

Product name Multifunctional centralized meter reading board (for meters with com. function, indoor spec.)

Model K I L V I S - H A 5 F (HA0F,HA1F,HA5F)

Document Product Specifications

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< Table of Contents >

1. Summary	1
1. 1 Overview of Equipment and Functions	1
1. 2 Compatible Meter	2
2. Strong point	2
3. Metering board configuration	3
4. System Configuration Example	3
4. 1 Star configuration	4
4. 2 Bus configuration	4
4. 3 Mixed star/bus configuration	5
5. Technical specification	6
5. 1 Centralized meter reading board main unit	6
5. 2 Meter with communication function	8
5. 3 Terminal equipment	9
6. Outline Drawing	10

1. Summary

The multifunctional centralized meter reading panel "KILVIS-HA" is a device that performs centralized meter reading for meters installed in dispersed locations in tenant buildings, condominiums, and other housing complexes. It can be used both as a high-level device and as a terminal device for data collection connected to a PC.

There are two types of connection methods: the star method, in which the signal line from the meter is connected directly to the meter reading board, and the bus method, in which the signal line is connected via a terminal device. The meter to be connected is the pulse output type.

1.1 Overview of Equipment and Functions

(1) Meter reader

The meter reading is displayed by operating the buttons on the operation panel.

The built-in printer type can perform printing process.

It also has the following external interfaces

①USB: Connects to a PC for setup and data collection.

②RS232C: Connects to a PC for setting and data collection.

③Line A: Automatic meter reading is performed via an 8-bit KHK-compliant common-type NCU or an NCU for PHS lines.

It has four expansion slots and can house up to four star or bus boards.

(Only one bus board can be installed)

(2) Star board

Star boards for pulse meters count pulses.

Up to 32 meters can be connected to each star board.

(3) Bus substrate

Built-in interface board for connecting external terminal equipment. It supplies power to the terminal equipment.

When using a bus board (when using a terminal device), the maximum number of star boards is three.

(4) Terminal equipment

The terminal device counts pulses.

The terminal device for the pulse meter is connected to the bus board of the centralized meter reading board and can connect up to 16 meters per line.

Up to 16 meters can be connected per terminal unit.

1.2 Compatible Meter

(1) Meters with communication function

- Electronic water meter
- Gas meter with communication function (microcomputer III, general-purpose, commercial use)
- Other devices employing similar communication methods (battery-powered electromagnetic, etc.)

2. Strong point

1) Up to 1,280 meters can be read, making it possible to accommodate tenants, condominiums, and other buildings.

2) Both star and bus systems are supported for meter connections.

Furthermore, the star and bus systems can be mixed, making it easy to add more meters.

3) The main body of the meter reader has four expansion slots, which can accommodate up to four bus boards (interface board for terminal equipment) and four star boards (interface board for pulse).

(Only one bus board can be installed)

4) The centralized meter reading board can display and print not only totaled values but also alarms, etc.

5) Energy monitoring of gas and water is possible with a meter with communication function.

6) The distance from the centralized meter reading panel to the terminal equipment can be as long as 1 km.

7) The distance between the centralized meter reading panel or terminal unit and the meter can be relatively long, up to 200 meters.

8) The terminal block for meter connection uses a one-touch connection terminal block, allowing wiring without the use of crimp terminals.

9) One dedicated pushbutton is assigned to the function used for meter reading, making operation easy.

10) Data from the centralized meter reading board can be obtained with dedicated software for personal computers.

(For details, please refer to the specifications of the dedicated software.)

11) The enclosure is designed for indoor use.

3. Centralized meter reading board configuration

The configuration of this centralized meter reading board is shown below.

(1) Centralized inspection panel

- It consists of an operation panel, power supply unit, interface board, etc.
- The operation panel consists of red 7-segment LEDs and pushbutton switches for function selection, etc.

(2) Bus board

Built-in interface board for use with terminal equipment.

