1: A type		10	14
	LATEROPE	Post-Priority	0: Disable, 1: Enable			15
	ABNORMALOP	Error output holding	0: Disable, 1: Enable			16
	STARTFAIL	Error Mask Time after operation input	0: 10 seconds, 1: 30 seconds		11	17
	MONITORIN	Monitor input	0: Disable, 1: Enable		12	18
	ABNORMAL INPUT	Error input detection	0: B type, 1: A type		13	19
	STARTSTOP FAILURE	Start/Stop error	0: Disable, 1: Enable			20
	OUTPUTSPECCONTACT	Output contact	0: B type, 1: A type			21
Ai	UNITSTR	Unit string	String (0 to 8 characters regardless of single or double byte) For Internal Ai: <ul style="list-style-type: none"> Set to "°C" or "°F" depending on the System Settings if any reference management point exists. Set to "--" if no reference management point exists. For other management points: Set to "°C" or "°F" depending on the System Settings, except when the Analog type is Temperature.	9		
	TARGETID	Target management point	Management point ID (indoor unit, chiller), -1: Not specified			
	TARGETTYPE	Measured analog value	1: Suction temperature, 2: Setpoint (Indoor unit) 1: Water inlet temperature, 2: Water outlet temperature (Chiller)			
	ANALOGTYPE	Analog type	0: Normal, 1: Temperature	10		
	UNITTYPE	Unit type	0: Thermistor, 1: Other	11		
	MARGIN	Hysteresis	See page 16.	12		
	UPPERVAL	Upper limit	See page 16.	13		
	LOWERVAL	Lower limit	See page 16.	14		
	ULMMONLV	Upper limit monitoring level	0: Disable, 1: Monitoring, 2: Monitor + History	15		
	LLMMONLV	Lower limit monitoring level	0: Disable, 1: Monitoring, 2: Monitor + History	16		
	MINVAL	Minimum value	See page 16.	17		
	MAXVAL	Maximum value	See page 16.	18		

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