

SMARTCOOL ECO3

ECO3 Technical Note #3 Reading Equipment Labels

How To Read Equipment Labels

Any time you need to do any calculations at all in the air conditioning/refrigeration world, you will need to read these numbers. Whether preparing an estimate of cost and savings, or reporting the dollar savings of an installed Smartcool, the first step is always to read the label. Get in the habit of taking a snapshot every time you pass by one. It will save you many a trip!

The two most common systems you will see are the Split, and the Package systems. Split systems include an inside evaporator (coil and indoor fan), and a condenser (usually outdoors and including coils, compressor and condenser fan).

Package systems (also called rooftops), contain the evaporator and the condenser in the same housing. In addition to rooftops, these include hotel room PTACs, Window units and portable units.

All of these systems may contain one or multiple compressors in a wide variety of configurations.

1. Study the two labels below. These are from a split system outdoor condensing unit.
2. CAPACITY: See under the model numbers that one has a 36 and the other a 48? This is manufacturers code for a 3 ton and a 4 ton. This is because 12,000 BTU's per hour equals a ton, so look for the divide by 12 numbers.
3. VOLTAGE: Notice both say 208-230? That is because sometimes they are wired to a three phase power supply that delivers 120/208 instead of the more typical single phase 120/240. There is a unwritten tolerance on this value (well, actually written in this case to 253 max), actual voltages are often up to about 246. If you should measure the value, use the measured value in your calculations.
4. Amperage, Compressor
 - a. RLA Running Load Amperage
This is the nominal compressor amperage and what we use in our calculations. Actual values can be -20 to about +10% of this value depending on the thermal load the compressor sees.
 - b. LRA Locked Rotor Amperage
Not listed on these labels, but a common feature of most. This is the maximum current if the rotor stalls or at start-up. It is either 4 or 5 times higher than RLA. If the RLA is missing from the label but you have LRA, a close approximation is to divide by 4.
5. Amperage, Fan
 - a. FLA Full load Amperage
On a condensor, this is the current draw of the fan. Be careful on a package system to select the outdoor (not the indoor) fan.
6. Phase
Single (1 ϕ) phase comes in on two wires (hot-black) and neutral-white (120 volts), or hot 1-black

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(L1) and hot 2-red(L2) for 230 volts. Plus ground.

Three phase (3 ϕ) comes in on three wires, L1-L2-L3, plus neutral (white) and ground (green).

IT IS IMPORTANT TO KNOW WHAT YOU HAVE because power calculations for three phase have a 1.73 multiplier. Using the wrong phase could change your payback from 24 months, to 41 months and torpedo the sale.

Once you have these values, they can be input into the sales calculator or the analysis sheets to compute proposed and actual savings. Please be sure to see the other technical notes for additional information on performance and calculations.

SMARTCOOL ECO3

SERIAL E093103073	
PROD	N2A336AKB300
MODEL	N2A336AKB300
METERING	TXU NA
DEVICE	INDOOR OUTDOOR
FACTORY CHARGED	R-22
	5.40 LBS 2.45 KG
INDOOR TXU SUB COOLING	7 °F
POWER SUPPLY	208-230 VOLTS AC
	1 PH 60 HZ
PERMISSIBLE VOLTAGE AT UNIT	253 MAX 197 MIN
SUITABLE FOR OUTDOOR USE	
COMPRESSOR	208/230 VOLTS AC
	1 PH 60 HZ
	14.4 RLA 77.0 LRA
FAN MOTOR	208/230 VOLTS AC
	1 PH 60 HZ
	1/5 HP 1.1 FLA
DESIGN/TEST PRESSURE GAGE	
HI	300 PSI 2068 KPA
LO	150 PSI 1034 KPA
MAX DESIGN/WORKING PRESSURE	
	700 PSIG 4826 KPA
MINIMUM CIRCUIT AMPS 19.1	
MAX FUSE	30 A
MAX CKT-BKR(*)	30 A
* HACR TYPE RECOMMENDED	
MODEL NUMBER N2A336AKB300	
SERIAL NUMBER E093103073	
DATE OF MANUFACTURE JUL 2009	
 CENTRAL COOLING AIR CONDITIONER 3R39	
 ARI Standard 210/240 Unitary Air Conditioners	
<small>CERTIFIED CAPACITY AND EFFICIENCY RATINGS ARE VALID ONLY WHEN THE COMBINATION OF INDOOR UNIT AND OUTDOOR UNIT IS LISTED IN THE ARI DIRECTORY.</small> International Comfort Products, LLC Lewisburg, TN 37091 U.S.A.	
335384-4004	

SERIAL E093005256	
PROD	N2A348AKA400
MODEL	N2A348AKA400
METERING	TXU NA
DEVICE	INDOOR OUTDOOR
FACTORY CHARGED	R-22
	7.54 LBS 3.42 KG
INDOOR TXU SUB COOLING	10 °F
POWER SUPPLY	208-230 VOLTS AC
	1 PH 60 HZ
PERMISSIBLE VOLTAGE AT UNIT	253 MAX 197 MIN
SUITABLE FOR OUTDOOR USE	
COMPRESSOR	208/230 VOLTS AC
	1 PH 60 HZ
	20.2 RLA 137.0 LRA
FAN MOTOR	208/230 VOLTS AC
	1 PH 60 HZ
	1/4 HP 1.2 FLA
DESIGN/TEST PRESSURE GAGE	
HI	300 PSI 2068 KPA
LO	150 PSI 1034 KPA
MAX DESIGN/WORKING PRESSURE	
	700 PSIG 4826 KPA
MINIMUM CIRCUIT AMPS 26.4	
MAX FUSE	40 A
MAX CKT-BKR(*)	40 A
* HACR TYPE RECOMMENDED	
MODEL NUMBER N2A348AKA400	
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