

***Snap-on* ACT121**

REMOTE PROGRAMMABLE MODULE

Owner's Manual



WARNING:



- Pressurized systems can leak.
Wear safety shield (user and bystanders).



- Use in well ventilated areas.**
Do not breathe refrigerant vapors.
Read and follow instructions.
Pressurized leaks and breathing vapors may cause injury.



- Moving engine components.
Wear safety goggles (user and bystanders).



- Keep self and tools clear of moving parts.**
Moving components can cause injury.

GENERAL INFORMATION

The ACT121 Remote Programmable Module is an accessory to the ACT120 Electronic Charging Meter. The ACT121 will interface with the ACT120 to permit automatic, programmable charging with the ACT120. The bi-directional communication uses the display on the ACT120 to indicate the operational status and modes of the ACT121, as well as the load cell output signal to control the electric valve of the ACT121.

Self powered by 4 "AA" batteries, the ACT121 is completely portable, and expands the applications of the ACT120 to permit automatic charging anywhere, anytime. The unit includes both 1/4" Male Flare fittings and 1/2" ACME fittings to allow connection to all standard charging manifolds and all types of refrigerant cylinders. The 500psi rating of the valve is compatible with, and capable of handling, all common refrigerants.

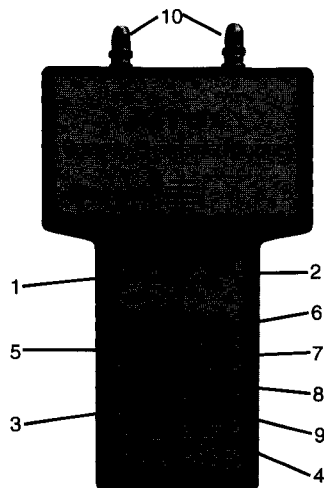
The Tactile Keypad of the ACT121 is color coded and includes universal symbols, permitting simple and intuitive operation. Audible sounds work in conjunction with the keypad. Whenever an acceptable or affirmative key press is made, a positive, high frequency beep is heard. Unaccepted or incorrect key presses are accompanied by a lower frequency "raspberry" sound.

In order to gain the fullest benefits of your purchase, please carefully read and review the information in the following pages. If you have further questions, or need additional assistance, please contact your Snap-on distributor.

FEATURES

- Permits automatic programmable charging or recovery using the ACT120 Electronic Scale
- Self-contained and portable, powered by 4-AA batteries
- Color-coded Tactile Keypad with universal symbols
- Compatible with all refrigerants
- LED Indicators for Low Battery and Valve Open alerts
- Audible indications for key presses, pause, and valve actuation.
- Includes protective carrying case with integrated handle/hanging strap, and interface cable for ACT120
- High Impact case
- One Year Warranty
- Made in USA

PARTS AND CONTROLS



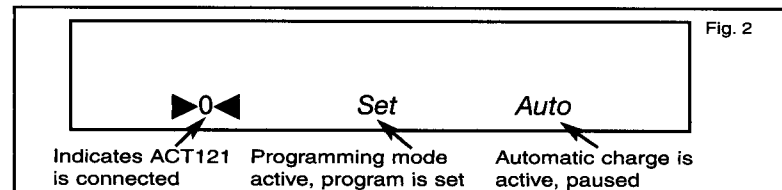
- | | |
|----------------------|------------------------|
| 1. Battery/Power LED | 6. Cancel Key |
| 2. Valve Open LED | 7. Back Key |
| 3. Set Key | 8. Repeat Key |
| 4. Go Key | 9. Pause Key |
| 5. Numeric Keys | 10. Inlet/Outlet Ports |

OPERATING INSTRUCTIONS

ACT120 INTERFACE

NOTE: YOU MUST HAVE A ACT120 SCALE IN ORDER TO USE THIS DEVICE. The ACT120 LCD will display all status and command info from the ACT121. *Within the text of this manual, all ACT120 displays are printed in italics.*

There are three enunciators which appear on the ACT120 display and will indicate the ACT121 status when the two device are connected, see Fig. 2.



SET-UP PROCEDURE

Refer to the Maintenance Section for battery installation or replacement.

The unit comes packaged in a ballistic nylon, protective carrying case. The design is such that the unit may operated without removing it from the carrying case. The top carrying handle is designed to also serve as a hanging strap, permitting flexible location of the ACT121.