- Power is supplied to the terminal equipment from the centralized meter reading panel through the transmission line. (No totalization operation is performed in the event of power failure.)
- Transmission line connections can be up to 5 lines, with a maximum of 16 terminal devices per line.
- When all 5 lines are used, the maximum number of terminal devices is 80.

However, one of the five lines is shared with the slot for the star board in the main body of the meter reading board. For this common line, one star board (for 32 units) is equivalent to two terminals (16 units x 2).

(3) Star board

By integrating the star board into the meter reading board, the meter can be connected directly to the centralized meter reading board.

- The star board can connect up to 32 pulse meters (2-wire).

(4) Terminal equipment

- The terminal device totalizes the pulses from the meter and transmits them to the centralized meter reading panel.
- Up to 16 pulse meters (2-wire) can be connected to the terminal unit.

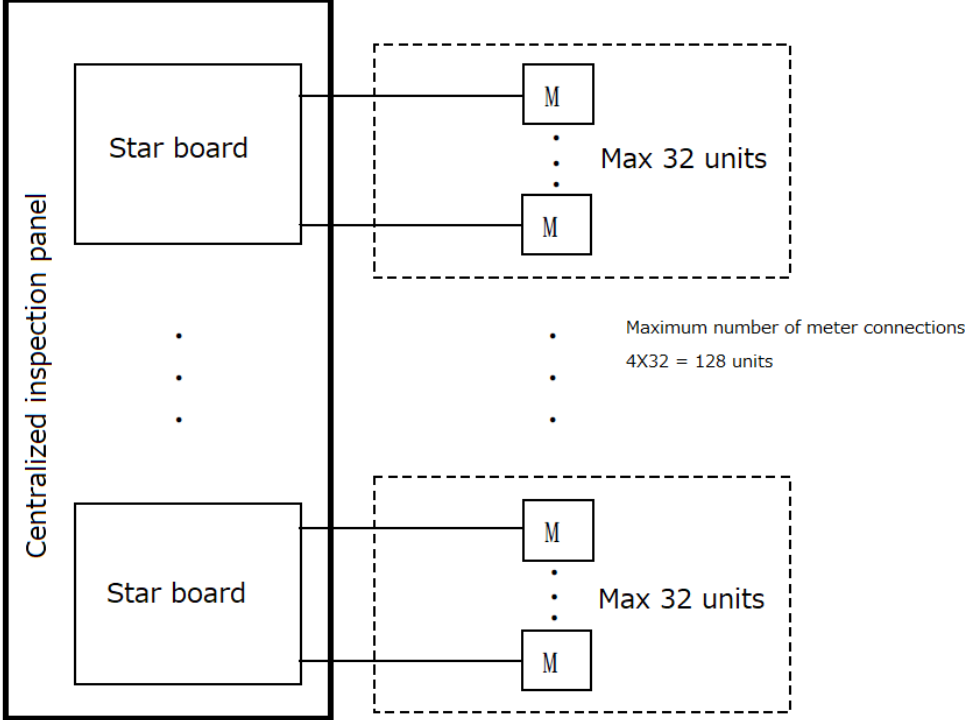
(5) Meter with communication function

- Data acquisition is performed by communication using the communication cable of the meter's A line.

