

Hqv public interface

This page describes the topics from hqv public interface and that are supposed to be used with open hrp for universities

/hqv_mower/charging_station/status

This topic will report every second if the mower is in charging station

/hqv_mower/gnss/*

All gnss suptopics will report every second using the standalone gps functionality in the mower (not RTK)

/hqv_mower/gnss/fix

Reports fix status from gnss module:

0: no fix

2: 2d-fix

3: 3d-fix

5: time only

/hqv_mower/gnss/groundspeed

Reports ground speed and accuracy estimate from GNSS module in m/s

/hqv_mower/gnss/hdop

Report GNSS module hdop value

/hqv_mower/gnss/heading

Reports GNSS module heading of motion with accuracy in radians. Heading of mower is not used

/hqv_mower/gnss/position

Reports GNSS module latitude and longitude

/hqv_mower/gnss/position/acc

Reports GNSS module accuracy in horizontal and vertical direction

/hqv_mower/gnss/state

Reports when GNSS module state changes from between startup, ok, halted and error (not reported every second, only when state changes)

/hqv_mower/gnss/unixtime

Reports the GNSS time as a unixtime timestamp

/hqv_mower/gnss_rtk/rel_enu

Reports RTK position and accuracy relative base station

/hqv_mower/gnss_rtk/rel_ned_raw

Not used

/hqv_mower/gnss_rtk/solution

Reports rtk solution from GNSS rtk module

0: no fix

1: float

2: integer fix

/hqv_mower/loop/frontCenter, /hqv_mower/loop/frontRight, /hqv_mower/loop/rearLeft, /hqv_mower/loop/rearRight

The for different loop sensors, for an EPOS machine those are only valid when close to charging station

/hqv_mower/guide/frontCenter, /hqv_mower/guide/frontRight, /hqv_mower/guide/rearLeft ,/hqv_mower/guide/rearRight

Not used in the EPOS machine.

/hqv_mower/imu0/orientation

Imu roll, pitch and yaw reported every 25th ms

/hqv_mower/imu0/yawhigh

not used

/hqv_mower/wheel0/counter, /hqv_mower/wheel1/counter

Those topics report the wheel ticks counter every 25th ms. To convert to distance the value must be converted to meter using:

$\text{distance} = \text{counter} * \text{wheel_circumference} / \text{pulses_per_revolution}$

For the EPOS machine the wheel_circumference is 0.751m and pulses_per_revolution is 349

/hqv_mower/wheel0/speed, /hqv_mower/wheel1/speed

Those topics report the wheel speed every 25th ms.

/hqv_mower/systempower/keepalive, /hqv_mower/systempower/status

By publishing message to keepalive topic the mower will stay awake another 3 minutes even if inactive.

By listening to status topic one can determine when the mower is about to shutdown.

The node **hqv_mower_keep_alive** will publish to keepalive and keep the mower alive.

The node **hqv_power_shutdown_linux** will listen to status and safely shutdown the linux system when the mower is about shut down.

/hqv_mower/traction/drive

Can be used to controll the movement of the mower.

See **keyboard_remote_drive_node.py**

/hqv_mower/remote_driver/drive

not used

/hqv_mower/mower_app/*

Publish rate can be changed with ros param mower_app_republish_rate

/hqv_mower/mower_app/activity

This topic informs about the ongoing activity

- No activity = 0
- Recharging
- Going out
- Mowing
- Going home
- Parked
- Stopped in garden

/hqv_mower/mower_app/command

Use this topic to send internal commands to the Mower

- Start = 0
- Pause
- Confirm Error
- Abort Start

/hqv_mower/mower_app/error

This topic publish the error code of the Mower when the Mower is in state FATAL ERROR or ERROR

/hqv_mower/mower_app/mission

This topic publish the Mission Id of the mission that is currently executed

/hqv_mower/mower_app/mode

This topic informs about current operation mode

- Auto = 0 - The Mower operates according to a user defined timer schedule
- Manual - The Mower operates for a given time or until battery is empty and then stops. (doesn't go to charging station)
- Home - The Mower will go to charging station and stay there.
- Demo - The Mower operates without bladedisc and will go in and out from charging station with frequent cycles. (this mode suitable for demo purposes in a store)

/hqv_mower/mower_app/set_mode

With this topic it is possible to change mode according to above.

/hqv_mower/mower_app/state

This topic informs about current state of the Mower

- Off = 0
- Wait For Pin - Expects the user to enter a PIN code before proceeding
- Stopped
- Fatal Error
- Pending Start
- Paused
- In operation
- Restricted
- Error