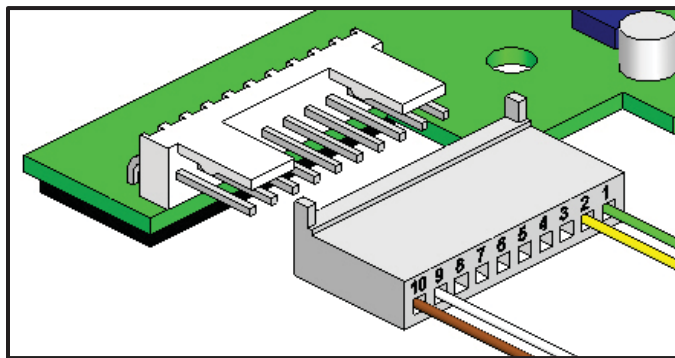# CTB and CRB Types

CTB – Discharge (CTB.DC)

When it is used with discharge, the CTB is connected to a network protocol module via a four-pole signal cable.

Figure 2-74 Four-Pole Signal Cable for CTB - Discharge

An input for right discharge and an input for left discharge, respectively, are used.
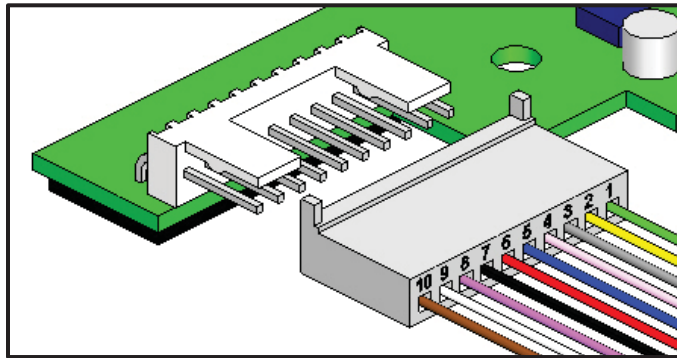
The CTB – Discharge can send the following telegrams:

- Right discharge
- Left discharge

CTB – Induction (CTB.IC)

When it is used with a manual induction with a vision system, the CTB is connected to the vision system via a ten-pole signal cable.

Figure 2-75 Ten-Pole Signal Cable for CTB - Induction

All eight inputs are used.

The CTB – Induction can send the following telegrams concerning the items on the carts:
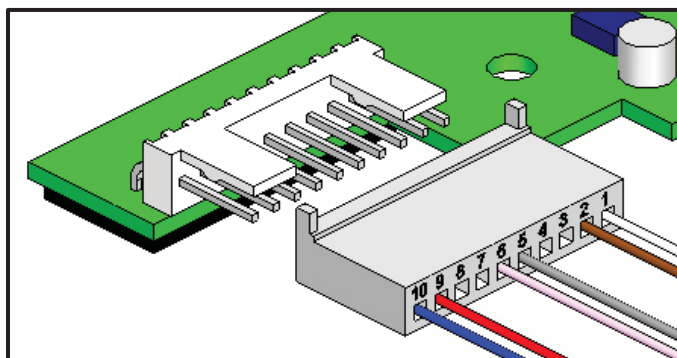
- No item
- 1-tray item
- 2-tray item
- 3-tray item

CTB – Induction, Item Information (CTB.IC.I)

When it is used for information about induction items, the CTB is connected to the induction power panel via a six-pole signal cable.

The CTB – Induction, Item Information, is placed after each induction.

Figure 2-76 Six-Pole Signal Cable for CTB – Induction, Item Information

Four inputs are used for item information.

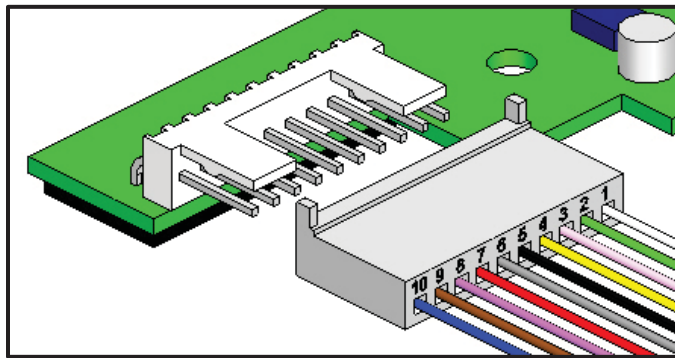The CTB.IC.I can send the following telegrams concerning the items on the carts:

- No item
- 1-tray item
- 2-tray item
- 3-tray item

CTB – Induction, Carrier Command (CTB.IC.C)

When it is used for carrier command with inductions, the CTB is connected to the induction power panel via a ten-pole signal cable.

