Advanced Programming Guide for *ITec*™ Motor Transmitters

Defaults

All motor functions are initially set for "Factory Default" as shown in the table below.

Factory Defaults

Main Channel = Channel 1	Do Not Act on Wind
No Sequential Action Channel	Close if Wind Enabled
Group Channel 1-6 = Off	No Auto Return
Maintained Motor Action	Wind Override Enabled
Standard Motor Direction	Wind Lockout Time = 10 minutes (not demo mode)
Act on ALL Buttons from Transmitter	No Intermediate Stops on Any Channel
Standard Button Release Time	"Sticky" action on ALL; No Other Channel Sticky
Do Not Stop on Transmitter Button Release	Stall Speed = 10 RPM
Demo Mode Off	Cassette Awning Backoff Angle = 3.2°
Standard Mode (not Bottom Lock or Cassette Awning)	Backlash Angle = 4.8°
Deadbeat Counter Disabled	Maximum Run Time = 180 sec.

No transmitters are "learned" and the limits are all clear.

The following programming function will return all functions to "Factory Default":

S+7+7,	O ALL,	hold>5 sec,	~~,	S

Caution:
Unless power to individual motors has been disconnected, use of this programming function will reset all motors which have been trained to the transmitter being used.

Learning Transmitters

This control uses 433.92 MHz. ESI transmitters which use 418 MHz will NOT work with this motor. The handheld remote transmitter must have a label on the back marked with FCC ID: P7RT24AP433. A key-fob must have the 433 box checked. The 4-channel transmitter or the RFTM must have a red band on the antenna.

The motor comes from the factory with no transmitters learned in. This is the same state as after the C8 O1 sequence. In this state, the motor is looking for any valid transmitter and will wait forever. As soon as one is heard, the motor will learn that address, the motor will cluck, and normal operation will begin. This first transmitter should be a T24AP dual or T12AP dual or a person cannot easily program the unit.

After C8 O1 button sequence, do NOT push Stop. If Stop is pushed after C8 O1, that transmitter will immediately be learned in, the motor will cluck, and normal operation will begin *(see previous paragraph).*

After C8 O2 button sequence, Stop is not required, and that command will be ignored if that button is pushed. **Any** button on a **new** transmitter will be detected and learned into the list of acceptable transmitters, the motor will cluck, and normal operation will begin (this button will be ignored). If no new button push is detected for 10 seconds, then normal operation resumes. If five transmitters have already been learned, then this command is ignored and normal operation resumes (no cluck).

When power is first applied to the motor (or power returns after a power outage), the motor will listen for 10 seconds for the S+7+7 C12 command. If that command is heard, then the transmitter sending it will be added into the list of valid transmitters (there will be a motor cluck). If the list is full, the last transmitter learned will be replaced by this one. If the button is held after the cluck, the unit may go into the “ignore” mode and Stop will have to be pushed. This action is useful if the transmitter(s) for the motor have been lost. Be careful not to send the S+7+7 C12 command after multiple motors power up unless you want to add this transmitter to ALL of them. Any valid command from an already learned transmitter will interrupt this mode and normal operation will resume.

Clucks (audible sound accompanied by slight motor movement)

Before the open (top) limit is set, clucks will move the motor in the closed direction for ¼ second. Once the open limit is set, clucks will move the motor the same distance in the open direction. If the motor clucks to the open limit, then a cluck will be in the close direction. This action is designed so that a cluck cannot push the motor past either limit. If a motor enters programming and is at the open limit, the first cluck will go down, then up, then down, etc.

Programming Mode & "Ignore Programming" Mode

If the S+7+7 "Open our main channel" or "Open ALL" is heard, the motor clucks and enters programming mode. If no commands are heard for 20 seconds, the motor will exit programming mode without clucking.
If the motor hears a S+7+7 "Close anything" or "Open anything" that is not intended for this motor, then it goes into an Ignore Programming mode. This means that programming other motors will not cause this motor to move around during that process. Either "Stop" must be pressed to get out of this mode or no commands given for 20 seconds.

Setting Limits

In Standard Mode, the open (top) limit should be set first. Note that setting a limit to “here” means the point before all the clucks happened. The direction of clucks (see previous paragraph) means the motor will not cluck above the open limit after it is set, and will not cluck below the close limit after it is set. See below for the other modes.
Nudging a limit moves it by 3.2°.

Intermediate Stops

Intermediate stops must be set after the limits are set. If a limit is changed, and an intermediate stop would be outside that limit, then the stop is moved to be at that limit (“cleared”).