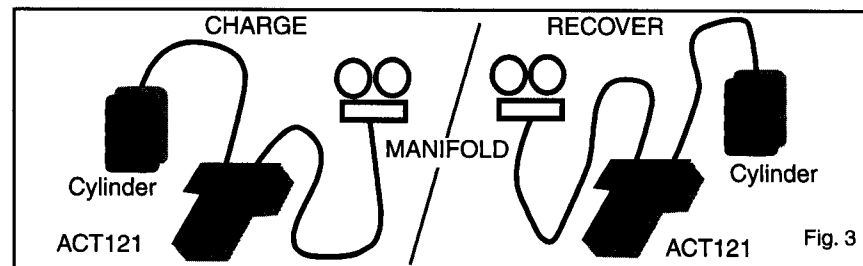
1. Choose the fittings which you will be using. The standard fittings on the ACT121 are 1/4" SAE Flare fittings for use with R12.
 - If you are working with R134a use the supplied 1/2" ACME adapters. These have a female Flare thread which will screw onto the standard fittings, and seal without tape dope or thread sealant.

Charging Connections (see Fig. 3)

- a) Connect the refrigerant cylinder to the INLET (left) fitting of the ACT121 with the shortest possible hose. Note that ideally this hose should have shut-off valves on both ends.
- b) Connect the OUTLET (right) fitting of the ACT121 to an evacuated supply hose connected to a manifold gauge set.

Recovery Connections (see Fig. 3)

- a) Connect a manifold gauge set to the INLET (left) fitting of the ACT121.
 - b) Connect the OUTLET (right) fitting of the ACT121 to an approved recovery cylinder.
2. Connect the manifold service hoses to the a/c or refrigeration system.



3. Place the refrigerant cylinder on the ACT120 scale's platform.
4. Switch on the ACT120 by pressing the ON/OFF button.
5. Connect the ACT121 to the ACT120 with the supplied connector cable. This will switch the ACT121 on, indicated by three quick beeps, and the illumination of the "Battery" LED. When connected, a valve enunciator (0) appears on the bottom of the ACT120 display. Note: there is no power switch to the ACT121, it is switched on by connection to an energized ACT120 and switched off upon disconnection, or by switching off the ACT120.

PROGRAMMING

1. Choose the unit of measure to be used by pressing the UNITS button on the ACT120. You may select pounds/ounces, decimal pounds, or kilograms/grams.
2. Press SET key to enter the value to be dispensed. The "Set" enunciator will appear and flash on the ACT120 display.

- Use the numeric keypad to enter value. Entering always starts from the leftmost character. Blanks are not accepted, zeroes must be entered if a numeric value is not desired. For example:
to enter 2 Pounds 13.5 oz. - press 0, 2, 1, 3, 5
to enter 5 ounces - press 0, 0, 0, 5, 0
- The following limitations exist:
Pounds/Ounces mode - only a 0 or 1 may be entered in the 1st character position of the ounces display. If a 1 is entered, then 6, 7, 8, or 9 may not be entered in the 2nd character position (as 16oz.=1 Lb, 17oz.=1Lb 1oz., etc.).
Kilograms mode - 5 through 9 may not be entered in the 1st character position, as this is in excess of the scale capacity.
- If an error is made during entry, use the BACK key to edit. Use the CANCEL key to abort programming while in the SET mode.
 - When programming is complete, press SET key again to lock in programmed value. The "Set" annunciator on the ACT120 display will stop flashing, and the programmed value will be displayed, permitting confirmation prior to beginning the charge.

