Original instructions

STILL
ELECTRONIC
DOCUMENTATION
SYSTEM

Navigation in a very narrow aisle warehouse
iGo pilot navigation

MX-X
NXV

CE

2234 2332 2334

5231 804 2563 EN - 12/2022 - 04

first in intralogistics

1 Navigation in a very narrow aisle warehouse

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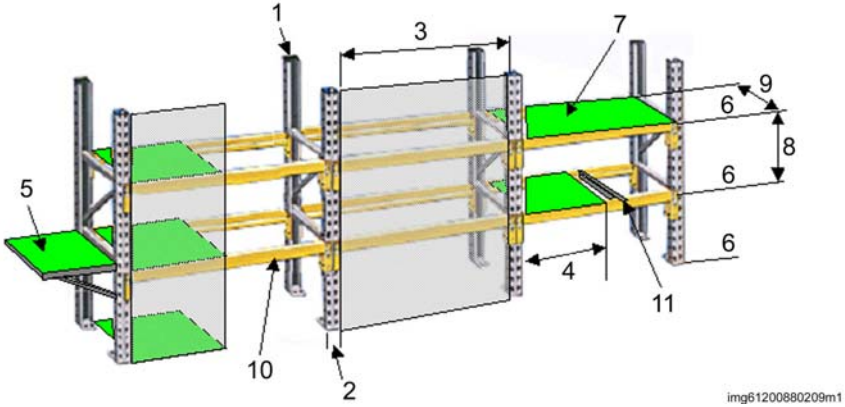
Navigation in a very narrow aisle warehouse

Important terms



Aisle	The area between two rows. A truck is identified as "in the aisle" once it has passed the first or last upright in a row. Maximum number of aisles that can be served by the navigation system: 99
Upright (1)	Vertical structural steel posts that support the longitudinal beams and cross beams (10), (11), and therefore also the decked shelves. The bar-code labels are attached to the uprights. Maximum number of uprights that can be served by the navigation system: 99
Upright width (2)	The measurement between the outer and inner edges of the upright.
Bay (3)	The area between the inner edges of two adjacent uprights. A bay always extends from the ground up to the top level. The number of levels in a bay can range from 0 to 20. The widths of the levels within any single bay are always the same. Maximum number of bay width types that can be served by the navigation system: 9
Bay type	One bay type can differ from the next by bay width, side shift, offset and/or by the number of levels and distance between them. Maximum number of bay types that can be served by the navigation system: 20
Offset/space (4)	There can be different numbers of spaces available within a bay. The spaces are defined by the offsets. The offset is the distance between the inner edge of the upright and the centre of the pallet space. One exception is the P and D station at the start of a row. At this point, the offset is measured from the outside edge of the first or last upright. Within a bay, there can be different numbers of spaces available on the various levels. Maximum number of offsets that can be served by the navigation system: 21 per bay width (0...20)
P and D station (5)	The place where the pallet is picked up or dropped off. Possible at the start and/or end of the row. If the P and D station is at the start of a row, it is addressed with upright "0"; at the end of a row it is defined as the last bay.

Row	Series of equal or unequal bays. A row always starts with bay 1 and ends with the last bay. There is usually an aisle between rows 1 and 2. Rows opposite each other can differ. Maximum number of rows that can be served by the navigation system: 99.
Level (6)	Vertical subdivision of a bay. The lowest level (ground) can be level 0 or 1. The sequence must be in ascending order from the bottom to the top. The distances between the individual levels can differ. A different height is allocated to each level. Maximum number of levels that can be served by the navigation system: 21 per bay.
Decked shelf (7)	Place where the pallet is placed in the rack. There are also racks without decked shelves. In this case, the pallet sits on the beams.
Inner shelf height (8)	Vertical measurement between two beams. The inner shelf height must be sufficient for the load + pallet freelift + safety distance.
Inner shelf depth (9)	Measurement between the outer edges of the beams.
Side shift	Distance covered by the fork arms from the basic position to the position held when depositing a pallet. Different pallets and aisle widths require different side shift depths. Maximum number of side shifts that can be served by the navigation system: 9.
Beam (10)	Connection between two uprights.
Area of the warehouse	Total area of all associated rows. Maximum number of areas of the warehouse that can be served by the navigation system: 10
Barcode label	Barcode containing information about the area, row and upright. A barcode is attached to each upright on the right-hand row. Barcode labels must be affixed to both rows in an aisle if there is a different row structure with horizontal alignment.

