



## Product Information Guide January 2014



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Specifications and Pricing are subject to change without notice.



## **C14 Wireless Controller Products Description**

IC Tech's C14 Product line supports many customer-requested and field tested features for use in the Remote Control and Automation markets.

The primary features are as follow:

- A long-range, long-term reliable wireless connection that allows use in remote (1 to over 120 air mile distances in use) applications using a unique radio-modem technology which allows data recovery down to -113dbm usable sensitivity. Typical data recovery @ -110 dbm is better than 90%, @ -113dbm, better than 50%.
- The modem Store and Forward feature, standard in every unit, permits even greater distances by allowing routing over and around terrain obstacles. Intelligent routing, using the Modbus Protocol, allows a unique path for each slave. Standard Routing allows any protocol to be forwarded. No Routing allows direct communication as with any other radio-modem. Setup and use of this feature has been designed for the easiest possible user interface through included software.
- Industrial grade, Modbus compatible, TVSS Protected Analog, Optically Isolated Digital Inputs, Relay Isolated Digital Outputs provide for remote control and monitoring of many sensor types at sites as part of the Radio-Modem on all products.
- Programmable features of all products gives the user almost unlimited possibilities for use in Data Logging, Gate Controls, Water or Gas Flow Measurement and Calculation and so on for on-site system management. A simple and relatively easy to use, built-in Intel designed Basic Interpreter coupled with industry standard Modbus features give many end-users the ability to self-maintain their own programs and systems.
- Display option allows on-site readings without requiring a laptop or other interface.
- Modbus Protocol used throughout the product line for Industry standard acceptance into many off-the-shelf Software HMI packages. Integration into existing systems that use Modbus is also made easier.



### **C14 Technical Features Overview**

1. **10 Analog Inputs**, 6 available to the user, 4 dedicated for Power, Battery monitor, Temperature, and RSSI.
2. **4 Digital Inputs**, Optically Isolated, Positive (8-27vdc) Voltage Active.
3. **2 Digital Outputs**, Solid State, 1A @ 60VDC
4. 32K Non-volatile EEPROM
5. 64K Non-volatile Flash, 32K available
6. **Charging Controller** on-board for Solar or other DC power sources up to 30 VDC input and selectable for 13.7v standby or 14.8v intermittent (Solar ~30watts) battery charging.
7. **Radio-Modem** built-in, full 1 to 5 watt transmit power with exclusive IC Tech long-range Modem and Store & Forward technology for remote monitoring and control over long distances in rugged terrain and noisy environments.
8. **LED Indicators** for Power and Modem functions to aid in instant troubleshooting or assessment of critical system functions
9. **Industrial Grade** components for reliable field operation and -30 Deg C to +50 Deg C (158 F) operation for Radio, -40 Deg C to +85 Deg C for all other components.

### **Enclosure Information:**

The -1086 option includes a NEMA 4X, 10" Tall x 8" Wide x 6" Deep Fiberglass enclosure

The -864 Unit includes NEMA 4X, 8" Tall x 6" Wide x 4" Deep Fiberglass enclosure

The -664 Unit includes NEMA 4X, 6" Tall x 6" Wide x 4" Deep Fiberglass enclosure

All products can be used in customer supplied enclosures and include only the Radio-Modem and I/O Controller integrated on an aluminum mounting bracket.

# IC TECH MODEL NUMBER GUIDE

## BASE UNIT

|            |  |   |
|------------|--|---|
| <b>C14</b> |  | Radio/Modem with Programmable I/O 6AI, 4DI, 2DO, mounting bracket |
| <b>RM1</b> |  | Radio/Modem with serial port, mounting bracket                    |
|            |  |   |

## RADIO

|           |  |   |
|-----------|--|---|
| <b>1S</b> |  | VHF 148-174Mhz, Licensed channels, 5watt, Digital Radio     |
| <b>2S</b> |  | VHF 151-154Mhz, License Free channels, 2watt, Digital Radio |
| <b>3S</b> |  | UHF 402-430Mhz, Licensed channels, 4watt, Digital Radio     |
| <b>4S</b> |  | UHF 450-470Mhz, Licensed channels, 4watt, Digital Radio     |
| <b>SS</b> |  | SS 902-928Mhz, License Free channels, 4mwatt, Digital Radio |

