



# AMR DEPLOYMENT QUICK START GUIDE

# CONNECT WITH US

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Thank you for choosing Tennant Company AMR to be a part of your team and creating a cleaner, safer, healthier world.

We would like you to have a copy of what was discussed in training and provide you with some daily use best practices.

## Customer Support

Rest assured that you have a team here to support you with any of your AMR needs. We can assist with reporting, training, or software updates. Requests can be sent via email to the Customer Success Team at [customersuccess@tennantco.com](mailto:customersuccess@tennantco.com).

If you are experiencing an issue with your machine and need assistance to submit a service request or order parts – please call the Customer Service line at 1-800-553-8033.

Please have the machine's serial number ready when you call or include this in the email's subject line.

## My Account - Online Customer Portal

Register for My Account to access online tools such as:

- Schedule a Service Appointment
- Check the Status of Existing Service Requests
- Access Documents and Resources
- View Invoice History and Status

Sign up in 3 steps:

1. Go to [www.tennantco.com](http://www.tennantco.com)
2. Click on the Sign Up button at the top-right of the home page
3. Enter your email address and your account number



# OPERATOR TRAINING RECAP

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## Approved Use Overview

### *Environments in which the robotic scrubber may be used*

- Only use to clean areas which can be reasonably cleaned by a manual scrubber of comparable build/design/size,
- Only use in spaces that are monitored and designed for cleaning using industry standard practices for machinery and wet floor cleaning, including caution signage and barriers,
- Do not use too close to and cleaning areas shall not include inclines, stairs, drops, cliffs, escalators, ends of loading docks,
- Do not leave temporary elevated platforms (scaffolds or ladders) or electrical cords (or other low profile items) near the path of the machine while operating in robotic mode,
- Do not operate in robotic mode when in environments requiring fail-safe performance (areas where machine failure could lead to personal injury or property damage), and
- Only use in areas in which there is adequate cell coverage permitting cellular data communication

## General Use Overview

- Do not attempt to ride the scrubber while in robotic mode.
- Remove key from ON/OFF key switch to prevent unauthorized use without disrupting robotic route.
- Do not grab steering wheel. Steering wheel may move rapidly and unexpectedly while in robotic mode.
- Do not leave electrical cords or other low profile items such as floor mats or forklift tines (i.e. anything having a height of 10 centimeters from the ground) in the machine's area of operation.
- Always operate machine in manual mode when going into elevators. Automatic doors should be avoided during autonomous cleaning.
- The machine's onboard cameras may capture images of people who happen to be in its surrounding. There may be additional laws in your jurisdiction of operation relating to your use of technology with cameras. Please comply with all applicable laws, including using signage or obtaining consents as required.

## Installation, setup, and inspection of machine components

- Attach squeegees, brushes or pads, add water, add cleaning solution
- Inspect hoses for blockages
- Check connectivity (Connectivity icon in upper right of UI screen is illuminated)
- Site preparation performed prior to scrubbing
  - Pre-sweep required for T380AMR and T7AMR, may be needed for T16AMR if there is heavy debris
  - Check for obstacles and movable/temporary stands

# OPERATOR TRAINING RECAP

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## Autonomous Components

- Logging into Brain OS with PIN (1337)
- Yellow Safety Straps
- Emergency stop button
- Blue start/stop button
- Turn indicators
- Sensor locations

## Scrubber Components

- Power
- User Interface
- Battery light indicator
- Water flow indicator
- Warning light (!)
- Solution level
- Water level
- ec-H2O Nanoclean if applicable
- Scrub pressure level
- Forward/Reverse
- Vacuum button
- Scrub deck button- "1-Step button"
- Foot Pedals
- Horn
- Status Indicator
- Blue light if applicable
- Headlights (T16AMR only)

## Home Location Code Considerations

- Home markers must be in the same location with each cleaning
- Product requirement that code is affixed to wall
- Code needs to be flat and not at an angle
- 40 inches from the ground and robot scanned from a maximum distance of 55 inches
- Location must be well lit, if used in dark area may need a flashlight
- Do not place in shiny sleeve or cover, photocopy or laminate or affix to glass (machine will not read the code properly)
- If a code is lost or misplaced, you can call service for a new one
- Stay clear of the front of the robot and sensors when scanning the home location code/starting route

## Notifications and Alerts

- Cellular Connectivity requirement for use
- UI Home Screen, Service option
- Notifications
- Text Message
- ROC connectivity to know when uploads are in progress and completed

## Types of Notification Alerts Sent via LTE

- Scrubber component faults
- Water/battery/solution/tank indicators
- Path is blocked
- Machine off path
- How to get a delocalized robot back on its intended path
- Route completion and time

