Microflex Wireless

Command Strings

Third-party command string information for the Shure Microflex Wireless conferencing system.

Version: 2 (2019-H)

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Command Strings

The Microflex® Wireless device is connected via Ethernet to a control system, such as

- AMX, Crestron or Extron
- Symetrix, Biamp, other digital signal processors (DSP)
- Specialized custom programs

Connection: Ethernet (TCP/IP; select “Client” in the AMX/Crestron program)
Port: 2202

Conventions

There are 4 types of strings:

GET	Finds the status of a property. After the AMX/Crestron sends a GET command, the system responds with a REPORT string
SET	Changes the status of a property. After the AMX/Crestron sends a SET command, the system responds with a REPORT string to indicate the new value of the property.
REP	When the system receives a GET or SET command, it replies with a REPORT command to indicate the status of the property. **Important:** With the exception of the metered properties, the device sends a REPORT when a value changes. Thus, it is not necessary to constantly query most device properties.
SAMPLE	Used for metering audio levels.

All messages sent and received are ASCII. Note that the level indicators and gain indicators are also in ASCII.

Most parameters will send a REPORT command then they change. Thus, it is not necessary to constantly query battery or button status parameters. The APT will send a REPORT command when any of these parameters change. Almost all commands are sent back and forth to the APT. The APT then relays these commands to the microphones. Thus, for control, simply send commands to the IP address associated with the APT.

The character "x" in all of the following strings represents the channel and can be ASCII numbers 0 through 8 as in the following table.

0	All channels
1 through 8	Individual channels

Microflex Wireless Naming

- MXW1 - is a hybrid bodypack transmitter
- MXW2 - is a handheld transmitter
- MXW6 - is a boundary microphone transmitter
- MXW8 - is a gooseneck microphone transmitter
- MXWAPT2 - 2-channel access point transceiver
- MXWAPT4 - 4-channel access point transceiver
- MXWAPT8 - 8-channel access point transceiver
- MXWANI4 - 4-channel audio network interface
- MXWANI8 - 8-channel audio network interface
- MXWNCS2 - 2-slot networked charging station
- MXWNCS4 - 4-slot networked charging station
- MXWNCS8 - 8-slot networked charging station

Note:

When a microphone is not available (TX_AVAILABLE = NO), its parameters can change. Therefore, the best practice is to monitor TX_AVAILABLE. When TX_AVAILABLE changes from NO to YES, send GET commands for these parameters for the appropriate channel.

Example:

- User removes mic #1 from charger
- APT Sends:

  < REP 1 TX_AVAILABLE NO >

- APT Sends:

  < REP 1 TX_AVAILABLE YES >

- Control System Sends:

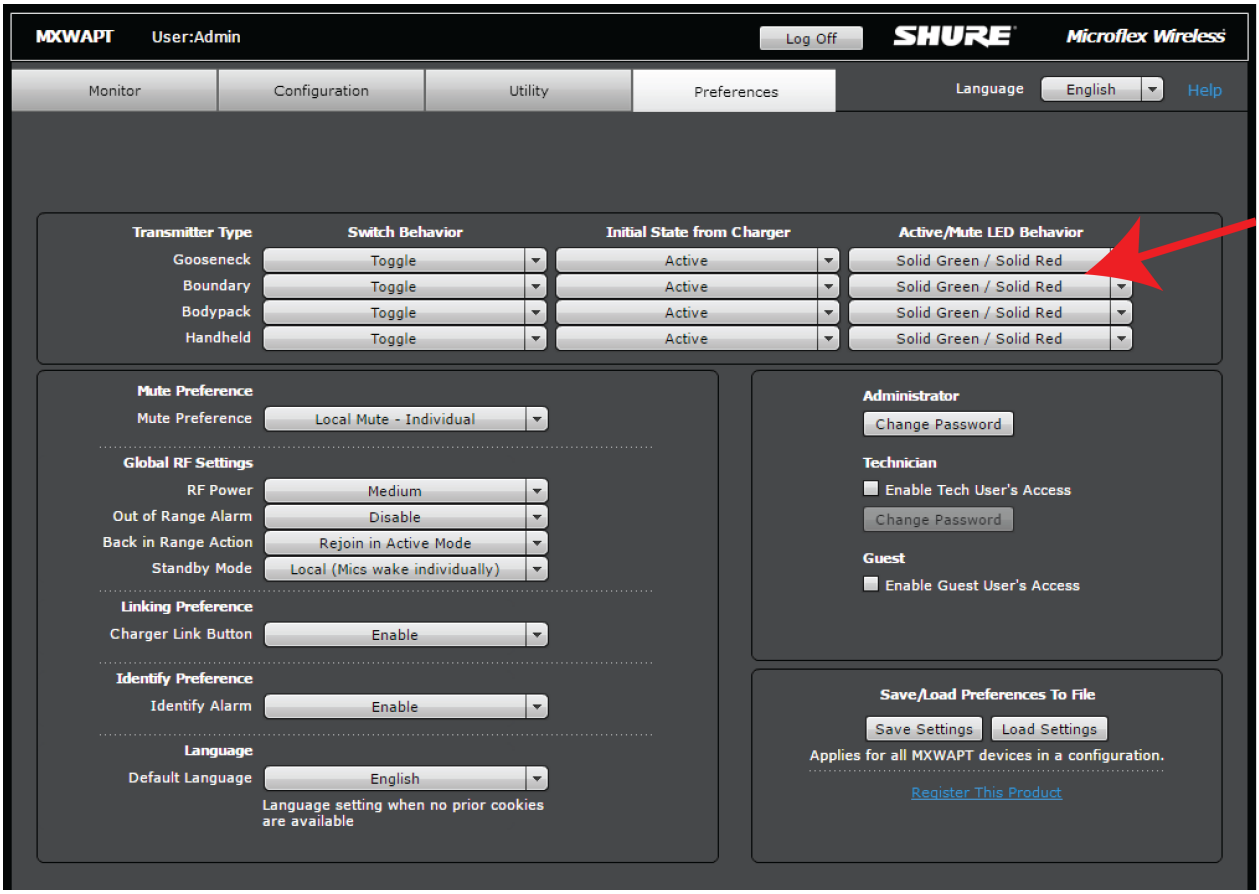
  < GET 1 TX_STATUS >
  < GET 1 AUDIO_GAIN >
  < GET 1 BATT_RUN_TIME >
  < GET 1 BATT_CHARGE >
  < GET 1 BATT_HEALTH >
  < GET 1 BUTTON_STS >
  < GET 1 LED_STATUS >
  < GET 1 TX_TYPE >

- APT Replies:

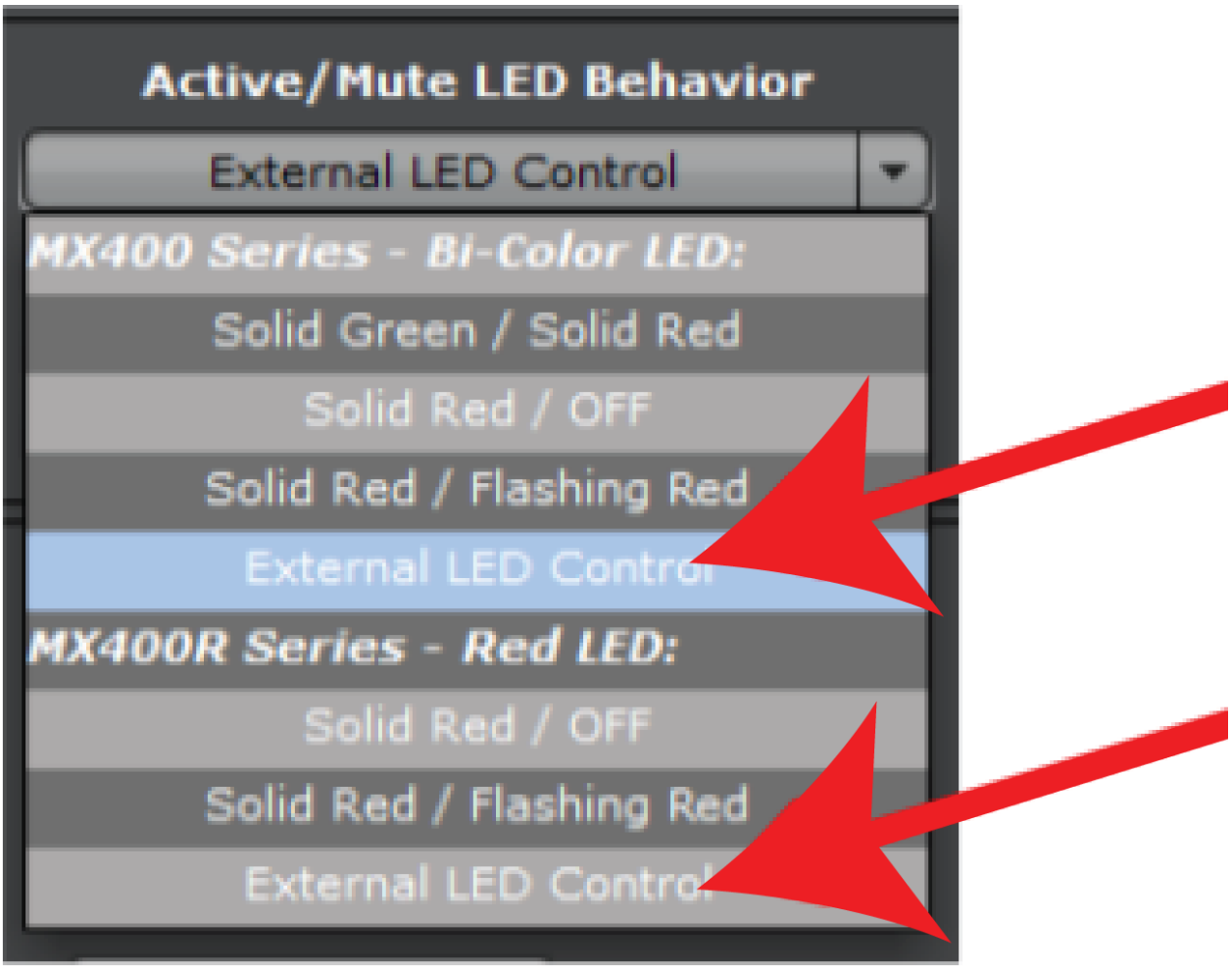
  < REP 1 TX_STATUS ACTIVE >
  < REP 1 AUDIO_GAIN 034 >
  < REP 1 BATT_RUN_TIME 00317 >
  < REP 1 BUTTON_STS OFF >
  < REP 1 LED_STATUS ON OFF >
  < REP 1 TX_TYPE MXW6 >

LED Control

To control the LED on the microphone, make certain that “External LED Control” is selected in the MXW GUI.



Note: *For gooseneck microphones, there is a separate selection between MX400 Series Bi-color LED or MX400R Series Red LED.*