4. System Configuration Example

4.1 Star configuration

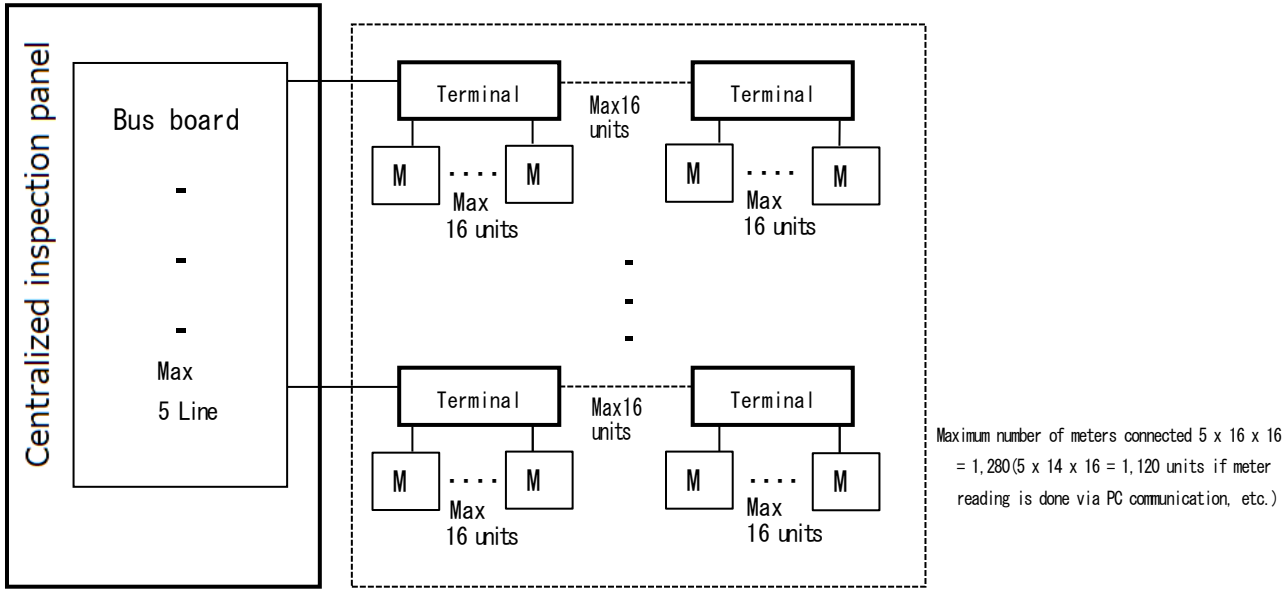
Up to four star boards can be built in without using bus boards.



Configuration Max. 4 star boards, Max. 128 meters

4.2 Bus configuration

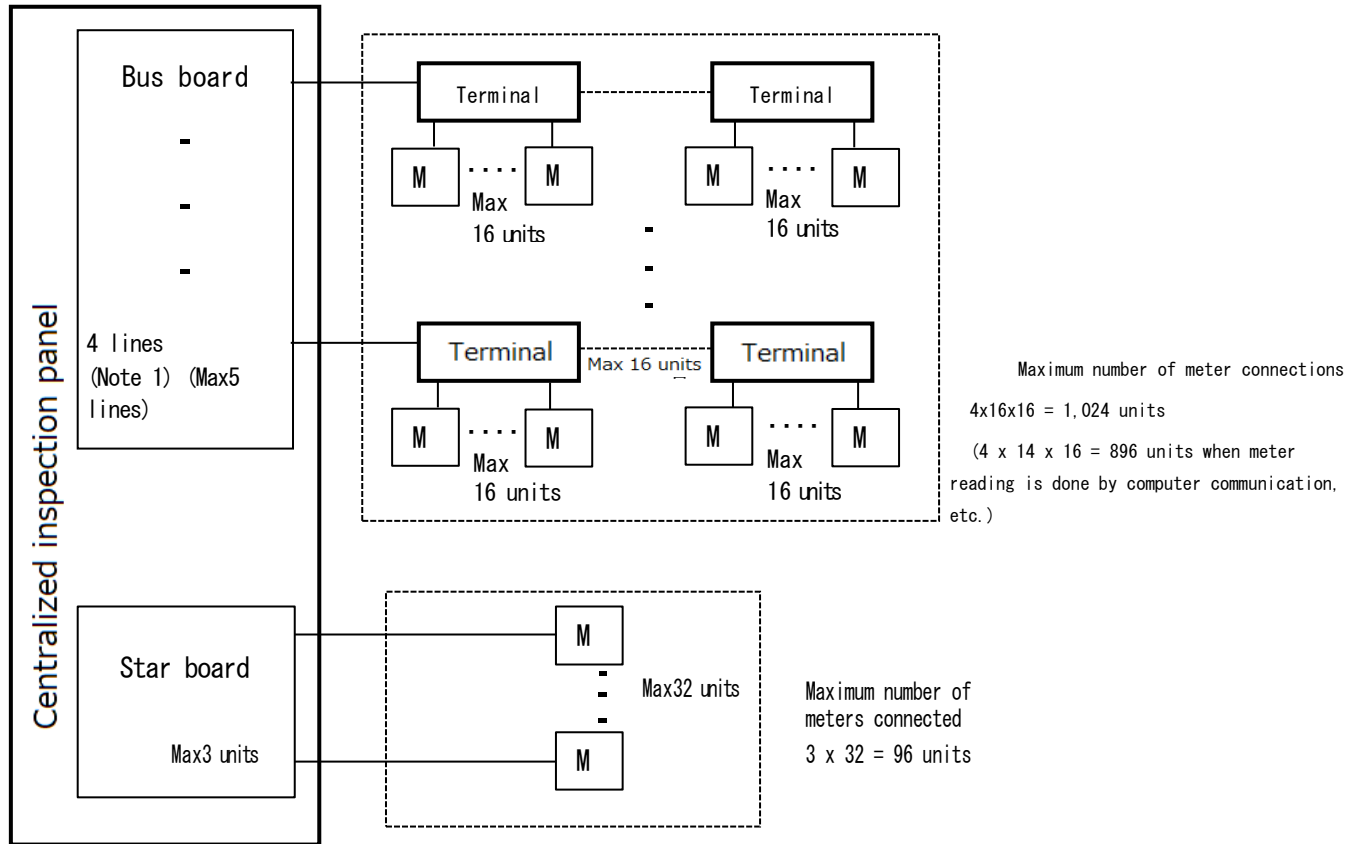
Up to 80 terminal devices can be used by incorporating a bus board.