Warehouse limit data

Number of levels:	max. (20+1) x 8 = 168
Number of bay widths:	max. 3 x 21 = 63
Number of offsets:	max. 9
Number of bay types:	max. 20
Length of row type:	max. 99 bays (bay types)
Number of rows:	max. 99
Number of areas of the warehouse:	max. 10

Navigation from the operator's point of view

General

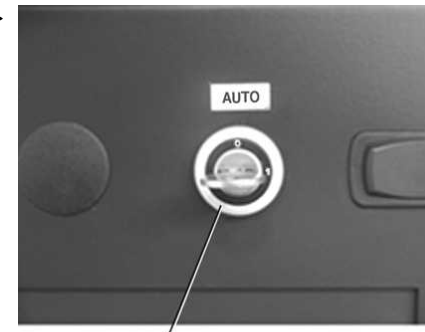
The **iGo pilot navigation** function is activated via an additional key switch.

On the MX-X model, this key switch is located in the driver's cab below the overhead guard (1a).

On the NXV model, this key switch is located in the operating panel on the left of the steering wheel (1b).

0 = Navigation system OFF

1 = Navigation system ON



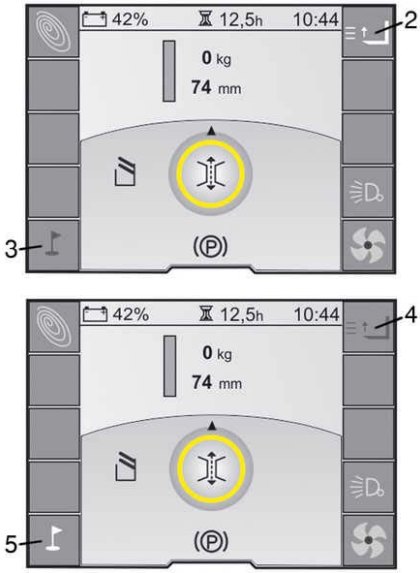
1a

1b

Displays

If the navigation system is switched off, the symbol (3) is hidden. Conversely, the symbol (2) for height preselection is shown.

If the navigation system is switched on, the symbol (5) is shown. Conversely, the symbol (4) for height preselection is hidden.

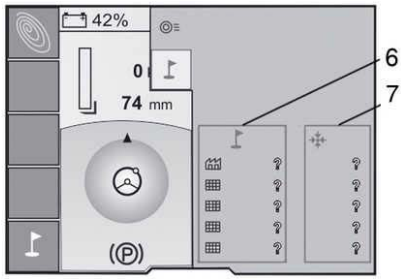


NOTE

The industrial truck can receive a drive order from the warehouse management system only when the navigation system is switched on. If a drive order has been received and the navigation system is switched off, the drive order is deleted.

Briefly pressing the membrane key to the left of the navigation system symbol (5) displays the information window for the navigation system on the right-hand side. Pressing the button again hides the information window.

Information window



In this window, the target position (information from the drive order) is displayed in column (6). The current position of the industrial truck in the warehouse is displayed in column (7).

Meaning of the rows:

Row 1: area of the warehouse

Row 2: row in the warehouse

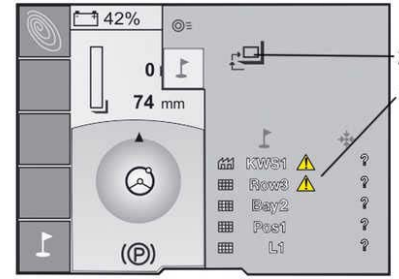
Row 3: bay in the row

Row 4: space in the bay

Row 5: level

In the example shown, there is no active drive order ("?" is displayed) and the position of the industrial truck is not known ("?" is displayed). The position of the industrial truck is known only once the truck is driven down an aisle and the sensor system has detected this aisle.