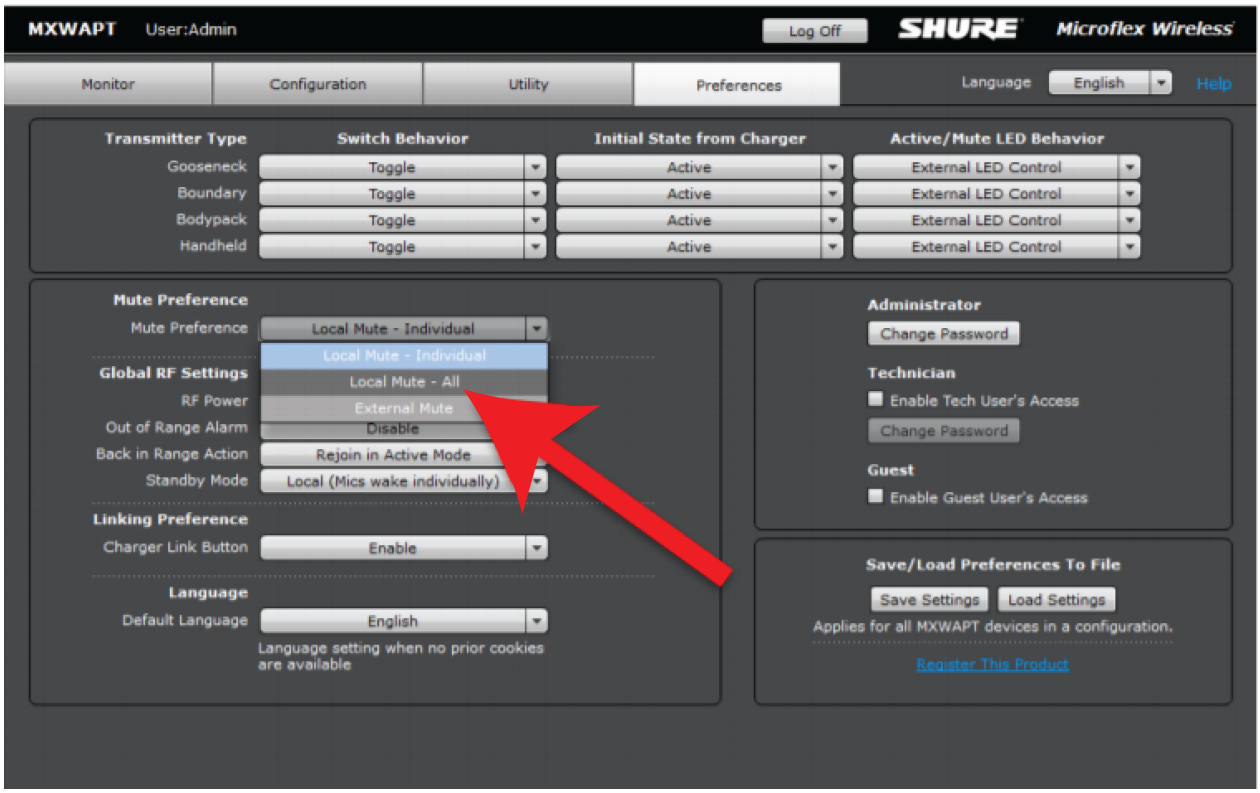


Echo Cancellation

The MXW wireless system is an excellent choice for teleconferencing applications. The echo cancellers/mixers used in these applications require that:

1. The microphone always supplies audio. The echo canceller/mixer requires a constant audio signal to properly process the audio signal paths.
2. A separate mute command be supplied for muting the microphone signal. This muting occurs inside the echo canceller/mixer, not locally at the microphone.

To provide this functionality with the MXW system, select the *Preferences* tab from the MXWAPT web app. Change the *Mute Preference* to *External Mute*.



Note: *When using External Mute, the switch behavior (toggle vs latching) is determined by the Crestron/AMX code.*

Example 1: Momentary (Push-To-Talk) Button

- User pushes button on Mic #1.
- APT sends:

  < REP 1 BUTTON_STS ON >

- Control system sends command to mixer to unmute channel 1.
- Mixer sends command to control system to confirm that channel 1 is unmuted.
- Control System sends to APT:

  < SET 1 LED_STATUS OF ON >

  (Turns off red LED, turns on green LED for Mic #1)
- User releases button on Mic #1.
- APT sends:

  < REP 1 BUTTON_STS OFF >

  Control system sends command to mixer to mute channel 1.
- Mixer sends command to control system to confirm that channel 1 is muted.
- Control system sends to APT:

  < SET 1 LED_STATUS ON OF >

  (Turns on RED LED, turns off Green LED for Mic #1)

Example 2: Latching Mute Switch

- User pushes and releases button on Mic #1.

- APT sends:

  < REP 1 BUTTON_STS ON >

- APT sends:

  < REP 1 BUTTON_STS OFF >

  Control system sends command to mixer to mute channel 1.
- Mixer sends command to control system to confirm that channel 1 is muted.
- Control system sends to APT:

  < SET 1 LED_STATUS ON OF >

  (Turns on RED LED, turns off Green LED for Mic #1)
- User pushes and releases button on Mic #1.
- APT sends:

  < REP 1 BUTTON_STS ON >

  APT sends:

  < REP 1 BUTTON_STS OFF >

  Control system sends command to mixer to unmute channel 1.
- Mixer sends command to control system to confirm that channel 1 is unmuted.
- Control System sends to APT:

  < SET 1 LED_STATUS OF ON >

  (Turns off RED LED, turns on Green LED for Mic #1)

