
1. GENERAL

This section describes the configuration procedure for *PURC 5000* stations with Advanced Control. All station configuration parameters are programmable from the station's front mounted control panel. Control panel operation, menu selection, and data entry procedures are described in Description and Operation section 68P81085E78. The *PURC 5000* is factory programmed for proper operation per customer order. The following configuration procedure should be followed to verify or change station configuration.

NOTE

This section describes the procedure for verifying factory installed equipment, and for configuration of field installed upgrades.

2. CONFIGURATION PROCEDURE

Each of the following sections describes the configuration of a given function or group of functions. For convenience, each section is preceded by a list of all menu entries which are addressed by, and described in, the section's description. Each item in the list contains a full pathname to the lowest level entry. For example, main menu\sub-menu 1\sub-menu 2\entry. In the configuration description, entries are only referred to by their lowest level name, as the full pathname appears in the list preceding the description.

NOTE

This manual section describes station configuration from the front panel. However, most system parameters can be configured remotely from the system controller or via the RS232 interface. Refer to the Advanced Simulcast Controller manual, 68P81001B70, for details on remote parameter modification.

2.1 STATION TYPE CONFIGURATION

- STN*PURC/PURC 5000*

The station type, *MICOR PURC* technology or *PURC 5000* technology, may be configured by toggling the *PURC/PURC 5000*.

2.2 TRANSMIT FREQUENCY CONFIGURATION

2.2.1 Frequency Range

- STN\Freq Range
- STN\Frequency Range Checking

Station transmit frequencies may be viewed and modified from the control panel. Before changing transmit frequencies, the Freq Range parameter must be set to the appropriate choice. The frequency range should only be changed when replacing an Advanced Control board or when retro-fitting an existing *PURC* or *PURC 5000* with Advanced Control. Care must be taken to ensure that the frequency range entered matches the frequency range of the RF line-up. Table 1 contains RF Tray kit numbers cross referenced to their associated frequency and menu ranges, which can be used to determine the range of the RF line-up. The RF tray number may be stamped on the chassis in black letters, or may appear as an orange label affixed to the chassis depending on the age of the unit.

Table 1. Frequency Ranges

MENU RANGE	FREQ RANGE	RF TRAY NO.
VHF 1	132–158 MHz	TUD2701A TUD2671A
VHF 2	146–174 MHz	TUD2702A TUD2672A
280	276–284 MHz	TUD2730A
UHF 1	403–435 MHz	TUE1951A, TUE1961A or TUE2051A
UHF 2	435–475 MHz	TUE1952A, TUE1962A or TUE2052A
900 1	928–944 MHz	TTF1212B †
900 2	944–960 MHz	TTF1213A †

† Numbers in table reference final power amplifier kits since RF tray numbers alone do not specify the frequency range.

Step down to the Frequency Range checking En/Dis parameter and verify that range checking is enabled.

NOTE

The Frequency Range Checking parameter should always be enabled. The parameter should only be disabled under special and unusual circumstances.

2.2.2 Transmit Frequencies

- TX\Channel Freqs\Channel 1–32
- TX\Special TX Setup\T=R

NOTE

In order to change the transmit frequencies from the front panel, switch 1 of dip switch S801 on the Advanced Control board must be set to the ON position. The switch should be returned to the off position after frequencies are entered.

IMPORTANT

The frequency range must be properly set before programming transmit frequencies.

Transmit channels 1–32 are programmed by entering the desired frequency in the appropriate entry.

IMPORTANT

In cases where a co-located receiver is on transmit channel one, the T=R Enable/Disable field should be enabled to prevent desensitization of the co-located receiver.

2.3 OPTIONS CONFIGURATION

The following sections detail the configuration steps required depending on whether or not each of the following options are installed.

IMPORTANT

Since configuration steps are required even when an option is not installed, each section should be followed closely.

2.3.1 C17 Antenna Relay Option

- OPT 1\Antenna Relay

If the station is equipped with the C17 antenna relay option, enable the Antenna Relay En/Dis parameter. If the antenna relay is not present, this field should be disabled.

