

Hampden®

**Partners with the Leading
Air Conditioning Manufacturers in the world!**

MINI SPLIT-TYPE TRAINERS



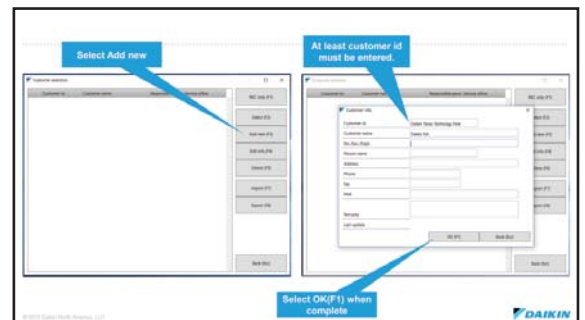
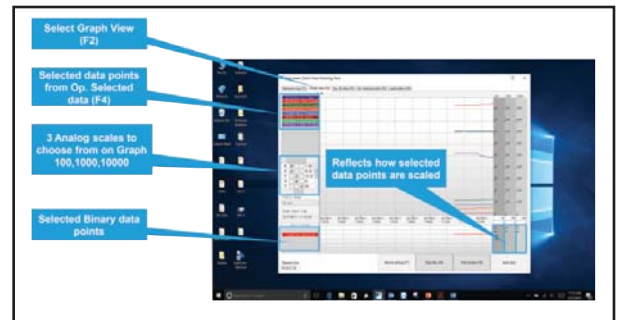
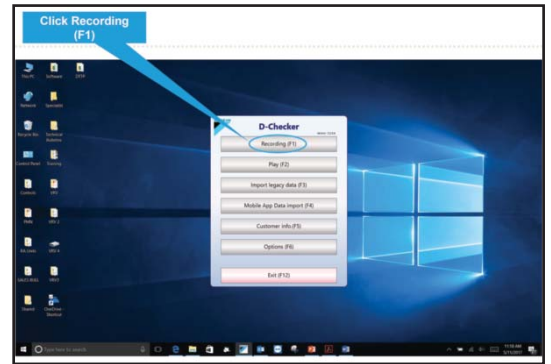
Hampden®
ENGINEERING CORPORATION



SPLIT TYPE TRAINERS



H-RST-21A
Mini Split-Type Heat Pump Trainer



Standard Products...Designed to Meet Your Growing Needs!

SPLIT TYPE TRAINERS

H-RST-21A D Checker Software

- D-Checker is the software that is used for monitoring or recording operation data of air conditioners with a connection cable exclusively used for D-Checker. Please use correctly with carefully reading instructional manual.
- D-Checker Software can monitor data of sensors (temperature, pressure) and status of actuators (compressor, solenoid, etc) equipped with air conditioners. Data/status items that are supported by this software differ model by model.
- D-Checker gathers operation data from air conditioner through PCB connector of outdoor unit, data monitoring/ recording of multiple outdoor units is not supported.

H-RST-21A

The Hampden **Model H-RST-21A** Mini Split-Type Heat Pump Trainer provides a hands-on introduction to the principle components of heating and air conditioning. This system places the indoor unit (evaporator) remotely from the outdoor unit (condenser) providing a quiet, no air flow restriction, and secure system.

Mobile Carrier

The Hampden **Model H-RST-21A** Mini Split-Type Heat Pump Trainer consists of a mechanical steel base and frame. Frame and base shall be finished in textured instrument tan. Provide two locking and non-locking casters.

All the major components have been removed from the outdoor unit and positioning them on the trainer's panel to provide easy access for troubleshooting and visualization. All components are clearly identified by legends.

Incorporated into the trainer is a 20" monitor/computer system. This computer is running the OEM status software program providing all the system data on the screen. The software program is used in diagnosing the system's condition and providing useful troubleshooting information.

Also included are (6) six instructor insertable electrical faults. The faults are located in a lockable compartment allowing the instructor to fault the system for troubleshooting.

System Specifications

Cooling Capacity:

15,000 BTU/H

S.E.E.R.:

20.6

Moisture Removal:

0.8 L/h

Speeds:

3 + Automatic

Compressor:

Swing Type

Evaporator:

Finned Coil with centrifugal fan

Refrigerant:

R-410A

Metering Device:

Electronic Expansion Valve

Air Circulation:

568 CUft./Min (high)

Timer:

24 hour clock with ON/OFF Programmer Timer

Controls:

Microprocessor

Thermostat:

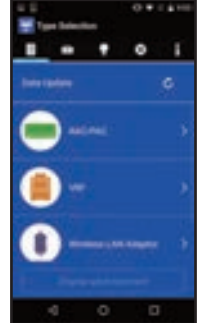
Integrated Circuit

Services Required

220VAC single-phase 60Hz

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SPLIT TYPE TRAINERS



FUJITSU

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SPLIT TYPE TRAINERS

Fujitsu Software

“FGLair” is an application software that enables you to operate the Fujitsu General’s air conditioner(s) with a mobile device from anywhere out of your home or when you are on traveling.