MXWAPT Commands

CHAN_NAME

Description	Control for the channel name.
Commands	Primary channel commands: < GET x CHAN_NAME > < REP x CHAN_NAME {yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy} > < SET x CHAN_NAME {yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy} > < REP x CHAN_NAME {yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy} > Secondary channel commands: < GET SEC x CHAN_NAME > < REP SEC x CHAN_NAME {yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy} > < SET SEC x CHAN_NAME {yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy} > < REP SEC x CHAN_NAME {yyyyyyyyyyyyyyyyyyyyyyyyyyyyyyyy} >

Variables	Where **x** is channel number: 1, 2, 3, 4, 5, 6, 7, or 8. Where the repeating **y** represents or pads the 31-character string from the set: A-Z,a-z, 0-9,!"#$%&'()*+,-./:;<=>?@[\]^_`~ and space, that is, {12345678901234567890123456789 01}.
Notes	SET only supports 8 characters. The device always responds with a 31-character name.

DEVICE_ID

Description	Controls the Device ID.
Commands	< GET DEVICE_ID > < REP DEVICE_ID {yyyyyyyyyyyyyyyyyyyyyyyyyyy} > < SET DEVICE_ID {yyyyyyyyyyyyyyyyyyyyyyyyyyy} > < REP DEVICE_ID {yyyyyyyyyyyyyyyyyyyyyyyyyyy} >
Variables	Where the repeating **y** represents the spaces returned by the device to pad the Device ID to 31 characters.
Notes	The device always responds with 31-character ID. SET accepts 1-8 Characters from the set: A-Z,a-z,0-9,!"#$%&'()*+,-./:;<=>?@[\]^_`~ and space.

FLASH

Description	Controls the flash to identify a device or channel.
Commands	Flash lights on primary device or channel: < SET FLASH ON > < REP FLASH ON > Flash lights on secondary device or channel: < SET SEC FLASH ON > < REP SEC FLASH ON > Device initiates an identify then stops flashing: < REP FLASH OFF > < SET FLASH OFF > < REP FLASH OFF >

	Note: *When used with no channel index the command initiates a Device Identify. When used with a channel index the command initiates a Channel Identify.* < SET x FLASH ON > < REP x FLASH ON > < SET SEC x FLASH ON > < REP SEC x FLASH ON >
Variables	When used, **x** is the channel number.
Notes	None.

METER_RATE

Description	Controls the meter rate.
Commands	Primary mics: < SET x METER_RATE sssss > < REP x METER_RATE sssss > < SAMPLE x aaa eee > Secondary mics: < SET SEC x METER_RATE sssss > < REP SEC x METER_RATE sssss > < SAMPLE SEC x aaa eee >
Variables	Where **x** is the channel number. Where **sssss** is the metering speed in milliseconds. Where **aaa** is the value of the RF level received. Where **eee** is the audio level.
Notes	Metering speed is numeric, 5-character fixed output. 00000 - Metering OFF (default) 00100 to 65535 - The interval of each SAMPLE report in milliseconds. For example, 00100 - Sample every 100 millisecond (10 samples per sec) 01000 - Sample every second 05000 - Sample every 5 seconds

Transmitter Commands

These commands are to be sent to the MXWAPT IP address.

TX_AVAILABLE

Description	Discovery of available transmitters.
Commands	Get primary transmitter available: < GET x TX_AVAILABLE > < REP x TX_AVAILABLE YES > < REP x TX_AVAILABLE NO > Get secondary transmitter available: < GET SEC x TX_AVAILABLE > < REP SEC x TX_AVAILABLE YES > < REP SEC x TX_AVAILABLE NO >
Variables	Where **x** is the channel number.
Notes	A microphone is not available when it is off, unlinked, or is still trying to establish communication after being turned on or undocked.

TX_STATUS

Description	Discover and set the transmitter status.
Commands	Discover primary transmitter status: < GET x TX_STATUS > < REP x TX_STATUS ACTIVE > < REP x TX_STATUS MUTE > < REP x TX_STATUS STANDBY > < REP x TX_STATUS ON_CHARGER > < REP x TX_STATUS UNKNOWN > Set primary transmitter status < SET x TX_STATUS ACTIVE > < SET x TX_STATUS MUTE > < SET x TX_STATUS STANDBY > < SET x TX_STATUS OFF > < REP x TX_STATUS ACTIVE > < REP x TX_STATUS MUTE > < REP x TX_STATUS STANDBY > < REP x TX_STATUS ON_CHARGER > < REP x TX_STATUS UNKNOWN > Discover secondary transmitter status: < GET SEC x TX_STATUS > < REP SEC x TX_STATUS ACTIVE > < REP SEC x TX_STATUS MUTE > < REP SEC x TX_STATUS STANDBY > < REP SEC x TX_STATUS ON_CHARGER > < REP SEC x TX_STATUS UNKNOWN >