Resetting to "factory default" clears both limits (close very far away in close direction, and open very far away in open direction) and sets the open intermediate stop to the open limit, and the close intermediate stop to the close limit.
Nudging a stop moves it by 3.2°.
If an intermediate stop is cleared, then going to that stop is just like going to the limit in sticky mode.
If the limit is moved **away** from a “cleared” stop, then the stop does **not** move with it, and will suddenly be a little bit inside the limit. If you want to have a stop “cleared,” that action must be done **after** the limit is set.

Movement Notes

If a sticky button (not an intermediate stop) is pressed while the motor is in motion, and the motor is going in the correct direction, but not going to the limit, then the motor will stop briefly, then restart in the same direction heading for the appropriate limit. If it is going to the appropriate limit, then it will not stop.

If an intermediate stop button is pressed while the motor is in motion (direction does not matter), the motor will stop briefly, then restart in the appropriate direction heading for the desired stop.
Intermediate stop actions are always sticky.

Cassette Awning / Bottom Lock / Standard

Only one of these three “modes” of operation can be enabled at a time. Setting one turns off the others. These features affect how limits are done and, as such, setting any one of them will clear all limits and stops. The Close 6 Open ALL sequence does not affect these options. Full factory reset (Open ALL for 5 seconds) selects “standard” mode.

Cassette Awning Feature

When Cassette Awning is enabled, all limits and stops are cleared. The awning must be taken in to the stalled closed position ***before*** the extended open limit or any stops can be set. All stops and limits are relative to the stalled closed position. If one attempts to set a limit or a stop before going to the closed position, the command will be ignored (no cluck). It is not possible to set a close limit on a cassette awning. It must remain cleared so the stall works correctly.

When told to close, the awning will go to the stalled close position, wait ½ second, then go back out the “Backoff Angle” and will then be at the closed position. Another close command will not cause movement. An open command will start from this location.

If the “Backoff Angle” is 0, then there is no movement back out and the motor stays in the stalled tight position.
The “Backoff Angle” may be set from 0 to 115° in increments of 12.8°. It may also be nudged a little more or a little less in increments of 3.2°. Decreasing the angle makes the awning tighter when closed.

Bottom Lock Feature

This feature expects there to be a locking mechanism near the closed limit.
When Bottom Lock is enabled, all limits and stops are cleared. The motor must be taken to the stalled lock position before the limits or any stops can be set. All stops and limits are relative to this stalled locked position. If one attempts to set a limit or a stop before going to the closed position, the command will be ignored (no cluck).

When the motor is told to close, it will go to the close limit, then turn around and expect to stall within 2 seconds. If it does not stall, then it will stop and try again. If the second attempt fails, the motor will go all the way open.
If the motor is at the lock point and is told to open, then the motor will go to the closed limit, then turn around and not expect to stall. If it does stall, then it will turn around and go back down and try again.

If this attempt stalls, then it remains there. If the motor is not at the locked position and is told to open, it will simply open.

If power goes out, the motor will not know whether it is still locked or not. So it is possible that the open command will not work the first time after a power outage. Once the motor has stalled again, the second open command will work correctly. If the motor is not in the stalled position after a power outage, everything should work normally.

Setting limits: First go to the bottom and press OPEN to make the unit stall. Limits cannot be set until this action is completed. Next press OPEN again. The motor will go down in an attempt to unlock. STOP the unit where you want the bottom to be. Set the bottom limit there (C9 O6). Now press OPEN and the motor will go to the top and the top limit (C9 O1) can be set.

Backlash

This term refers to the “correction” applied to make closing to an intermediate stop the same final position as opening to the same stop. If during the process of opening to an intermediate stop the blind does not stop at exactly the same place as when closing to the same stop, then this value needs to be adjusted.

Increasing the backlash angle makes the motor stop sooner when opening to a stop. Backlash setting has no effect when the motor is closing to a stop.

The backlash may be set from 0 to 14.4° in increments of 1.6°.

Wind

Wind lockout time starts after the motor has finished moving. Automatic return will put the motor at the same spot it was when the lockout time expired as long as there was not a close command received during the wind lockout interval (that cancels the “automatic return” action).

Stall

Stall is when the motor speed drops below the administered setting. This is accomplished by measuring the time between “ticks” in the encoder. The stall sensor does not start until the motor has been running for 0.2 seconds. This prevents the sensor from being fooled.

The stall speed in RPM = the number of the button pushed + 3. The minimum button number is 1, which corresponds to 4 RPM. The maximum number allowed is Open 20 which corresponds to 23 RPM. The default speed is 10 RPM which corresponds to Open 7. As the speed is not actually measured this accurately, there may be an error of up to 10%. These variances depend on the mechanical parts of the encoder, so 12 RPM on one motor may stall differently than 12 RPM on a different motor of the same type.

If the motor is not administered to be a Cassette Awning or a Bottom Lock device, stall simply means stop. If a Cassette Awning stalls going out (open), the motor just stops. If a Bottom Lock device stalls going down (close), the motor just stops.