## BATTERY

|             |  |                   |
|-------------|--|-------------------|
| <b>B2.8</b> |  | 2.8AH SLA Battery |
| <b>B7</b>   |  | 7AH SLA Battery   |
| <b>B12</b>  |  | 12AH SLA Battery  |
| <b>B35</b>  |  | 35AH SLA Battery  |
| <b>B80</b>  |  | 80AH SLA Battery  |

## ENCLOSURE

|              |  |  |
|--------------|--|--|
| <b>16126</b> |  | 16x12x6 Nema 4 metal enclosure with internal RF conn cable, locking handle, back-plate |
| <b>1086</b>  |  | 10x8x6 Nema 4 Fiberglass enclosure w/ int RF conn for C14, RM1                         |
| <b>864</b>   |  | 8x6x4 Nema 4 Fiberglass enclosure with external RF connection for C14 and RM1          |
| <b>664</b>   |  | 6x6x4 Nema 4 Fiberglass enclosure w/window and ext RF conn for C14                     |

## DISPLAY

|           |  |   |
|-----------|--|---|
| <b>DA</b> |  | 2x16 character LCD Display mounted on C14 Enclosure |
|           |  |   |
|           |  |   |

**Part Number Example**

**C14 — 4S — BH35 — 16126 — DA — See Additional Options on the next page**

**C14 RTU with 14 I/O, 450-470 MHz Radio, 7AH Battery in Housing, 16x12x6 Enclosure, LCD Display**

# IC TECH MODEL NUMBER GUIDE (Cont.)

## ENCLOSURE OPTIONS

|            |  |   |
|------------|--|---|
| <b>WEC</b> |  | Optional cutouts in enclosures > user must specify cuts with drawings at time of order. Price depends on number and type of cuts. One-Time NRE charges will apply |
|------------|--|---|

## ANTENNA

|                   |  |   |
|-------------------|--|---|
| <b>AKA/NN/25</b>  |  | 3 Element 7.1db gain Yagi Antenna w/25ft. RG8X Low Loss Coax, N Male connectors both ends; add \$50 for VHF |
| <b>AKB/NN/25</b>  |  | 5 Element same as above; add \$50 for VHF   |
| <b>AKC/NN/25</b>  |  | 6 Element same as above; add \$50 for VHF   |
| <b>AKD/NN/100</b> |  | 8db gain Omni-Directional ant same cable/connectors as above; add \$50 VHF                                  |
| <b>AKE/BN/15</b>  |  | Phantom Omni antenna w/15' RG8X cable, 3/8 brass mount, N Male conn   |

## SOLAR PANEL

|            |  |  |
|------------|--|--|
| <b>SPA</b> |  | 20 Watt Solar Panel/Side of pole bracket Kit |
| <b>SPB</b> |  | 10 Watt Solar Panel/Side of pole bracket Kit |
| <b>SPC</b> |  | 6 Watt Solar Panel/Side of pole bracket Kit  |

## MISCELLANEOUS ACCESSORIES

|             |  |  |
|-------------|--|--|
| <b>PKA</b>  |  | Software & Cables for Standard Radios    |
| <b>BC</b>   |  | 24VDC, 2.5A Power Supply, Din Rail Mount |
| <b>JP18</b> |  | 18" BNC Male to N Female Bulkhead cable  |
| <b>AKL</b>  |  | "Polyphaser" external Lightning Arrestor |

Part Number Example

**WEC** **AKA/NN/25** **SPA** **PKA** **BC** **AKL**

Accessories continued on the next page

**With Window Kit, 3 Element YAGI Antenna, 20 Watt Solar Panel, Radio Programming Kit, Power Supply, External Lightning Arrestor**

Standard Discounts do not apply to the following options:

1. Battery
2. Enclosure
3. Antenna
4. Solar Panel
5. Miscellaneous

### Antenna Kit NOTES:

1. **.NN** above indicates connector choice for each end of coax: N=N Male, B=BNC Male.
2. **/25** above indicates coax length choices: to change coax length, replace 25 with a value from 01 to 25. If longer than 25 feet is required, call for details and pricing.
3. Coax cable used is RG8X low loss (.242" O.D.). Similar in size to RG58/U (.195" O.D.)
4. **UHF or VHF** antenna pricing is assumed based on radio specified with order.