2.3.2 C47 Wattmeter Option

- STN\Wattmeter Element
- ALSET\Fwd Power Alarm Point
- ALSET\Rfl Power Alarm Point

If the station is equipped with the C47 wattmeter option, the alarm trip points are set by entering the desired thresholds in the Fwd Power Alarm Point and Rfl Power Alarm Point entries. Typically the forward power alarm is set at 50% of full rated power, and the reflected power alarm is set at 15–20% of full rated power.

When replacing an Advanced Control board, retro-fitting an existing station, or adding a wattmeter field upgrade to a station, the wattmeter element type must be defined in the Wattmeter Element field. The wattmeter element type can be determined from the Motorola part number as shown in Table 2. If the part number is difficult to read due to element mounting position or site conditions, the element type can be determined from the general shape of the element. Drawings of the three element types are shown in Figures 1 through 4.

2.3.3 C659–C663 or C850 Link Receiver Options

- RX\Input Audio From

The source of station input audio is specified by the Input Audio source parameter. If one of the link receiver options C659–C663 or C850 is installed, Link should be specified for this parameter. If a link receiver option is not installed, Line 1 should be selected as the input audio source.

2.3.4 Monitor Receiver

- OPT 1\Monitor RX Setup\RX Enable/Disable
- OPT 1\Monitor RX Setup\RX Ext/Int to Station
- RX\Line 2 Audio From
- RX\Line 2 Audio Flat/De-Emphasis
- OPT 1\Antenna Relay
- TX\Special TX Setup\T=R

This section describes the configuration for option C664 Monitor Receiver, or equivalent, or a co-located monitor receiver. The presence/absence of a monitor receiver is indicated by enabling/disabling the RX Enable/Disable field. Two cases exist for the required monitor receiver configuration.

CASE I: Option C664 or equivalent. In this case the RX Ext/Int to Station field should be set to Int (internal). Furthermore, the Line 2 Audio source field should be set to Receiver. This routes receiver audio to Line 2 through the Advanced Control board. Flat or de-emphasized audio may be selected by toggling the Line 2 Audio Flat/De-emphasis entry.

CASE II: Co-located stand alone receiver. Setting the RX Ext/Int to Station field to Ext (external) provides a means for muting external receiver audio. In the Ext position, the Mon RX Ext Disable signal of DB2 on the junction box, provides an open collector muting signal for external receivers supporting an external disable input.

In either case, when the monitor receiver shares an antenna with the paging transmitter, and in stations equipped with the antenna relay option, the antenna relay must be enabled by toggling the Antenna Relay En/Dis field.

In either case, when a co-located monitor receiver is on transmit channel one, the T=R Enable/Disable field may be enabled to prevent desensitization of the co-located receiver.

2.3.5 C770 Delay Line Option

- RX\Delay Enable/Disable

If the C770 delay line option is present, the Delay Enable/Disable entry should be enabled.

2.3.6 C775 Key on Data Option and External Paging Modem Setup

- OPT 1\External Paging Data Setup\Binary Data Int/Ext
- OPT 1\External Paging Data Setup\RS232/Ext Modem RX Data

- OPT 1\External Paging Data Setup\Delay Analog/Digital Path
- OPT 1\Special Key Setup\Key on Internal CD
- OPT 1\Special Key Setup\Key on External CD

The following steps detail the procedure to set the source of binary paging data and to setup the C775 Key on Data option.

Step 1. The source of incoming paging data is selected by stepping down to the Binary Data Internal/External parameter and entering the appropriate choice. If the internal receive only 202T modem is used, this field must be left in the internal position.

Step 2. If external data is selected, the source of paging data is further defined by the RS232/Ext Modem Rx data field. Typically, external paging modem data is input via the J-box DB1 connector, and the Ext Modem choice is selected. When paging data is combined with communications data, the paging data can be applied to the J-box RS232 connector, and the RS232 choice is selected.