CHARGE/RECOVERY

- CHARGING ONLY:** Open the refrigerant cylinder valve to fill the hose between the cylinder and the ACT121. Purge air from hose.
RECOVERY ONLY: Open the manifold valves or switch on recovery unit, to fill the hose between the manifold and the ACT121. Then open the refrigerant cylinder valve.
 - CHARGING ONLY:** Make sure manifold valves are closed.
Initiate flow through the valve by pressing the GO key. The valve will open, the 'Valve' LED will light and refrigerant will begin to flow. The "Auto" annunciator will appear on the ACT120 display.
As soon as the GO key is pressed, the ACT120 display will show zero, and then very quickly, a small quantity of charged/recovered refrigerant will be displayed (along with the minus sign, indicating weight is being removed). This is the volume of refrigerant which has moved into the hose between the ACT121 and the manifold.
- RECOVERY ONLY:** Initiate flow through the valve by pressing the GO key. The valve will open, the 'Valve' LED will light and refrigerant will begin to flow into the cylinder. The "Auto" annunciator will appear on the ACT120 display and the display on the ACT120 will count up as refrigerant is added.
- CHARGING ONLY:** Open the manifold valves slowly to allow refrigerant flow into the system. The numbers on the ACT120 display will continue to increase as refrigerant flows out of the cylinder; indicating the amount that has been charged.
 - If necessary, press the PAUSE key to interrupt operation, see below.
 - When displayed value reaches programmed amount, four beeps will be heard, valve closes and "Valve" LED goes out, refrigerant flow is stopped. The "Auto" annunciator will disappear from the ACT120 display, and the amount of refrigerant charged/recovered will remain displayed on the ACT120.
 - CHARGING ONLY:** Leave the manifold valve(s) open for a few seconds in order to draw the refrigerant from the supply hose into the system. Close manifold valves.
 - RECOVERY ONLY:** Close manifold valves and cylinder valve.
 - When completed, disconnect hoses from ACT121 and cylinder.
 - To cancel the operation at any time after the GO key has been pressed, interrupt the flow and close the valve by pressing the PAUSE key. Press the CANCEL key to cease the operation. The "Auto" annunciator will disappear from the ACT120 display, and the amount of refrigerant charged/recovered will remain displayed on the ACT120.
- CAUTION:** Once this is done, the remaining programmed cycle cannot be completed!!

PAUSE FEATURE

The ACT121 features a PAUSE Key that may be used during automatic dispensing to interrupt flow through the valve; or when manually charging with the ACT120 to hold the displayed value. This is useful if it becomes necessary to switch refrigerant cylinders or allow system pressures to equalize. In critical charge (less than 8 ounces) situations it is desirable to lock the scale display to prevent drift or bounce, when opening and closing, heating, or shifting the cylinder.

Automatic Mode

- Press the PAUSE Key. The valve will close, the "Valve" LED will go out, refrigerant flow will stop and the ACT121 will beep every second. The "Auto" annunciator on the ACT120 display will flash.
- To resume automatic dispensing, press the PAUSE Key again. The Valve will open, the "Valve" LED will come on, refrigerant will flow, and the ACT121 will silence. The "Auto" annunciator on the ACT120 display will stop flashing.

Manual Mode

- With the ACT121 connected to the ACT120, but without automatic charging active, press the PAUSE Key. This will freeze the ACT120 display; the ACT121 will beep every second. The "Auto" annunciator on the ACT120 display will flash.
Caution: Only do this if you are not, or have stopped, charging. With the Manual Pause activated any weight added or removed from the ACT120 platform will be ignored.

REPEAT PROGRAM FEATURE

For multiple charges of the same amount, the REPEAT key may be used to re-enter and lock a duplicate program, allowing for one step charging.

- After entering the desired program value as described earlier, and completing one charge cycle, the program value remains in memory.

- The amount of refrigerant charged/recovered will remain displayed on the ACT120.
- After making the necessary hose disconnection, and re-connection, press the REPEAT Key. The "Set" annunciator on the ACT120 display will appear, and the programmed value will be displayed.
 - Press the GO Key, and the cycle may be repeated as many times as desired.
- CAUTION:** The CANCEL Key may be used as described above. If the CANCEL Key is pressed before the GO Key, the memory is erased and the Repeat Feature will not function. If pressed during a pause in charging, it stops the present operation, but does not erase the memory. Pressing the CANCEL Key a second time will erase the memory, and the Repeat Feature will not function.

FAIL SAFE FEATURE

The ACT121 is designed with a fail safe feature that will close the valve in the event of lost power or signal.

The following conditions will cause the ACT121 to fail safe:

- The ACT121 batteries fail
- The connection to the ACT120 is lost
- The ACT120 is switched off
- The ACT120 battery fails

In anyone of these instances, the ACT121 will close the valve and shut down. All memory will be lost and it will not be possible to resume programmed dispensing, or activate the repeat feature. Refer to the maintenance section below for Low Battery indication warnings of the ACT121. If the "Battery" annunciator on the ACT120 appears, it indicates approximately 2 hours of remaining operation. Refer to the instructions included with the ACT120, and do not operate the ACT121 again until the ACT120 battery is replaced.