**MISCELLANEOUS PACKAGES AND ACCESSORIES**

|              |  |   |
|--------------|--|---|
| <b>FCC</b>   |  | <b>FCC License Coordination</b>   |
| <b>STW</b>   |  | <b>USGS Type Stilling Well for Open Channel Flow Measurement</b>  |
| <b>WMD</b>   |  | <b>Modify Existing USGS Type Well for Radio Telemetry Addition</b>  |
|              |  |   |
| <b>SLBR</b>  |  | <b>Shop Labor Rate</b>  |
|              |  |   |
| <b>FLB</b>   |  | <b>Field Labor Rate (Travel extra)</b>  |
| <b>PLB</b>   |  | <b>Programming Labor Rate</b>   |
| <b>SWMP1</b> |  | <b>Surface Water Station Monitoring Package includes: RM1 RTU, Sutron SDR, 35AH Battery, Solar Charger in a USGS style instrument enclosure, 7db Yagi antenna, 15' coax cable kit, 20W solar panel with mounting bracket.</b>                           |
|              |  |   |
| <b>AVMP</b>  |  | <b>Water Meter Package includes: RM1 RTU, Greyline AVFM5.0 area velocity flow meter, 80AH battery, solar charger 40W solar panel with mounting bracket in a 30x24x8 Nema 12 enclosure, 7db Yagi antenna, 15' coax cable kit.</b>                        |
|              |  |   |
| <b>MWMP</b>  |  | <b>Well Meter Package includes: C14 RTU, Submersible level transducer (100' cable), 24VDC power supply, McCrometer flow meter electronic adapter, 10x8x6 Nema 12 enclosure, 7db Yagi antenna, 15' coax cable kit.</b>                                   |
|              |  |   |
|              |  |   |
| <b>VISTA</b> |  | <b>Standard SCADA Software License, one user, 300 tags</b>  |
|              |  |   |
| <b>SWSP</b>  |  | <b>Small Water System Package, includes, Vista software license (100 channels), 1 graphic screen with control features, six pre-programmed C14 RTU's for 4 wells, 1 booster station (w/ground tank) and 1 overhead tank, antennas, surge arrestors.</b> |
|              |  |   |
|              |  |   |



## **IC Tech, Inc. Warranty Statement**

All components manufactured by IC Tech are warranted for 12 months to be free from manufactured defects, firmware bugs and from failure due to design.

This warranty includes all parts and labor for 6 months from the date of delivery to customer. All parts continue to be covered for 6 months beyond the first 6 months. Labor to repair or service the unit will be billed to the customer during the last 6 months of warranty. Software is not included in the 12 month warranty.

### **First 30 Days Immediate Exchange Program:**

For the first 30 days of the warranty period, IC Tech will exchange the complete unit, at no charge to the customer, if it is found to be defective.

The defective unit should be delivered to IC Tech for replacement. IC Tech will ship a replacement unit immediately, by overnight express if appropriate, to the customer and will allow the customer up to 30 days to return the defective unit. If the defective unit is not returned within 30 days, to IC Tech, IC Tech will bill the customer for the replacement unit.

If the defective unit is found to be non-defective or is defective but not due to IC Tech's fault, the customer will be charged for any repairs or replacement of the unit not covered by warranty.

### **After 30 Day Exchange Program:**

All components suspected of being defective must be returned to IC Tech either by the customer, the customer's representative, distributors for IC Tech or IC Tech's employees for repair or replacement. Customer will be charged for any repairs or replacement not covered by the warranty.

IC Tech reserves the right to determine whether the product is defective due to IC Tech's fault or causes beyond IC Tech's control. Lightning, Floods and other damaging acts of nature, Vandalism, Improper installation, Improper technical repairs are some items NOT covered by this warranty.

### **Third party manufactured devices are covered as follows :**

RADIOS supplied by IC Tech as part of a complete product will be covered according to the manufacturers warranty and will be handled by IC Tech as a representative of the radio manufacturer.

BATTERIES supplied by IC Tech will be warranted fully and replaced, if defective, for the first 6 months. Beyond 6 months up to 24 months IC Tech will prorate the battery for replacement. Battery prorating will be based on the list price of the battery divided by 18 months times the number of months beyond the first 6.

ANTENNAS and CABLE KITS supplied by IC Tech will be warranted for 30 days.

ALL OTHER components, supplied by IC Tech with it's products, will be warranted according to the manufacturers warranty. Handling and Labor charges may be applied depending on the manufacturers warranty and support to IC Tech.