



# **Energy Saving for Air Conditioning System (Chin Poon Industrial CO, LTD.)**

**Etern**

**By: Kidd Feng 2013/11/20**

# CHIN POON



## Case information

**Location:** Taoyuan, Luchu (Taoyuan plant)

**Industry:** PCB manufacturer

**Employees:** About 3800 employees

**Requirement:** Energy saving for packaged air conditioner

**Implementation:** Using FCM to reduce power consumption

## ◆ Equipment



## ◆ Analysis

Item	Current	Estimate	Guarantee
Capability (RT)	30	30	30
Consumed (KW)	30.0	30.0	30.0
Loading avg.	70%	70%	70%
Energy saving (%)	-	30%	20%
Consumption (KWH)	21.0	14.7	16.8
Operating (hr/day)	24	24	24
Operating (day/month)	30	30	30
Consumption (KWH/month)	15,120	10,584	12,096
Electricity (NT\$/month)	45,360	31,752	36,288
Saving (KWH/month)	-	4,536	3,024
Saving (NT\$/month)	-	13,608	9,072
Implement cost (NT\$)	-		
Return of I.C. (month)	-		

NT\$3.0 /KWH

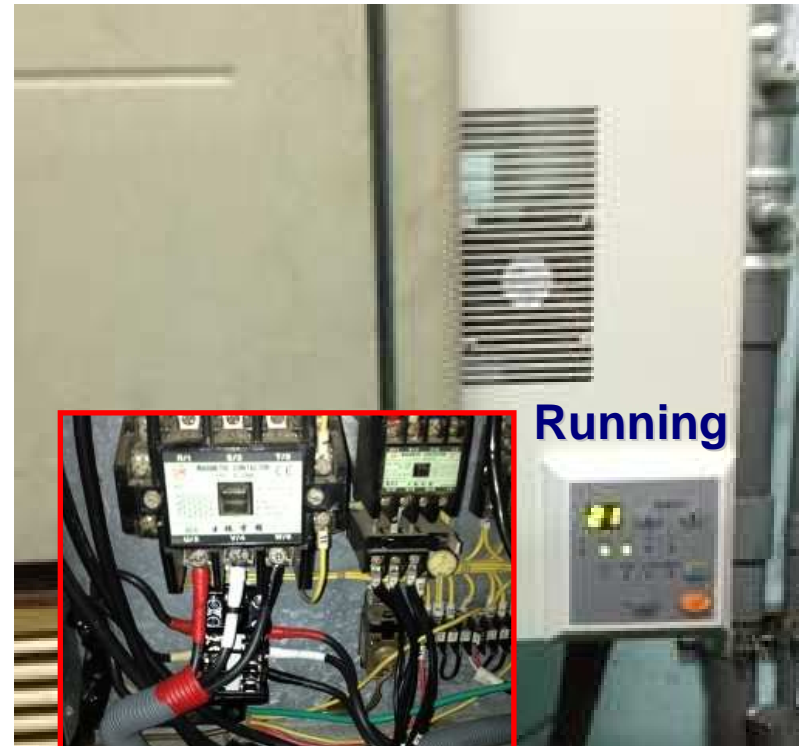
## ◆ Energy saving system



Position



Distribution

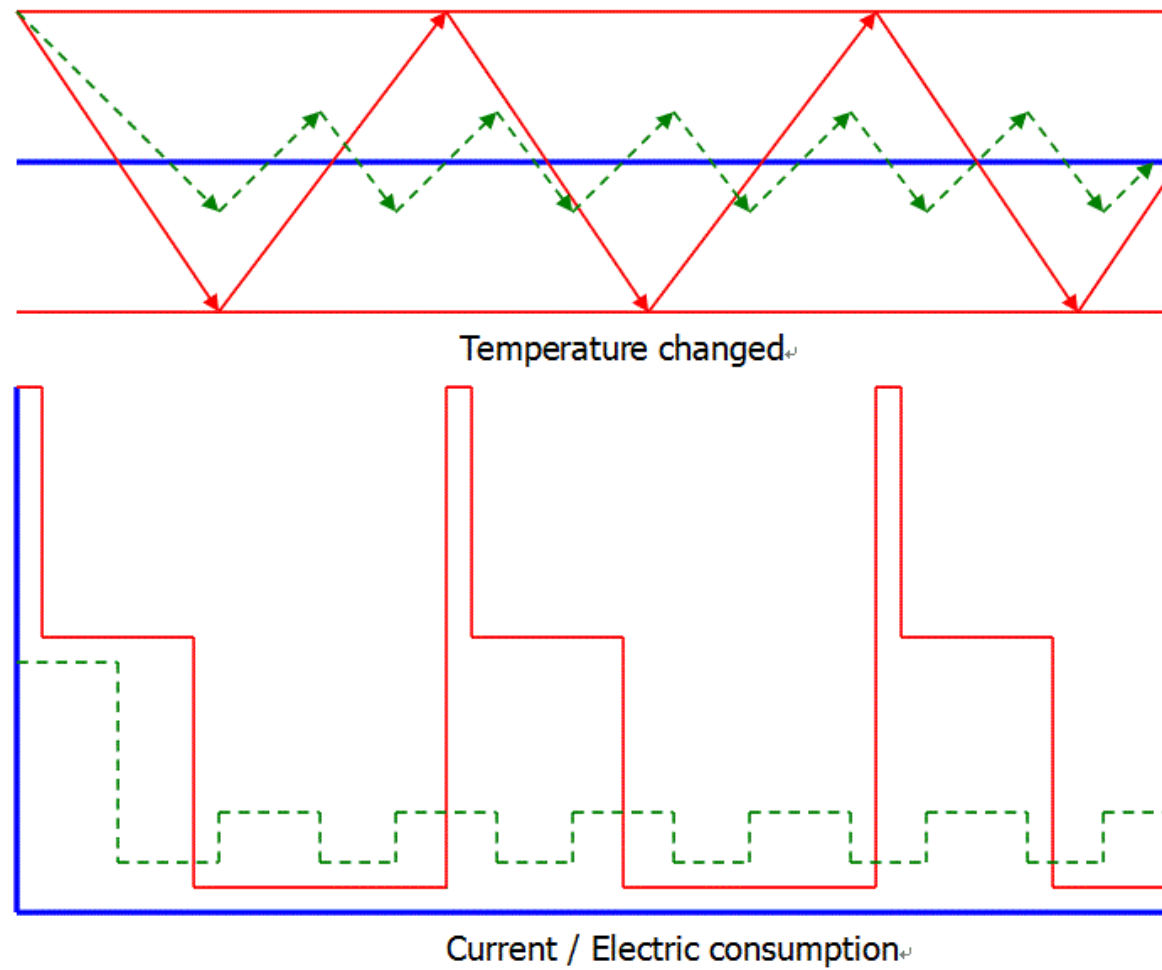


Running



## ◆ Theorem

With FCM (green) vs. Without FCM (red)



## ◆ Benefits

Place	Utility room (Taoyuan plant)					
Equipment	Carrier 30RT packaged air conditioner					
Op. mode	Fixed Hz ( <b>without</b> ES sys.)			Flexible Hz ( <b>with</b> ES sys.)		
Op. period	3/10 ~ 3/16			3/22 ~ 3/28		
Op. hours	144			144		
KWH meter	Start	End	Accum.	Start	End	Accum.
KWH	0.18	1,903.93	1,903.75	1,905.23	2,618.57	713.34
Standard	KWH/hr	13.22		KWH/hr	4.95	
Saving(%)	(13.22 - 4.95) / 13.22 = 62.56%					
Saving (KWH/month)	(13.22 x 24 x 30) x 62.56% = 5,955					
Saving (NT\$/month)	5,955 x 2.3 = NT\$13,697					
Saving (NT\$/year)	13,697 x 12 = NT\$164,364					
Acceptance	Qualified					



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