MAINTENANCE

BATTERY INSTALLATION/REPLACEMENT

The Battery LED on the left side of the unit indicates battery condition. When the battery voltage weakens the LED will begin to flash. The valve annunciator (▶◀) on the ACT120 will also begin flashing. Approximately 2 hours of operation remain when this occurs. Complete the current operation and replace the batteries.

CAUTION: If the batteries are not replaced and voltage falls below that required for operation, the ACT121 will go into the fail safe (see above) mode and close the valve. Flow will be interrupted and all memory will be erased. The unit will not operate at all until the batteries are replaced.

To install or replace batteries:

- Remove the ACT121 from its protective carrying case.
- Remove the battery cover on the back of the unit by squeezing the small tab at the base towards the cover, and lifting the cover away.
- If applicable, remove the old batteries.
- Install 4 new or tested "AA" size Alkaline batteries, carefully noting the polarity indications in the compartment.
- Replace the battery cover, pressing down until the tab snaps in place.
- Replace the unit into its protective carrying case.

CLEANING PORT FILTERS

The ACT121 inlet and outlet ports contain fine mesh screen filters to prevent dirt or particulate from entering the valve and causing the seat to leak. In the event that you notice reduced flow through the valve, or if you have recovered very dirty/contaminated refrigerant, it is recommended that these filters be cleaned.

To clean filters:

- Connect ACT121 to ACT120, enter in a program value and press the GO key to open the valve.
- Connect a source of clean and dry shop or compressed air (at least 80-100psi recommended) to the OUTLET (right) port.
- With the INLET (left) port pointed away from yourself and others, open or turn on source and allow the compressed air to run backwards through the valve for several seconds.
- Close or turn off source and disconnect from ACT121.
- Disconnect the ACT121 from the ACT120. Valve will close automatically once disconnected.

REPLACEMENT PARTS

1/4" FFL to 1/2" ACME Male adapters
Carrying case
Connector cable

ACT1211
ACT1212
ACT1213

SPECIFICATIONS

- Charging Ports: 1/4" MFL fittings;
1/2" ACME
adapters
- Power Supply: 4-AA batteries
- Battery Life: 100 hours continuous operation
- Operating Temp.: 32° to 120°F
(0°- 49°C)
- Max. Valve
Operating Pressure: 500psi
- Dimensions: 9" x 5 1/2" x 3"
(22.8x14x7.6cm)
- Weight: 1 lb. 12 oz.
(793 grams)

WARRANTY

This instrument has been designed and manufactured to provide unlimited service. Should the unit be inoperative, after performing the recommended maintenance, a no-charge repair or replacement will be made to the original purchaser if the claim is made within one year from the date of purchase. This warranty applies to all repairable instruments that have not been tampered with or damaged through improper use. This warranty does not cover batteries, or any other materials that wear out during normal operation of the instrument.

Before returning your instrument for repair please make sure that you have carefully reviewed the Unit Maintenance and Troubleshooting sections of this manual to determine if the problem can be easily fixed. Ensure that the batteries are working properly BEFORE returning the unit. If the instrument still fails to work properly contact your Snap-on distributor.

TROUBLESHOOTING

Symptom	Possible Cause	Cure
Battery LED does not light (unit does work)	Unit not connected properly to ACT120	Check connection see page 3
	ACT120 not switched on	Switch on ACT120 see page 3
	ACT121 batteries dead	Replace batteries see page 5
	ACT120 battery dead	Check Battery see ACT120 instructions
Cannot enter some numbers when programming	invalid entries in ounces or kg fields	Review valid entries see page 4
GO Key does not function	no program set	Look for 'Set' enunciator on ACT120 See p. 4
CANCEL key does work	Unit is in Auto mode	Verify 'Auto' enunciator is present, press PAUSE Key, see p.4
	No program set	Look for 'Set' enunciator on ACT120
Cannot program unit	Not in Set Mode	Look for 'Set' enunciator on ACT120, see page 4
REPEAT Key does work	no program set	Look for 'Set' enunciator on ACT120 See p. 4-5
ACT120 display does not change when weight is removed / added	Unit in Set or Pause Mode	Verify mode by looking at enunciators and exiting Set or Pause Mode.