	Set primary transmitter status: < SET SEC x TX_STATUS ACTIVE > < SET SEC x TX_STATUS MUTE > < SET SEC x TX_STATUS STANDBY > < SET SEC x TX_STATUS OFF > < REP SEC x TX_STATUS ACTIVE > < REP SEC x TX_STATUS MUTE > < REP SEC x TX_STATUS STANDBY > < REP SEC x TX_STATUS ON_CHARGER > < REP SEC x TX_STATUS UNKNOWN >
Variables	Where **x** is the channel number.
Notes	ACTIVE: linked TX is undocked, powered on, unmuted. MUTE: linked TX is undocked, powered on, muted. When using External Mute, the mic will not report MUTE, as the muting is done in the mixer. STANDBY: linked TX is undocked, in standby, muted. ON_CHARGER: linked TX is docked. UNKNOWN: no transmitter is linked or transmitter is off.

AUDIO_GAIN

Description	Control for the channel audio gain.
Commands	Primary audio gain: < GET x AUDIO_GAIN > < REP x AUDIO_GAIN 030 > Secondary audio gain: < GET SEC x AUDIO_GAIN > < REP SEC x AUDIO_GAIN 030 > There is an offset of 25 so the actual value = 40 - 25 = 15 dB. To set to 22 dB: < SET x AUDIO_GAIN 47 > < REP x AUDIO_GAIN 047 > < SET SEC x AUDIO_GAIN 47 > < REP SEC x AUDIO_GAIN 047 > To decrement the value down 5 dB: < SET x AUDIO_GAIN DEC 5 > < REP x AUDIO_GAIN 042 > < SET SEC x AUDIO_GAIN DEC 5 > < REP SEC x AUDIO_GAIN 042 > To increment the value up 10 dB:

	< SET x AUDIO_GAIN INC 10 > < REP x AUDIO_GAIN 052 > < SET SEC x AUDIO_GAIN INC 10 > < REP SEC x AUDIO_GAIN 052 >
Variables	Where **x** is the channel number.
Notes	Numeric 3 Characters 000 to 060 in increments of 1 The values REPorted and SET are offset by 25

BUTTON_STS

Description	View the microphone button status.
Commands	Primary microphone button status: < GET x BUTTON_STS > < REP x BUTTON_STS ON > < REP x BUTTON_STS OFF > Secondary microphone LED status: < GET SEC x BUTTON_STS > < REP SEC x BUTTON_STS ON > < REP SEC x BUTTON_STS OFF >
Variables	Where **x** is the channel number.
Notes	Sent when the user pushes the button on the microphone. **On**=pressed, **Off**=released. The APT will always send this report when the button status changes. There is no need to continually send the GET command.

LED_STATUS

Description	Get and set the microphone LED status.
Commands	Primary microphone LED status: < GET x LED_STATUS > < REP x LED_STATUS rr gg > < SET x LED_STATUS rr gg > < REP x LED_STATUS rr gg > Secondary microphone LED status: < GET SEC x LED_STATUS > < REP SEC x LED_STATUS rr gg >

	< SET SEC x LED_STATUS rr gg > < REP x LED_STATUS rr gg >
Variables	Where **x** is the channel number. Where **rr** is the setting for the red LED and **gg** is the setting for the green LED.
Notes	rr and gg can take on the following 2 digit values: ON = On OF = Off ST = Strobe FL = Flash PU = Pulse NC = No Change

TX_TYPE

Description	Determine the microphone type
Commands	Primary microphone type: < GET x TX_TYPE > < REP x TX_TYPE MXW1 > < REP x TX_TYPE MXW2 > < REP x TX_TYPE MXW6 > < REP x TX_TYPE MXW8 > Secondary microphone type: < GET SEC x TX_TYPE > < REP SEC x TX_TYPE MXW1 > < REP SEC x TX_TYPE MXW2 > < REP SEC x TX_TYPE MXW6 > < REP SEC x TX_TYPE MXW8 >
Variables	Where **x** is the channel number.
Notes	None