Step 3. If external paging data must be delayed for use in a simulcast system, the Delay Analog/Digital Path entry must be set to Digital Path.

NOTE

If Delay Digital Path is selected, audio incoming to the station cannot be delayed.

Step 4. The C775 key on data option can be applied regardless of the source of paging data. This is selected by toggling the Special Key Setup parameter. By selecting Key on Internal CD, the station will key when a carrier detect signal from the station's internal 202T modem is present. By selecting Key on External CD, the station will key when a carrier detect signal from an external modem is present.

Typically, a key on data system consists of an external paging modem with Key on External CD. The delay of the external delay path generally depends on the system.

2.3.7 C199 Hot Standby/Redundancy Option

- OPT 1\Redundancy Setup\Redundancy En/Dis
- OPT 1\Redundancy Setup\Master Station Setup\Number of Stns in System
- OPT 1\Redundancy Setup\Master Station Setup\Prioritization En/Dis
- OPT 1\Redundancy Setup\Master Station Setup\Keyup En/Dis
- OPT 1\Redundancy Setup\Master Station Setup\Switchover to Station
- OPT 2\PURC LAN Setup\PURC LAN En/Dis
- OPT 2\PURC LAN Setup\PURC LAN Master/Slave

- OPT 2\PURC LAN Setup\PURC LAN Site Reporter/Normal
- OPT 2\PURC LAN Setup\PURC LAN ID
- ALSET\Redundancy Switchover Alarms\ ...

A PURC 5000 station with Advanced Control may be configured as a back-up station for up to four co-located Advanced Control stations. Similarly, a station may be configured as one of the backed-up stations. Redundancy configuration requires enabling of the redundancy feature, configuration of the PURC LAN local area network, and configuration of the switchover alarms.

NOTE

As of this manual printing, the C199 Hot Standby/Redundancy Option is not supported by the software versions 1.X. Subsequent releases will include the option.

2.3.7.1 REDUNDANCY FEATURE CONFIGURATION

The redundancy configuration is performed in the Redundancy Setup sub-menu of the OPT 1 – Station Options main menu. The feature is enabled by toggling the enable/disable field. If the station is a MASTER (that is the redundant station in the network) the remaining fields of the sub-menu must be configured. SLAVE stations require no further configuration under this sub-menu.

For MASTER stations, the remaining fields must be programmed to indicate the number of stations for which the MASTER provides redundancy as well as to define the operation of the redundant network. Configuration of these fields will largely depend on system configuration. Description and Operation section 68P81085E78 contains a full description of all the Redundancy Set-up parameters.

2.3.7.2 PURC LAN CONFIGURATION

The redundancy option also requires configuration of the PURC LAN. The PURC LAN is configured under the PURC LAN Setup sub-menu. The fields of this menu must be configured to enable the LAN, indicate the station's status as a MASTER or SLAVE, and to set the station's LAN ID. Also, for the redundancy option the PURC LAN Site Reporter/Normal field must be set to Normal. Furthermore, MASTER stations must be configured with the number of attempts to communicate with a SLAVE prior to issuing an alarm. Description and Operation section 68P81085E78 contains a full description of all the PURC LAN Setup parameters.

2.3.7.3 REDUNDANCY SWITCHOVER ALARMS

The alarms which cause a MASTER station to assume the identity of, and take over operation for SLAVE station are configured in the Redundancy Switchover Alarms sub-menu. Each alarm is defined as either Critical, General or Not Selected, by toggling to the desired choice. Not Selected indicates the alarm will not be considered in the switchover decision. Each alarm is described in Description and Operation section 68P81085E78.

2.3.8 C791 Digital Remote Control (DRC) Option

- STN\DRC Setup\DRC/TRC Mode
- STN\Station ID
- STN\DRC Setup\System ID
- STN\Polled Response via Line 2/RF

The C791 DRC option converts the station from standard Tone Remote Control operation to Digital Remote Control operation. The DRC option is selected/verified by toggling the DRC/TRC Mode entry.