The CTB – Induction, Carrier Command, is placed before each induction.

Figure 2-77 Six-Pole Signal Cable for CTB – Induction, Item Information


All eight inputs are used.

The CTB – Induction, Carrier Command, can send the following telegrams with information on the time (offset) a cross-belt unit must wait until the belt starts running. This is so the item on the induction is placed in the center of the cross-belt unit.

- 0 ms offset to the left
- 20 ms offset to the left
- 40 ms offset to the left
- 900 ms offset to the left
- 920 ms offset to the left
- 940 ms offset to the left

- 0 ms offset to the right
- 20 ms offset to the right
- 40 ms offset to the right
- 900 ms offset to the right
- 920 ms offset to the right
- 940 ms offset to the right

CTB – Banking to the Left in Curves (CTB.BL)

When it is used with banking to the left in curves, the CTB is connected to a network protocol module via a three-pole signal cable.

Figure 2-78 Three-Pole Signal Cable for CTB – Banking to the Left in Curves
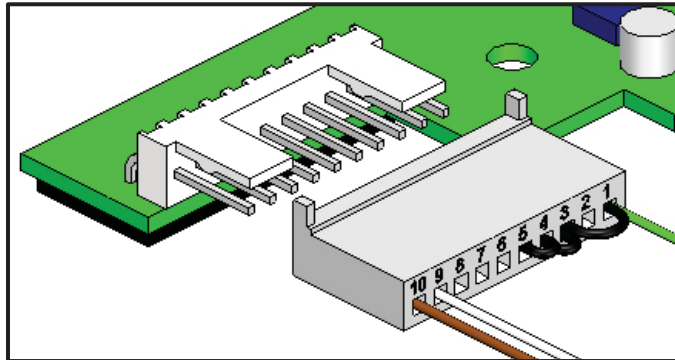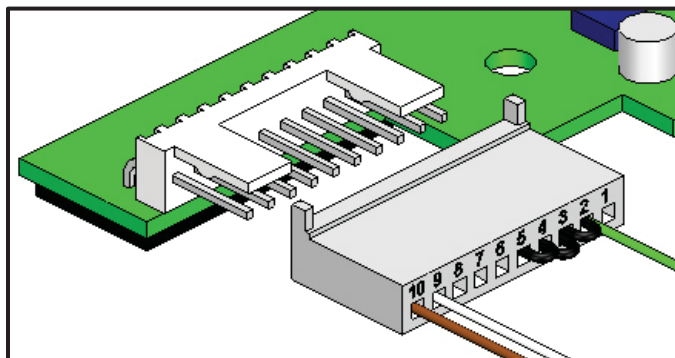

One input for banking to the left is used.

The CTB – Banking to the Left in Curves can send the following telegram:

● Banking to the left

CTB – Banking to the Right in Curves (CTB.BR)

When it is used with banking to the right in curves, the CTB is connected to a network protocol module via a three-pole signal cable.

Figure 2-79 Three-pole Signal Cable for CTB – Banking to the Right in Curves

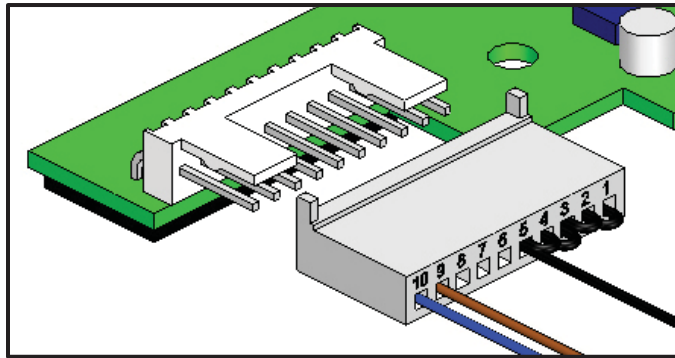One input for banking to the right is used.