Main Features of FGLair

Control

- Operation ON / OFF
- Operation Mode
- Setting Temp.
- Fan Speed
- Louver Position
- Economy operation

Operation status

Schedule - Weekly Timer

2 sets of the weekly timer can be made available, which is convenient for summer and winter respectively. Up to 56 individual settings of the time can be set on a weekly basis. The schedule timer can be made available according to your lifestyle.

Other Features

- Error Display & E-mail Notification
- Multiple air conditioners operation

Up to 24 air conditioners can be registered.

All air conditioners in your home can be operated by a single mobile device.

It can also be operated on several owned residential properties.

In order to use the application software, you are required to prepare the following items of the Fujitsu General’s air conditioner(s) which supports the wireless LAN network connection and the 24/7 broadband Internet access as well as a wireless LAN router including WPS function.

H-ACT-2

The Hampden **Model H-ACT-2** Fujitsu Mini Split Trainer provides a hands-on introduction to the principle components of heating and air conditioning. This system places the indoor unit (evaporator) remotely from the outdoor unit (condenser) providing a quiet, no air flow restriction, and secure system.

The Hampden **Model H-ACT-2** Fujitsu Mini Split Trainer consists of a mechanical steel base and frame. Frame and base shall be finished in textured instrument tan. Provide two locking and non-locking casters.

All the major components have been removed from the outdoor unit and positioning them on the trainer’s panel to provide easy access for troubleshooting and visualization. All components are clearly identified by legends.

Included is a built in WIFI wireless router that supports IEEE802.11 b/g/n wireless LAN standard. This allows the mini split system to be operated by Apple and Android devices by downloading the App from the “App Store” or “Google Play”.

Also included are (8) eight instructor insertable electrical faults. The faults are located in a lockable compartment allowing the instructor to fault the system for troubleshooting.

System Specifications

Cooling Capacity:

14,500 BTU/H

Heating Capacity:

18,000 BTU/H

S.E.E.R.:

25

Speeds:

3 + Automatic

Compressor:

Twin Rotary

Evaporator:

Finned Coil with centrifugal fan

Refrigerant:

R-410A

Metering Device:

Capillary Tube

Air Circulation:

489 CUft./Min (high)

Timer:

24 hour clock with ON/OFF Programmer Timer

Controls:

Microprocessor

Thermostat:

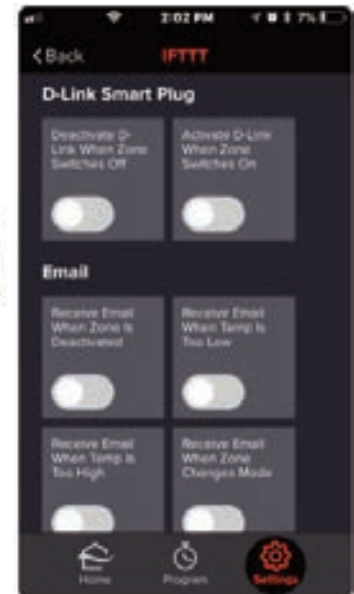
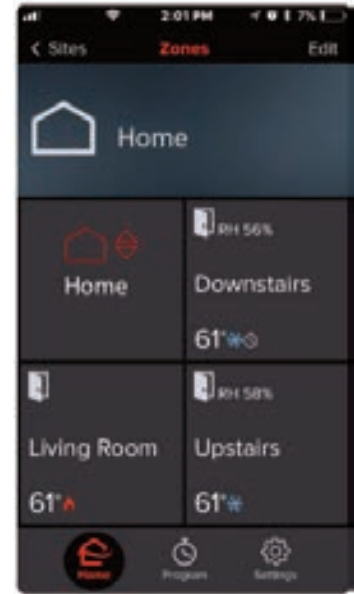
Integrated Circuit

Services Required

220VAC single-phase 60Hz

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SPLIT TYPE TRAINERS



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SPLIT TYPE TRAINERS

Mitsubishi Software

kumo cloud®, the Mitsubishi Electric US Cooling & Heating app, enables you to remotely monitor and manage your mini split systems at any time and from anywhere. The app is only compatible with either the following Wi-Fi Adapter or Wireless Interface installed by a qualified contractor into your Mitsubishi Electric indoor units. (Available to the US market at this time.)