Configuration 1 bus board, max. 80 terminals, max. 1,280 meters

4.3 Mixed star/bus configuration

In the case of mixed star-bus system, bus boards are used, so up to three star boards can be built in.



Configuration 1 bus board, max. 3 star boards

Bus system section: Maximum of 1,024 meters (when 4 lines are used instead of the 5 lines of Note 1)

Star system section: Maximum of 96 meters

(Note 1)

There are a total of five bus board lines.

When all five lines are used, one line is shared with the slot for the star board in the main body of the meter reading board. For this common line, one star board (for 32 units) is equivalent to two terminal units (16 units x 2).

The same is true for the other two lines.

5. Technical specification

5.1 Centralized meter reading board main unit

Model name	KILVIS-HA0F (For water), KILVIS-HA1F (for gas) KILVIS-HA1F (for both water and gas)
Number of connected terminals and meters	Star method (4 boards) : 0 Terminal 128 Meters
	bus system : 80 Terminal 1,280 Meters※1
	Mixed bus/star (1 board) : 78 Terminal 1,280 Meters※1
	Mixed bus/star (2 boards) : 76 Terminal 1,280 Meters※1
	Mixed bus star (3 boards) : 74 Terminal 1,280 Meters※1
Host device and connection port	USB (USB-RS232C conversion port) RS232C A line (8-bit telegram communication line) [Entity code: S4, meters correspond to W2 and G2 guideline values only]
Calendars and clocks	Year, month, day, hour, minute
Feature	All "Confirmation" can be done in two types: all units and designated room numbers. The built-in printer can also print.
① Pointer value	Reads the "pointer value" of all meters.
② hourly meter reading	The meter stores all meter readings at preset times (regular meter readings) and reads these regular meter readings.
③ Confirmation of fuse registration	Check the "fuse registration" on the gas meter. (※2)
④ Safety Continuity Confirmation	What to check depends on the type of gas meter. (※2)
⑤ Instantaneous flow rate value confirmation	Check the "instantaneous flow value" of the water meter. (※2)
⑥ Confirmation of leakage volume	Check the "leakage volume" of the water meter. (※2)
⑦ Leakage time confirmation	Check the "leak time" of the water meter. (※2)
⑧ Excessive flow check	Check the "leak time" of the water meter. (※2)
⑨ Other	Maintenance functions for the meter reading board are available.
Display	Red 7-segment LED x 15 digits, Red LED x 23
① Block No.	Numerals 2 digits (red 7-segment LED x 2)
② Room No.	Numerals 5 digits (red 7-segment LED x 5)
③ Pointer value	Numeric 8 digits (decimal point position shifts depending on caliber) Other display contents vary depending on the mode.
④ Alarm contents	3 types, others (red LED x 4)
⑤ Unit	m ³ - m ³ /h
Printing (built-in printer)	Thermal serial dot system (paper width 58 mm), 32 characters per line
① Block No.	Numeric 2 digits
② Room No.	Numeric 5 digits
③ Current guideline value	Numeric 8 digits (decimal point position shifts depending on caliber)
④ Alarm display	Battery voltage drop, leakage/leakage, overload/pressure, other
⑤ Unit	m ³ - m ³ /h
Other	Printing will vary depending on other operations.