The CTB – Banking to the Right in Curves can send the following telegram:

● Banking to the right

CTB – Banking End (CTB.BO)

When it is used with banking end, the CTB is connected to a network protocol module via a three-pole signal cable.

Figure 2-80 Three-Pole Signal Cable for CTB – Banking End

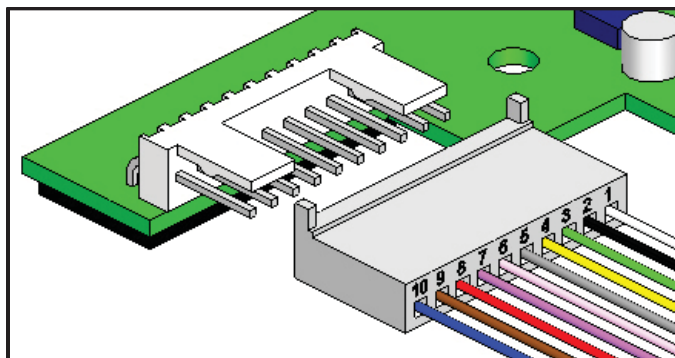One input for banking end is used.

The CTB – Banking End can send the following telegram:

● Banking end

CTB – SPS (CTB.CC)

When it is used with stray parcel supervision, the CTB is connected to a network protocol module via a ten-pole signal cable.

Figure 2-81 Ten-Pole Signal Cable for CTB - SPS

All eight inputs are used.

The CTB – SPS can send the following telegrams informing the carts indirectly on the sorter speed:

|		
• 1.3 m/s	• 2.1 m/s	• 2.9 m/s
• 1.4 m/s	• 2.2 m/s	• 3.0 m/s
• 1.5 m/s	• 2.3 m/s	• 3.1 m/s
• 1.6 m/s	• 2.4 m/s	• 3.2 m/s
• 1.7 m/s	• 2.5 m/s	• 3.3 m/s
• 1.8 m/s	• 2.6 m/s	• 3.4 m/s
• 1.9 m/s	• 2.7 m/s	• 3.5 m/s
• 2.0 m/s	• 2.8 m/s	

CRB – SPS (CTB.CC)

Telegrams are sent from the control units on the transport units of the train of carts to the CRB by means of infrared light in IrDA 1.0 format at a baud rate of 115.2 kB/sec., 8-bit data, no parity, and 1 stop bit.

Telegrams are sent continuously with a pause of a telegram's length between each telegram. This ensures that the receiver (CRB) synchronizes after a maximum of one telegram.

The telegrams are collected in a buffer, and when the cart has passed, the most frequent telegram is found. If at least 15 occurrences of the telegram in question are found, the seven least significant bits are shown on seven 24V outputs.

The outputs may be reset by activating a 24V input. The data of the seven outputs will be overwritten, regardless if the outputs are reset. The outputs are protected against short-circuiting.

The CRB is only used with Stray Parcel Supervision (SPS) and is connected to an I/O box via a ten-pole signal cable.

Figure 2-82 Ten-Pole Signal Cable for CRB - SPS
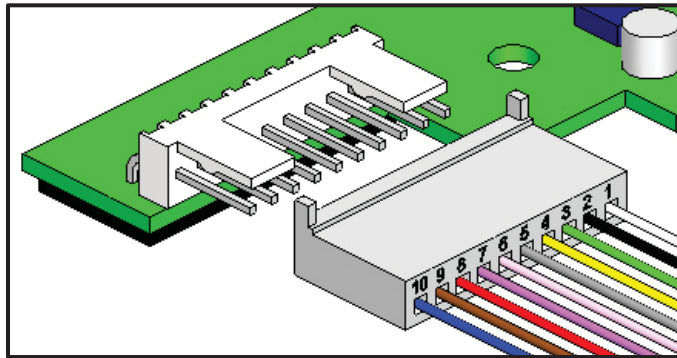
Using its outputs, the CRB forwards the telegram received to the sorter control system, which receives a status message from the control units on the transport units in the train of carts.

The control units can send the following telegrams:

Cross-Belt Sorter

No communication

OK

Current limiting during operation

Belt not running

Cross-belt unit not calibrated or calibration error