IMPORTANT

When equipped with DRC, the Station ID and the System ID must be setup from the front panel during installation and configuration. Each station must have a unique individual station ID. After initial setup, the system controller may change the ID's as required.

When required, the method of polled responses can be selected by toggling the Polled Response field.

NOTE

TRC mode is not supported in version 1.X software, and the DRC/TRC mode entry is not visible from the front panel. Subsequent releases will include this feature.

2.4 FEATURE AND ALARMING CONFIGURATION

Based on system requirements, any desired combination of allowable alarm functions and optional features may also be configured from the front panel. A detailed description of each of the alarms under the ALM – Alarms main menu and each of the optional features available is contained in Description and Operation section 68P81085E78. Frequently these features are configured remotely via the system controller or the RS232 interface, but may also be configured from the station front panel. Some common station configurations are detailed below.

2.4.1 Remote Gain Adjust Feature

- RX\Gain Enable/Disable

An additional gain/loss feature can be programmed from the control panel which is intended for use when known

changes to the control path attenuation affect the transmitter output deviation. Extra gain/loss may be added to compensate. This feature is enabled by selecting Gain Enabled. Only the system controller should change the gain value.

NOTE

The DRC option is required for this feature.

2.4.2 Delta Delay Detection

- OPT 1\Delta Delay Setup\Delta Delay
- OPT 1\Delta Delay Setup\Delta Delay Threshold
- OPT 1\Delta Delay Setup\Key Up En/Dis If Alarm

The station may be configured to detect and report control path delay changes. The feature is enabled by toggling the Delta Delay Enable/Disable field. The desired threshold at which a Phone Line Delta Delay alarm will occur is entered in the Delay Threshold field. The station may be disabled from keying when a Phone Line Delta Delay alarm is active by toggling the Key Up En/Dis If Alarm field.

NOTE

The DRC option is required for this feature.

2.4.3 Alarm/Verification Relay

- ALSET\Alarm/Verification Relay\Relay Disable/Alarm Mode/Verify Mode
- ALSET\Alarm/Verification Relay\Opt Alarm\ ...
- ALSET\Alarm/Verification Relay\Stn Alarm\ ...
- ALSET\Alarm/Verification Relay\Misc Alarm\ ...

The Alarm/Verification Relay is disabled, enabled in the alarm mode, or enabled in the verify mode by toggling the data field to the desired state. The alarms which the relay will respond to must then be indicated by selecting the desired alarms from the Opt Alarm, Stn Alarm and Misc alarm sub-menus.

2.4.4 RS232 Dial-in Setup

- OPT 2\RS232 Dial In Setup\Dial In Enable/Disable
- OPT 2\RS232 Dial In Setup\Alarm on Number of Invalid Attempts
- OPT 2\RS232 Dial In Setup\Action Upon Invalid Attempt Alarm
- OPT 2\RS232 Dial In Setup\Auto Baud Detect Enable/Disable
- OPT 2\RS232 Dial In Setup\Baud Rate
- OPT 2\RS232 Dial In Setup\Smart Modem/No Modem

The station may be configured to allow connection and interrogation from a remote modem. The Dial-in feature is enabled and configured under the RS232 Dial In Setup sub-menu of the OPT 2-Comm Options main menu. The fields and choices of this sub-menu are explained in detail in Description and Operation section 68P81085E78.

NOTE

The RS232 feature requires an external Hayes 212 modem connected to the J-box RS232 port, or the optional internal 212 modem.

2.4.5 RS232 Dial-out Setup

- OPT 2\RS232 Dial Out Setup\Dial Out Phone Number
- OPT 2\RS232 Dial Out Setup\Pause After First Digit
- OPT 2\RS232 Dial Out Setup\Dial Out Via Tone/Pulse
- OPT 2\RS232 Dial Out Setup\Alarm on Number of Invalid Attempts

The station may be configured to report station alarms via an auto dial-out transmit modem. The feature is configured under the RS232 Dial Out Setup sub-menu of the OPT 2 - Comm Options main menu. The fields and choices of this sub-menu are explained in detail in Description and Operation section 68P81085E78. Unsolicited Alarm Reporting via a dial-out modem is described in the following paragraph.