- Wireless Interface (PAC-USWH S002-WF-1) *Latest model*
- Wi-Fi Adapter (PAC-WHS01WF-E)

The app works with Mitsubishi Electric's Wi-Fi Adapters and Wireless Interfaces to provide the following features:

- Manage all your zones and different homes
- Monitor all zone temperatures
- Monitor and change any zone's:
 - Set temperature
 - Mode (Heat, Cool, Auto, Dry, Fan, and Off)
 - Fan speed
 - Vane direction
- Receive notification of any zone's:
 - Error codes
 - Filter alert
- Receive notification when any site's temperature is out of range
- Program a schedule for any individual zone or a whole home
- Automatic download of new firmware to the latest interface
- Automatically receive app upgrades to new features and functions once they are available

H-ACT-3

The Hampden **Model H-ACT-3** Mitsubishi Mini Split Trainer provides a hands-on introduction to the principle components of heating and air conditioning. This system places the indoor unit (evaporator) remotely from the outdoor unit (condenser) providing a quiet, no air flow restriction, and secure system.

The Hampden **Model H-ACT-3** Mitsubishi Mini Split Trainer consists of a mechanical steel base and frame. Frame and base shall be finished in textured instrument tan. Provide two locking and non-locking casters.

All the major components have been removed from the outdoor unit and positioning them on the trainer's panel to provide easy access for troubleshooting and visualization. All components are clearly identified by legends.

The i-see sensor monitors the floor and ceiling of its zone for occupancy and fluctuations in temperature. If it detects an underserviced area, the unit will temporarily adjust airflow. If it doesn't find human heat signatures it will enter energy saving mode.

Also included are (8) eight instructor insertable electrical faults. The faults are located in a lockable compartment allowing the instructor to fault the system for troubleshooting.

System Specifications

Cooling Capacity:

15,000 BTU/H

Heating Capacity:

18,000 BTU/H

S.E.E.R.:

22

Speeds:

5 + Automatic

Compressor:

Twin Rotary

Evaporator:

Finned Coil with centrifugal fan

Refrigerant:

R-410A

Metering Device:

Capillary Tube

Air Circulation:

497 CUft./Min (powerful)

Timer:

24 hour clock with ON/OFF Programmer Timer

Controls:

Microprocessor

Thermostat:

Integrated Circuit

Services Required

220VAC single-phase 60Hz

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SPLIT TYPE TRAINERS



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LGMV Software

MobileLGMV is a maintenance and troubleshooting tool for LG air conditioning systems. It consists of a wireless communications module and a free smart phone app.

✘ Key function

1. Monitoring viewer: Display key information of air conditioner
2. Graph: Display pressure and frequency information of air conditioner in graph
3. Indoor unit operation control: Controls the operating mode of indoor units when the module is connected to the outdoor unit.
4. Save data: Save received air conditioner information as file
5. Test operation report: Receives test operation result and reports in HTML document
6. Error number: Display error number and supports resolution plan for the error number list in PDF document.
7. Smart function (Support for new Multi V products)
 - Installation: Convenience functions when installed the product.
 - Additional Functions: special operation, option set for outdoor & Indoor unit and manual backup.
 - Diagnostic : Using FDD functions.
 - Manual : Providing manuals.

- Smart Management : Features for App and Product maintenance.

✘ Wi-Fi Module

- Model Type : LGMV Wi-Fi Module
- Model Name : PLGMVW100

✘ Keyword : MobileLGMV, mobilel-gmv

ACT-4

The Hampden **Model H-ACT-4** LG Mini Split Trainer provides a hands-on introduction to the principle components of heating and air conditioning. This system places the indoor unit (evaporator) remotely from the outdoor unit (condenser) providing a quiet, no air flow restriction, and secure system.

The Hampden **Model H-ACT-4** LG Mini Split Trainer consists of a mechanical steel base and frame. Frame and base shall be finished in textured instrument tan. Provide two locking and non-locking casters.

All the major components have been removed from the outdoor unit and positioning them on the trainer's panel to provide easy access for troubleshooting and visualization. All components are clearly identified by legends.