# OPERATOR TRAINING RECAP

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## Operating the Machine

- Teaching Routes
  - Teach a route via the User Interface (UI). Describe the home screen and selection options.
  - Assign letter or name to route
  - Start/stop each route created at the same home location code
  - Teach routes when the area is clear of obstacles and people that may block the scrubber's path. This may require teaching routes outside of your normal cleaning times.
  - If a route is taught in an area with obstructions that are later removed, the scrubber will not clean any areas previously occupied by those obstructions.
  - When teaching a route, make smooth wide turns, avoid narrow aisles, and do not drive in reverse.
  - Ensure proper clearance for autonomous cleaning for model type:
    - Pass through/ Turn ins/ U-turns
      - T380AMR: 3.5 ft/ 4.5 ft/ 7.5 ft
      - T7AMR: 4 ft/ 5 ft/ 10 ft
      - T16AMR: 5 ft/ 6.5 ft/ 11.5 ft
  - Water tank capacity varies by model type and will run out faster on different settings. Consider capacity when planning route duration.
- Testing Routes
  - Test all routes to ensure the unit can run them successfully. Monitor the scrubber from the back of the scrubber during testing and note any areas of difficulty. The scrubber requires more space when running autonomously compared to manually.
  - Watch the machine from behind to avoid being in the way of the machine.
  - If you notice the unit calling for many "assists" when testing your route, assess the environment and remove any obstructions.
  - If the assists persist after obstructions are removed, the route you trained may include maneuvers that it cannot replicate autonomously. The best solution is to retrain the route.
- Delete
  - Enter the Service menu from the UI home screen
  - Select a route for deletion
  - Delete a route
  - Confirm the route has been deleted

# OPERATOR TRAINING RECAP

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## Operating the Machine Continued

- Running Routes Autonomously
  - Visually inspect all sensors and wipe them down with a microfiber cloth before starting an autonomous route. Use flashlight and shine light on sensors to make sure they are free of dirt and smudges.
  - Select the home location code
  - Select a route from the UI menu
  - Pull yellow safety straps to front screws
  - Remove key front on/off switch to prevent unauthorized use
  - Press the blue start/stop button
  - Run routes when the area is most free of people and freight. Identify the best times to run different routes based on how the environment changes.
  - Pair your phone to the AMR via the Settings Notifications screen to receive alerts for route completion and assists.
  - At the start of a route do not crowd the front of the machine. This may cause the scrubber to be unable to recognize its environment.
  - During the first 30 seconds of running an autonomous route, monitor the machine's squeegee to ensure they're properly adjusted. Pause the route and adjust the squeegee if necessary.
- When to Teach New Routes
  - If the environment changes significantly (e.g. remodeling, significant new features, obstructions, soil conditions change etc.) it may be necessary to teach a new route.
  - A new route will be needed when the dimensions of the space have changed so much that the scrubber is having trouble navigating and is calling for frequent assists.
  - Some common examples of changes that can necessitate new routes include:
    - New wing stacks added to the ends of aisles, narrowing the width of aisle entrances to less than the required clearance (see table on page 1). Such aisles should then be excluded from autonomous routes.
    - New merchandise displays in the racetrack areas of retail stores, blocking its intended path.
    - Merchandise displays switched out, with new displays having different dimensions that the scrubber has trouble navigating.
  - Also, if dimensions change, revealing new floor space that was not previously covered, new routes may be desired to include that area in an autonomous route.
- Use in Manual Mode
  - Use the scrubber in manual mode
  - Describe when it may be advantageous to use manual mode (ie narrow aisle where scrubber will fit but not run properly in autonomous mode, area with movable furniture and frequently changing layout)

# DAILY CARE

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## Daily Requirements

- Allow machine to fully boot up until the Brain Logo UI fully loads
- Verify ROC connectivity prior to use
- Insure UI is fully booted before powering off the unit if quick shutdown is required
- Wipe sensors with soft dust cloth prior to DAILY use (no water, no solution on sensors or cloth)
- Pre-Sweep (clear zones of debris and small obstacles) in conjunction with clearing the environment; required for T7AMR and T380AMR, may only be needed for heavy debris with T16AMR
- Clear environment from obstacles, minimize autonomy hazards and any pinch points before use
- Adjust solution, water and scrub deck pressure levels with each cleaning
- Do not add more than recommended cleaning solution amount to tank
- Do not add additional cleaner to unused portion of cleaning solution (will become too concentrated)
- Avoid Water Alerts: Longer routes use lower solution flow setting, shorter routes can accommodate higher solution flow
- Monitor the unit for the 1st 10 feet of use for normal operation when cleaning in automated mode
- Stop if squeegee needs adjustments
- Check charger light is on before use and when connected to a wall outlet
- Flush hoses after each use to reduce clog potential
- Drain and rinse recovery tank after each use
- Do not top off, always drain before refilling tank
- Prep machine for next day (or empty solution tank if not used daily)
- Charge for a minimum required time after use. Lift seat for proper ventilation of flooded batteries.
- Estimated charge time for complete charge after full depletion
  - T380AMR Flooded: 8 hours
  - T7AMR Flooded: 8 hours
  - T7AMR TPPL: 6.5 hours
  - T16AMR Flooded: 16 hours
  - T16AMR Lithium: 4 hours

## Residual Water Prevention and Care

- Inspect hoses and squeegee prior to use
- Adjust water and cleaning solution level for type of floor (\*using minimum recommended levels)
- During initial use, check the squeegee's wiping and water pick up performance
- Check for and mop up any residual water after an assist
- Check for and vacuum or mop up any residual water post-scrubbing
- Place appropriate caution signage in areas where the scrubber is to be used