Errors

On power-up the motor determines the last known position. If something goes wrong and the position is lost, then the position and the limits will be reset so that the motor will only travel a half turn in either direction. This will require an installer to reset the limits and stops. He should also verify that no other settings were lost.

Programming Codes

This guide uses the # symbol for the receiver's main channel number. All new units are reset for channel 1. Note that # can also be ALL if one wants to program several receivers.
S= Stop, **C**= Close, **O**= Open, **~** means the motor "clucks" (i.e., it moves a little bit.), **~~** means two "clucks".

Reset EVERYTHING to factory default[1]	S+7+7	O ALL	hold at least 5 sec ~~		S
Reset everything *except* main channel, limits, stops and mode to factory default [1]	S+7+7	O # ~	C ALL ~~		S
Main Channel to "N" (N=1 through 60)	S+7+7	O # ~	C 1	O "N" ~	S
1st Group Channel to "N" (N= 1 through 60)	S+7+7	O # ~	C 2	O "N" ~	S
1st Group Channel OFF	S+7+7	O # ~	C 2	O ALL ~	S
Set 2nd Group Channel to "N" (N= 1 through 60 or OFF)	S+7+7	O # ~	C 3	O "N" ~	S
Set 3rd Group Channel to "N" (N= 1 through 60 or OFF)	S+7+7	O # ~	C 4	O "N" ~	S
Set 4th Group Channel to "N" (N= 1 through 60 or OFF)	S+7+7	O # ~	C 5	O "N" ~	S
Set 5th Group Channel to "N" (N= 1 through 60 or OFF)	S+7+7	O # ~	C 13	O "N" ~	S
Set 6th Group Channel to "N" (N= 1 through 60 or OFF)	S+7+7	O # ~	C 14	O "N" ~	S
Set "Sequential Action" Channel (same as above)	S+7+7	O # ~	C 17	O "N" ~	S
Set "Specific Stop" Channel (same as above)	S+7+7	O # ~	C 18	O "N" ~	S
Reset the following options to factory default [7]	S+7+7	O # ~	C 6	O ALL ~	S
Momentary Motor Action [3]	S+7+7	O # ~	C 6	O 1 ~	S
Reverse Motor Direction [4]	S+7+7	O # ~	C 6	O 2 ~	S
Do NOT Act on ALL buttons from Transmitter	S+7+7	O # ~	C 6	O 3 ~	S
Fast Button Release Time [3]	S+7+7	O # ~	C 6	O 4 ~	S
Stop on Transmitter Button Release [2]	S+7+7	O # ~	C 6	O 5 ~	S
Demo Mode on: quick wind lockout & deadbeat [5]	S+7+7	O # ~	C 6	O 6 ~	S
Disable the Deadbeat Timer	S+7+7	O # ~	C 6	O 11 ~	S
Enable the Deadbeat Timer, and Reset It to 120 [5]	S+7+7	O # ~	C 6	O 12 ~	S
Bottom Lock Mode [7]	S+7+7	O # ~	C 6	O 7 ~	S
Cassette Awning Mode [7]	S+7+7	O # ~	C 6	O 8 ~	S
Standard Mode [7]	S+7+7	O # ~	C 6	O 9 ~	S
Turn Demo Mode Off	S+7+7	O # ~	C 6	O 10 ~	S
Reset the Following Options to Factory Default	S+7+7	O # ~	C 7	O ALL ~	S
Act on Wind Command & Enable Wind Lockout	S+7+7	O # ~	C 7	O 1 ~	S
Reverse Wind Action (Open instead of Close)	S+7+7	O # ~	C 7	O 2 ~	S
Automatic Return When Wind Lockout Stops	S+7+7	O # ~	C 7	O 3 ~	S
Disable four-second Bus Command Override	S+7+7	O # ~	C 7	O 4 ~	S

[1] Radio transmitter addresses are NOT cleared as part of this reset. Use the radio command (C8) for that function.
[2] "Sticky" overrides "Stop on Button Release" if both are enabled.
[3] "Fast" enables Momentary Motor Action automatically.
[4] Reversing motor direction must be done prior to setting limits.
[5] In demo mode, the deadbeat counter is reset to only 10 times and the wind lockout to 15 seconds instead of 10 minutes.
[6] Stop is not required to end this command. ANY button on the desired transmitter can be pushed to "learn" it. Please see section on learning transmitters below.
[7] Cassette Awning / Bottom Lock / Standard are special; C6 O ALL does not reset them.