※1 : When communicating via PC, etc., a maximum of 1,120 meters can be connected.

※2 : Please refer to the meter's function manual for details.

Operation key	water meter	gas meter
① Pointer key	Guideline value confirmation	Guideline value confirmation
② On-time meter reading key	Regular meter reading confirmation	Regular meter reading confirmation
③ Function 1 key (※3)	Instantaneous flow rate value confirmation	Confirmation of fuse registration
④ Function 2 key (※3)	Confirmation of leakage volume	Safety Continuity Time Confirmation
⑤ Function 3 key (※3)	Leakage time confirmation	None
⑥ Function 4 key (※3)	Overdosage check	None
⑦ Up arrow key	Advance the room number by one.	
⑧ down arrow key	Move the room number back by one.	
⑨ Meter Selection	Select the type of meter. (Water meter, Gas meter, Electricity meter, Other)	
⑩ Manual/Automatic switching key	Select manual/automatic meter reading.	
⑪ print key	Selects whether to print or not. (Enabled when the printer option is selected.)	
⑫ alarm printing	Selects normal or detailed alarm printing.	
⑬ execution key	Perform meter reading, etc.	
⑭ Power key	Turns the power supply ON/OFF.	
Printer	Thermal line dot method Thermal paper model: P-58-30	
Power supply	AC100V±10% , 50/60Hz	
Power consumption	Max. 12VA (main unit only)	
Installation method	Indoor specifications (wall mounting) 400 (W) × 400 (H) mm	
Waterproof Structure	IP grade IPX4	
Ambient temperature	-10° C to +50° C (0° C or higher for printers)	
Ambient humidity	85%RH or less (no condensation)	
Installation Location	Locations where there is little dust and humidity, and where there is no risk of indoor gas retention without direct sunlight. In addition, please take into consideration that the display may be difficult to read in a place exposed to direct sunlight. Please consider these points.	
External dimensions	450 (W) × 450 (H) × 150 (D) mm (excluding protruding parts)	
Enclosure Material	steel plate	
Paint color	Japan Paint Manufacturers Association No. 22-90B (equivalent to 2.5Y9/1, beige type)	
Weight	Indoor spec. approx. 20kg	
Supply voltage to terminal equipment	24 VAC (supplied from centralized meter reading board)	
terminal equipment transmission line cable	4-wire shield	
Transmission distance (between board and terminal)	About 1 km	

※3 : For water-only and gas-only, the item name of the function is the name of the exclusive use.