NOTE

The RS232 feature requires an external Hayes 212 modem connected to the J-box RS232 port, or the optional internal 212 modem.

2.4.6 Unsolicited Alarm Reporting

- OPT 1\Unsolicited Alarm Reporting\Unsolicited Alm En/Dis
- OPT 1\Unsolicited Alarm Reporting\Report via Line2/RS232
- OPT 1\Unsolicited Alarm Reporting\Report via DRC/ASCII

The unsolicited alarm reporting feature is enabled by toggling the enable/disable field of the Unsolicited Alarm Reporting sub-menu of the OPT 1 - Station Options main menu. When the feature is enabled, the station must also be configured for the desired message format, and for the desired port on which the message will be transmitted. Line 2 or an optional dial-out modem may be selected for message transmission by selecting the appropriate data field under this sub-menu.

NOTE

When the dial-out modem is selected, the RS232 Dial Out Setup must be configured as described in the previous paragraph.

The message format is selected by toggling between DRC mode or ASCII mode under this sub-menu.

NOTE

The Unsolicited Alarm Reporting feature with the DRC message format is only applicable when the Motorola Advanced Simulcast Controller controls the paging system. Version 1.X does not support the ASCII message format.

2.4.7 Wild Card Input Setup

- OPT 1\Wild Card Input Setup\Wild Card 1-8

Under the Wild Card Input Setup sub-menu the wild card inputs 1-8 may be configured active high or low by toggling the appropriate field.

2.4.8 Local Control

- OPT 1\Special Key Setup\Ext Key Req

The station may be configured for an external key request input named Ext Key Request on the DB1 J-box connector. The external key request is programmed active high or low by toggling the Ext Key Req Active High/Low field. The external key request is defined as key analog or key binary by pulling the Ext Mode Request signal on DB1 J-box connector high for analog and low for binary.

2.4.9 Key Inhibit on High VSWR Detect

- OPT 1\Keyup En/Dis on High VSWR Alarm

The station may be disabled from keying whenever a high VSWR is detected, by toggling the key disable field. The threshold for the high VSWR alarm is 5.0.

2.4.10 Temperature Alarm

- ALSET\Tray Temperature Alarm Point

The tray temperature alarm point may be defined in this field.

2.4.11 System Timer Alarm

- STN\System Timer Alarm Value/Disable

Toggling this field selects the system timer value or disables the alarm feature.

2.5 WIRELINE CONFIGURATION

The station is factory configured for four wire operation with inbound on Line 1 and outbound on Line 2. The sta-

tion may, however, be configured for two wire operation, inbound and outbound messages on Line 2, by putting jumper JU703 on the Power Supply Line Interface Board in position A.

2.6 BOARD REPLACEMENT

When replacing an Advanced Control board, retrofitting an existing station, or adding a wattmeter field upgrade to a station, the wattmeter element type must be defined in the Wattmeter Element field of the STN - Station main menu. The wattmeter element type can be determined from the Motorola part number as shown in Table 2. If the part number is difficult to read due to element mounting position or site conditions, the element type can be determined from the general shape of the element. Drawings of the three element types are shown in Figures 1 through 4.

Table 2. Wattmeter Element Types

Motorola Part No.	Freq. Band	Refer-ence Fig.	Menu Se-lection
TRN7279A	280 MHz	Figure 1	CLASS 1
TLD9640A	VHF	Figure 1	CLASS 1
TLE 5910A	UHF	Figure 1	CLASS 1
TLF6890A	900 MHz	Figure 1	CLASS 1
5884918L05	25-100 MHz	Figure 2	CLASS 2
5884918L07	100-225 MHz	Figure 2	CLASS 2
5884918L09	225-525 MHz	Figure 2	CLASS 2
5883852P04	VHF	Figure 3	CLASS 3
5883852P03	UHF	Figure 3	CLASS 3
5883852P02	900 MHz	Figure 3	CLASS 3
5883852P01	900 MHz	Figure 4	CLASS 4

WARNING

When retrofitting an existing PURC 5000 station with Advanced Control, be aware that the original junction box connector is not pin-for-pin compatible with the Advanced Control J-box connector. Before connecting any existing external hardware to the connector, verify the desired connections and make the necessary modifications to the external cabling.