TX_BATT_CHARGE

Description	Discovery of the transmitter battery charge.
Commands	Primary battery charge status: < GET x TX_BATT_CHARGE > < REP x TX_BATT_CHARGE yyy > Secondary battery charge status:

	< GET SEC x TX_BATT_CHARGE > < REP SEC x TX_BATT_CHARGE yyy >
Variables	Where **x** is the channel number. Where **yyy** is the remaining battery life as a percentage.
Notes	Numeric, 3-character fixed output 000 to 100 - Percent 255 - Device is off

BATT_RUN_TIME

Description	Discovery of the transmitter battery runtime in minutes.
Commands	Primary battery runtime: < GET x BATT_RUN_TIME > < REP x BATT_RUN_TIME yyyyy > Secondary battery runtime: < GET SEC x BATT_RUN_TIME > < REP SEC x BATT_RUN_TIME yyyyy >
Variables	Where **x** is the channel number. Where **yyyyy** is the minutes until the microphone turns itself off.
Notes	When microphone is powered by a wall wart charger, yyyyy=65532. When microphone is on the charger, yyyyy=65533. When the run time is still being calculated, yyyyy=65534. When microphone is off, yyyyy=65535.

BATT_HEALTH

Description	Discovery of the transmitter Battery Health.
Commands	Primary battery health: < GET x BATT_HEALTH > < REP x BATT_HEALTH yyy > Secondary battery health: < GET SEC x BATT_HEALTH > < REP SEC x BATT_HEALTH yyy >

Variables	Where **x** is the channel number. Where **yyy** is the percentage of capacity relative to the factory defined original capacity.
Notes	Numeric, 3-character fixed output 000 to 100 - Percent 255 - Unknown

BATT_TIME_TO_FULL

Description	Discovery of the time remaining until the battery is fully-charged.
Commands	Primary battery: < GET x BATT_TIME_TO_FULL > < REP x BATT_TIME_TO_FULL yyyyy > Secondary battery: < GET SEC x BATT_TIME_TO_FULL > < REP SEC x BATT_TIME_TO_FULL yyyyy >
Variables	Where **x** is the channel number. Where **yyyyy** is the minutes until the microphone is fully charged.
Notes	Numeric, 5-character fixed output When transmitter is off, yyyyy=65535. When transmitter is on and not on the charger, yyyyy=65535. When transmitter is on the charger and fully charged, yyyyy=65534.

MXWNCS Commands

These commands are to be sent to the MXWNCS IP address.

Note: *Additional Charger commands are available to query the status of an unlinked microphone that is being charged. Please contact support@shure.com for assistance.*

REMOTE_LINK

Description	Link any mic in any charger with any APT
Commands	Link primary microphone:

	< SET PRI x REMOTE_LINK y {zzz.zzz.zzz.zzz} > < REP PRI x REMOTE_LINK y {zzz.zzz.zzz.zzz} SUCCESS > < REP PRI x REMOTE_LINK y {zzz.zzz.zzz.zzz} ERR > Link secondary microphone: < SET SEC x REMOTE_LINK y {zzz.zzz.zzz.zzz} > < REP SEC x REMOTE_LINK y {zzz.zzz.zzz.zzz} SUCCESS > < REP SEC x REMOTE_LINK y {zzz.zzz.zzz.zzz} ERR >
Variables	Where **x** is the number corresponding to the charger bay the transmitter is in. Where **y** is the number corresponding to the MXWAPT Channel. Where **zzz.zzz.zzz.zzz** is the IP address of the MXWAPT.
Notes	Firmware v4.0 or greater.

Codes

All commands adhere to a common set of extra codes, at the upper ends of the binary numbers:

- **255**, **254**, **253** and **252** are codes for three digit numbers.
- **65535**, **65534**, **65533** and **65532** are codes for 5 digit numbers.

These codes indicate that the device you are trying to control is not available. All commands adhere to a common set of extra codes. The codes are at the upper ends of the binary numbers. The meaning of the codes can be found in the above tables with the appropriate commands.

There is also a **< REP ERR >** error string that indicates the command is not able to be implemented. This is usually due to a typo or a command that does not exist.