5.2 Meter with communication function

(1) Common specifications for meters with communication function

input signal	8-bit communication system for automatic meter reading
Setup switch	With addressable switch
Monitor L E D	Communication monitor LED
Distance between meters	VCTF 0.5mm ² or more (2 wires) Max. 200m

(2) Star board (for meters with communication function)

Number of meters connected	Max. 32 units
Power supply	Supplied from centralized meter reading board DC5V
Power consumption	Max. 0.5VA

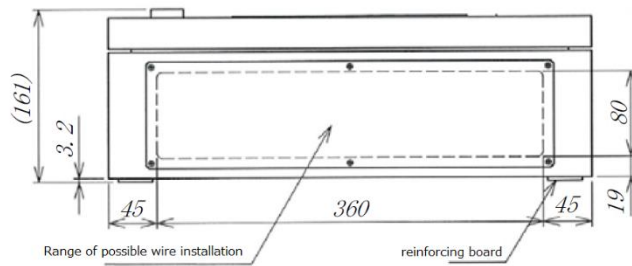
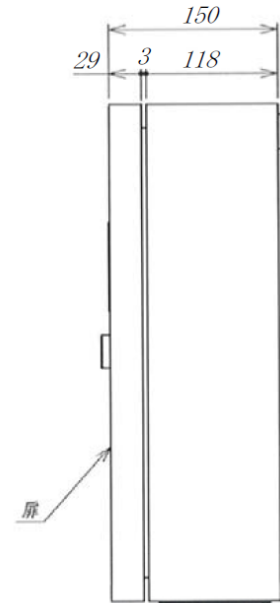
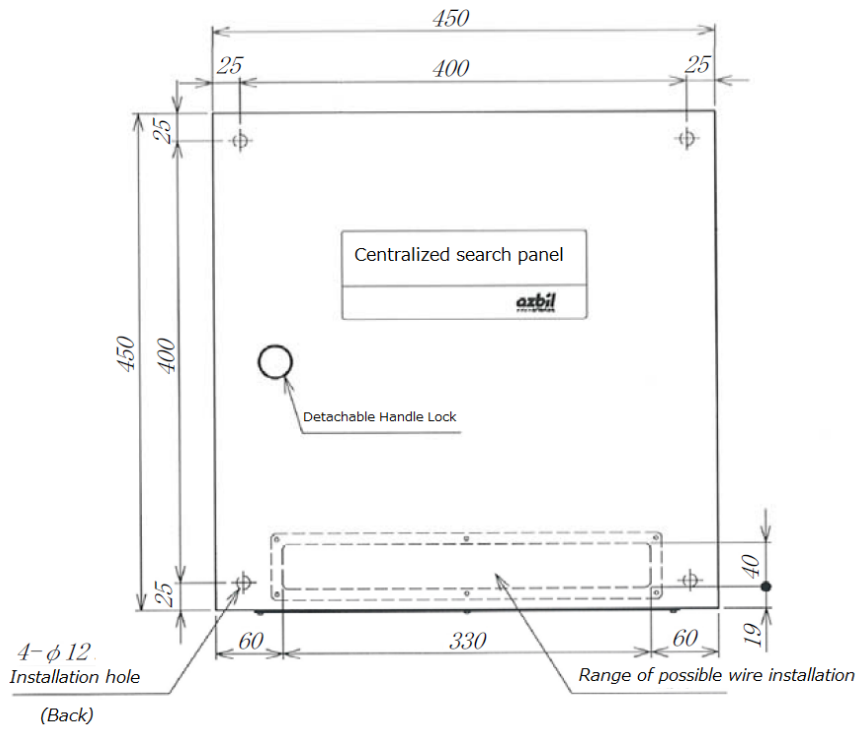
5.3 Terminal equipment (for meters with communication function)

Model name	K I L V I S - H A T 1
Number of meters connected	Max. 16 units
Terminal-to-terminal transfer line cable	4-wire shield
Power consumption	Supplied from centralized meter reading panel 24 VAC (signal line: DC signal)
Power consumption	Max. 0.6VA
External dimensions	201 (W) × 274 (H) × 52 (D) mm
Case Color	Light gray (Munsell 5Y-7.5/1 equivalent)
Waterproof Structure	IP grade IPX3
Installation Location	A place with little dust and humidity, out of direct sunlight, and where there is no danger of gas accumulation.
Weight	About 1kg

6. Outline Drawing

(1) Body

Unit : mm



(2) Terminal