The HYV2 Art Cool Premier High Efficiency Series features low ambient heating operation down to -13°F making these units a viable option as a primary heat source! Now with LGRED° Heat Technology, even when temperatures get down as low as 5°F, this system will perform at

100% heating capacity! The system will also provide low ambient cooling to 14°F.

Also included are (8) eight instructor insertable electrical faults. The faults are located in a lockable compartment allowing the instructor to fault the system for troubleshooting.

System Specifications

Cooling Capacity:

15,000 BTU/H

Heating Capacity:

18,000 BTU/H

S.E.E.R.:

24

Speeds:

Max/H/M/L

Compressor:

Twin Rotary

Evaporator:

Finned Coil with centrifugal fan

Refrigerant:

R-410A

Metering Device:

Capillary Tube

Air Circulation:

741 CUft./Min

Timer:

24 hour clock with ON/OFF Programmer Timer

Controls:

Microprocessor

Thermostat:

Integrated Circuit

Services Required

220VAC single-phase 60Hz

SPLIT TYPE TRAINERS

H-VRST-1 Variable Refrigerant System Trainer

Hampden Engineering Corporation introduces state of the art training in Variable Refrigerant HVAC systems. Based on the DAIKIN® VRVR Series of “Variable Refrigerant Volume” Mini-Split Type Heat Pumps that combine VRV, VRT and VAV techniques to provide the most energy savings and comfort.

H-VRST-1 Variable Refrigerant System Trainer

The Hampden H-VRST-1 Variable Refrigerant System Trainer combines a Daikin VRV heat pump with three indoor units (1 - ceiling mounted cassette, 1 - wall mounted unit and 1- floor standing unit.) each with its own digital controller. The system is built on a 10'L x 2.5'W x 7'H platform and includes all the components carefully arranged to provide maximum accessibility to the student. All equipment and hardware is of commercial quality and is typical of that encountered in the field by the service technician. A computer is built into the trainer and is loaded with Daikin's Data Acquisition Software.



H-VRST-1

Variable Refrigerant System Trainer (Outdoor unit not shown)

DAIKIN

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SPLIT TYPE TRAINERS

H-VRST-2 Variable Refrigerant System Trainer (Mitsubishi)

Hampden Engineering Corporation introduces state of the art training in Variable Refrigerant HVAC systems. Based on the Mitsubishi (S-Series) Variable Refrigerant Flow Split Type Heat Pumps that combine techniques to provide the most energy savings and comfort.

H-VRST-3 Variable Refrigerant System Trainer (Fujitsu)

Hampden Engineering Corporation introduces state of the art training in Variable Refrigerant HVAC systems. Based on the Fujitsu AirStage (JII-Series) Variable Refrigerant Flow Split Type Heat Pumps that combine techniques to provide the most energy savings and comfort.



H-VRST-2
Variable Refrigerant System Trainer - Mitsubishi



H-VRST-3
Variable Refrigerant System Trainer - Fujitsu

VARIABLE REFRIGERANT SYSTEMS

The U.S. Energy Information Administration states that as much as 40 percent of a building's operating costs are tied to HVAC and other mechanical systems. Variable Refrigerant Systems make the most of budget and space while offering energy-efficient technology that provides superior occupant comfort.

Variable Refrigerant Systems achieve such success by dividing a building's interior into zones, each of which can be operated separately. This is possible because of the outdoor units' inverter-driven compressor that varies its motor rotation speed, allowing it to precisely meet each zone's conditioning requirement while reducing overall power consumption.

For Variable Refrigerant Systems with heat recovery, some spaces can even be cooled while others are simultaneously heated. In this case, the system's capacity is distributed to each indoor unit via a branch circuit controller. The result is personal comfort control for occupants.

This isn't a new technology. Variable Refrigerant Systems have been used throughout the world since the 1980s. In many countries, it's the most used HVAC technology: for example in Japan, Variable Refrigerant Systems represent approximately 90 percent of installed systems within commercial buildings, Europe 81 percent and China 86 percent. Variable Refrigerant Systems for commercial applications was introduced to the U.S. market in 2003. Since then, there have been major improvements in the performance of the inverter-driven compressor, including improved energy efficiencies and reduced operational noise. There have also been major improvements in heating capabilities.

Over the years, projects using Variable Refrigerant Systems have also discovered the benefits of its reduced and simple maintenance requirements. As a state-of-the-art system, it also offers powerful self-diagnostics and aids in troubleshooting.

Additional end-user benefits: Reduced utility bills, Personalized comfort control, Whisper-quiet operation, and High Indoor Air Quality (IAQ)

2018 National HVACR Educators and Trainers Conference



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