Force a radio transmitter to be learned (10 second window)	S+7+7	C 12 ~			[6]
Clear all learned radio transmitters [1,6]	S+7+7	O # ~	C 8	O 1 [6]	S
Learn one more radio transmitter (5 maximum) [6]	S+7+7	O # ~	C 8	O 2 [6]	[6]
Determine if this unit is version 3	S+7+7	O # ~	C 8	O 10 ~	S
Set open limit to "here"	S+7+7	O # ~	C 9	O 1 ~	S
Nudge open limit more open	S+7+7	O # ~	C 9	O 2 ~	S
Nudge open limit less open	S+7+7	O # ~	C 9	O 3 ~	S
Clear this limit	S+7+7	O # ~	C 9	O 4 ~	S
Set close limit to "here"	S+7+7	O # ~	C 9	O 6 ~	S
Nudge close limit less closed	S+7+7	O # ~	C 9	O 7 ~	S
Nudge close limit more closed	S+7+7	O # ~	C 9	O 8 ~	S
Clear this limit	S+7+7	O # ~	C 9	O 9 ~	S
Reset the following options to factory default	S+7+7	O # ~	C 10	O ALL ~	S
Use Intermediate stops on the main channel	S+7+7	O # ~	C 10	O 1 ~	S
Enable "Int. Stop" on 1st group channel	S+7+7	O # ~	C 10	O 2 ~	S
Enable "Int. Stop" on 2nd group channel	S+7+7	O # ~	C 10	O 3 ~	S
Enable "Int. Stop" on 3rd group channel	S+7+7	O # ~	C 10	O 4 ~	S
Enable "Int. Stop" on 4th group channel	S+7+7	O # ~	C 10	O 5 ~	S
Enable "Int. Stop" on 5th group channel	S+7+7	O # ~	C 10	O 6 ~	S
Enable "Int. Stop" on 6th group channel	S+7+7	O # ~	C 10	O 7 ~	S
Enable "Int. Stop" on the ALL channel	S+7+7	O # ~	C 10	O 8 ~	S
Set "open" intermediate stop to "here"	S+7+7	O # ~	C 11	O 1 ~	S
Nudge "open" intermediate stop more open	S+7+7	O # ~	C 11	O 2 ~	S
Nudge "open" intermediate stop less open	S+7+7	O # ~	C 11	O 3 ~	S
Nudge "open" intermediate stop the same as the open limit now	S+7+7	O # ~	C 11	O 4 ~	S
Set "close" intermediate stop to "here"	S+7+7	O # ~	C 11	O 6 ~	S
Nudge "close" intermediate stop less closed	S+7+7	O # ~	C 11	O 7 ~	S
Nudge "close" intermediate stop more closed	S+7+7	O # ~	C 11	O 8 ~	S
Nudge "close" intermediate stop the same as the close limit now	S+7+7	O # ~	C 11	O 9 ~	S
Reset the following options to factory default	S+7+7	O # ~	C 12	O ALL ~	S
Enable "Sticky" on main channel [2]	S+7+7	O # ~	C 12	O 1 ~	S
Enable "Sticky" on 1st group channel [2]	S+7+7	O # ~	C 12	O 2 ~	S
Enable "Sticky" on 2nd group channel [2]	S+7+7	O # ~	C 12	O 3 ~	S
Enable "Sticky" on 3rd group channel [2]	S+7+7	O # ~	C 12	O 4 ~	S
Enable "Sticky" on 4th group channel [2]	S+7+7	O # ~	C 12	O 5 ~	S
Enable "Sticky" on 5th group channel [2]	S+7+7	O # ~	C 12	O 6 ~	S
Enable "Sticky" on 6th group channel [2]	S+7+7	O # ~	C 12	O 7 ~	S
Turn OFF "Sticky" action on ALL buttons [2]	S+7+7	O # ~	C 12	O 8 ~	S
Set the "stall" speed to factory default (10 RPM)	S+7+7	O # ~	C 15	O ALL ~	S
Set RPM to "N + 3" RPM (max N is 20= 23 RPM)	S+7+7	O # ~	C 15	O "N" ~	S
Set Cassette Awning Backoff Angle to factory default (3.2°)	S+7+7	O # ~	C 16	O ALL ~	S
Set Angle to "N" times 12.8° max= 9 =115° (O 10= 0°)	S+7+7	O # ~	C 16	O "N" ~	S
Nudge 3.2° less angle (tighter awning)	S+7+7	O # ~	C 16	O 11 ~	S
Nudge 3.2° more angle (less tight awning)	S+7+7	O # ~	C 16	O 12 ~	S
Set the "backlash" angle to factory default (4.8°)	S+7+7	O # ~	C 19	O ALL ~	S
Set angle to "N" times 1.6° max= 9 (O 110= 0°)	S+7+7	O # ~	C 19	O "N" ~	S
Nudge 1.6° less	S+7+7	O # ~	C 19	O 11 ~	S
Nudge 1.6° more	S+7+7	O # ~	C 19	O 12 ~	S