Receiving a drive order



If the position of the industrial truck in the storage area is unknown after a drive order is received ("?" is displayed), the information window is automatically displayed.

The information window is also displayed if the industrial truck is not in the correct area or aisle of the warehouse.

The symbol (1) shows whether the area of the warehouse and/or the aisle are incorrect.

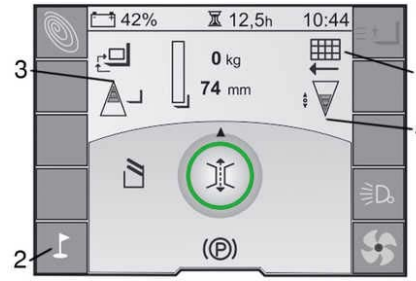
In the example shown, the intention is for the industrial truck to drive to an aisle in the "KWS1" area of the warehouse, which has a row with the name "Row3".

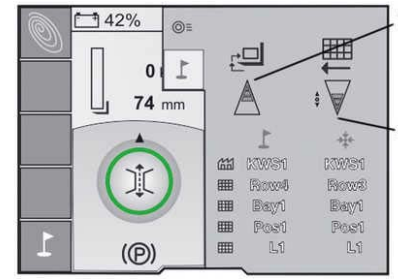
NOTE

The name of the target can be a maximum of six characters. An alphanumeric combination is possible.

The symbol (2) indicates that the drive order refers to a "Deposit" task.

Receiving a drive order and driving to the correct aisle





If the industrial truck is in the correct aisle, the information window is automatically hidden. If the fork arms are on the incorrect side and therefore do not correspond to the position required for the drive order, the symbol (1) flashes. Once the fork arms have been positioned on the correct side, the symbol stops flashing.

The membrane key to the left of the "Navigation" symbol (2) can be used to display the information window again at any time.

The symbols (3) and (4) display the information for the vertical (3) and horizontal (4) target approach. The tip of the triangle indicates the direction of movement. The segments inside the triangle indicate the distance to the target point. As the target gets closer, more segments are deleted.

Approaching a target

If the truck is in the correct area of the warehouse, in the correct aisle and the fork arms are aligned with the correct row in the warehouse according to the drive order, the target can be approached.

Move the operating lever for driving according to the specification on the display.

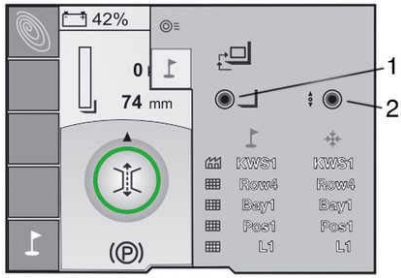
The target approach is optimised for the specific route, meaning that the main lift and, if necessary, the auxiliary lift are automatically combined with the driving function.

Once the target point is reached, the industrial truck stops. When the vertical target point is reached, the symbol (1) is displayed. When the horizontal target point is reached, the symbol (2) is displayed.

In accordance with the specification from the drive order, a deposit or removal from stock task is carried out by the operator.

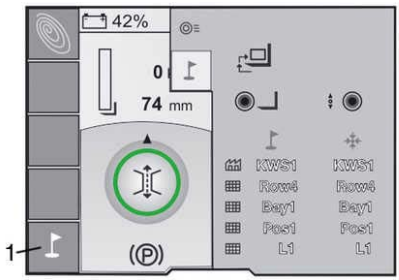
When the deposit or removal from stock task has been carried out, the symbols (1) and (2) are deleted.

The drive order is completed and the industrial truck is ready to receive its next drive order.



Deleting the drive order

An active drive order can be deleted at any time by pressing and holding the membrane key to the left of the symbol for the navigation system (1).



Bridging the target approach

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NOTE

The "Bridge target approach" function is currently only available for the MX-X industrial truck model

If an active drive order exists, conflicting operating directions are blocked.

If required, it is possible to move the industrial truck in the opposite direction to the specified directions using the button (1).

As long as the button (1) is pressed, the industrial truck can be moved freely. When this button is no longer actuated, the drive order becomes active again.

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