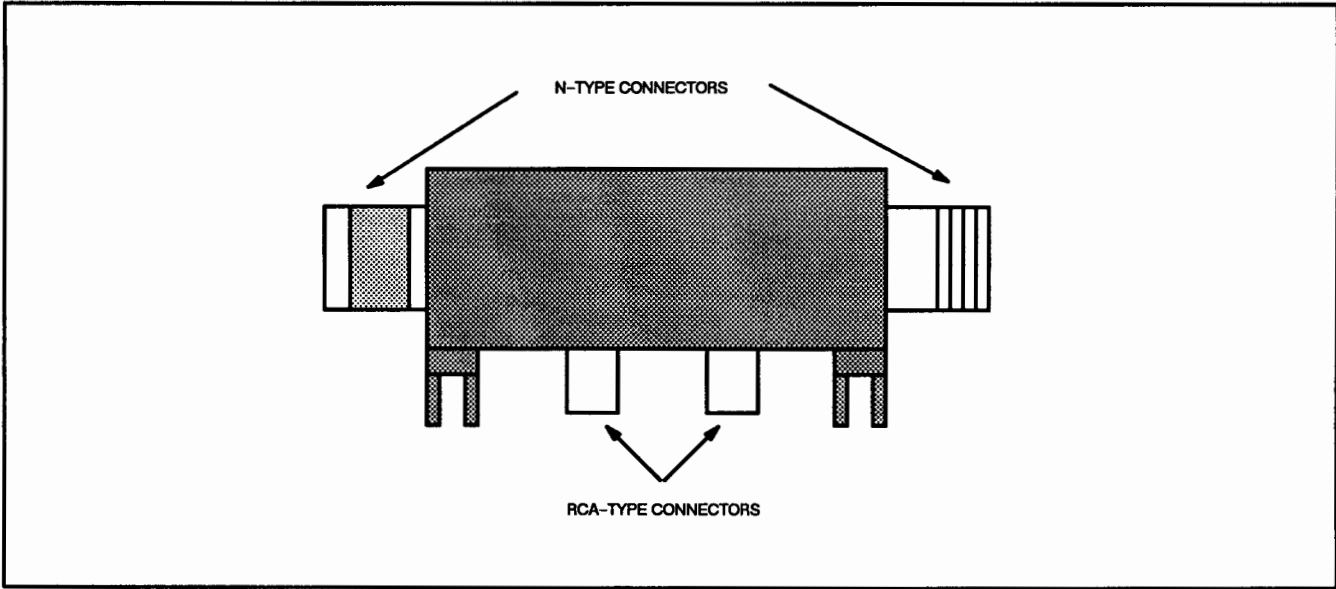


Figure 1. New Motorola Wattmeter Element Design - CLASS 1 menu Selection

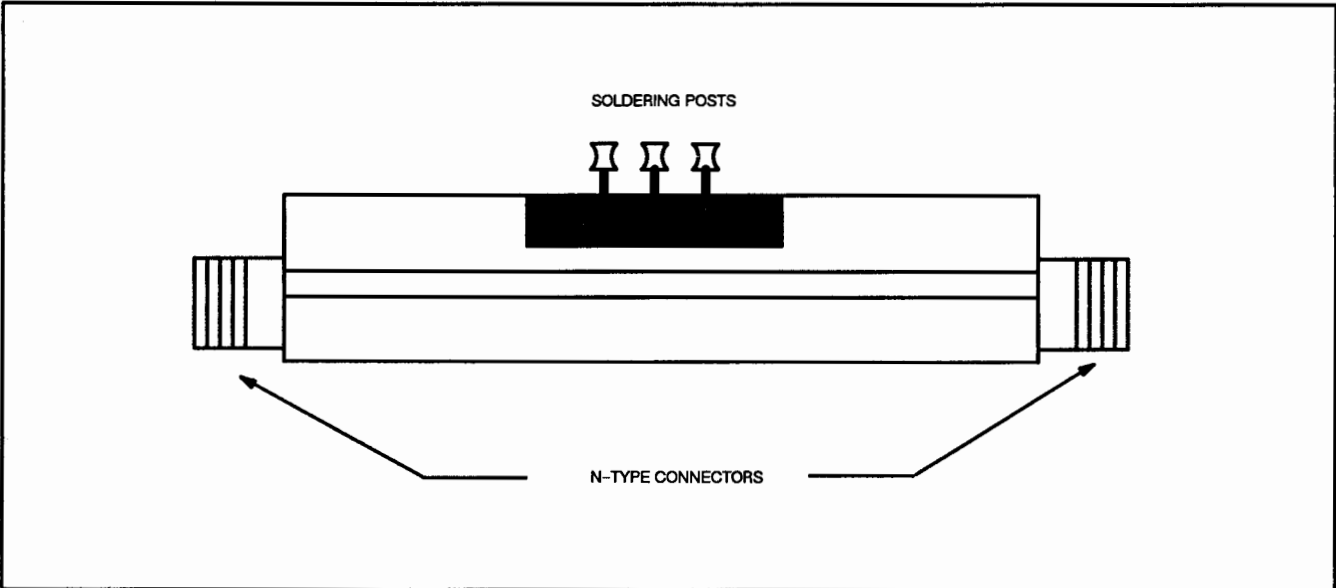


Figure 2. Original MICOR Wattmeter Element Design - CLASS 2 Menu Selection

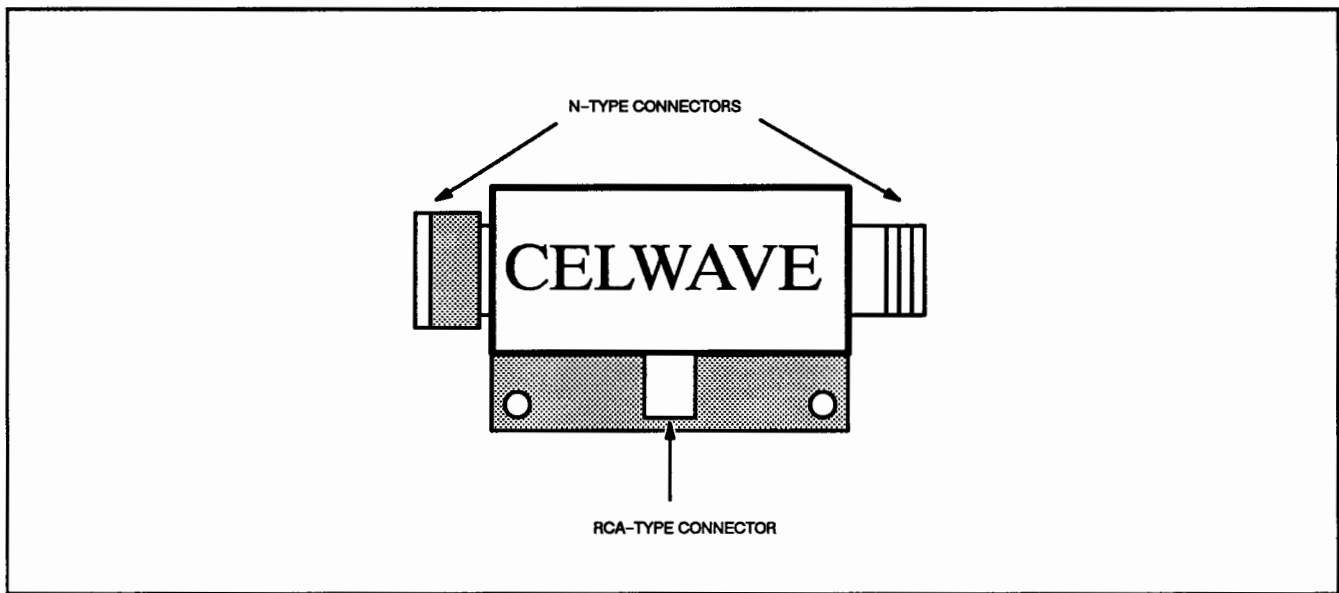


Figure 3. CELWAVE Wattmeter Element Design – CLASS 3 Menu Selection

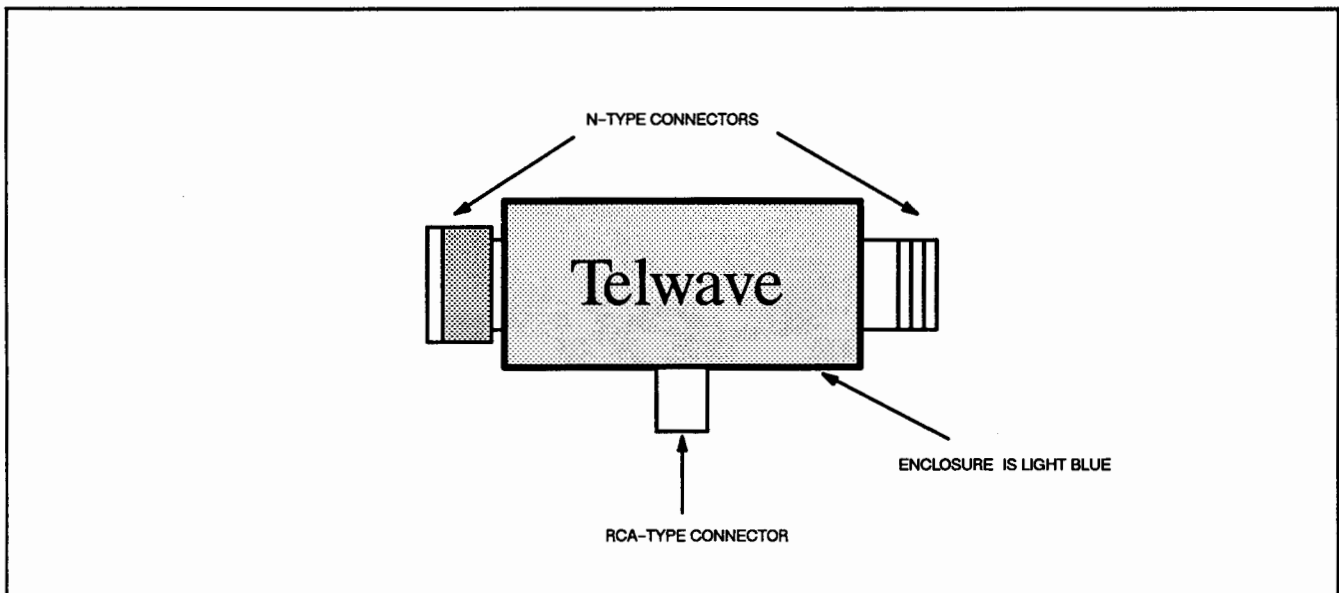


Figure 4. TELWAVE Wattmeter Element Design – CLASS 4 Menu Selection

2.7 CONFIGURATION COMPLETION

Before returning to normal operation, the keyboard must be released by depressing the **Exit** key until the display reads 'READY'. The station is now fully configured, but must be properly aligned before normal operation may ensue. Station alignment is detailed in Station Alignment

section 68P81085E82. Configuration may also be completed by depressing the **Rst** (reset) key. After a reset, the Alarm LED will light to indicate a RESET occurred. The alarm may be cleared under the Station Alarms sub-menu of the ALM – Alarms main menu. Refer to Description and Operation section 68P81085E78 for more details on clearing alarms.