

# Installation Guide

P/N 3-500049-01



# MaxiScan 3010 Network System



A **UNOVA** Company

# Regulatory statements

**CE** Intermec hereby declares that the MaxiScan 3010 Network System has been tested and found compliant with the below listed standards as required by the EMC Directive 89/336/EEC as amended by 92/31/EEC and by the Low Voltage Directive 73/23/EEC as amended by 93/68/EEC:

EN55022 (1992)      EN60950 (1993)      EN50082-1 (1997)

**USA:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**CANADA:** This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.  
Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

**AUSTRALIA-NEW ZEALAND:** This equipment has been tested and found to conform to the Australian EMC framework concerning Class B digital devices, prescribed by the Australian and New-Zealander standard AS/NZS 3548.



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# 1 Introduction

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The MaxiScan 3010 Network System (MNS 3010) is a network connection module designed to connect up a network of up to 20 MaxiScan scanners (MaxiScan 3100, MaxiScan 3300). This Installation Guide explains how to install your MNS 3010 and how to set up a network configuration.

Use the EasySet System setup software to set up the MaxiScan 3010 Network System.

The MaxiScan 3010 Network System is designed for use with a network of MaxiScan 3100 and/or MaxiScan 3300 scanners.

In this Installation Guide, unless otherwise specified, "MaxiScan" refers to MaxiScan 3100 and MaxiScan 3300 and illustrations apply to both products.

## Warnings



**Do not use a standard MaxiScan power supply connected directly to the MaxiScan 3010 Network System if you have more than 2 MaxiScan units on your network—use a power supply suitable for your operating requirements (see the power calculation method in the *Connections* section).**

**Always use a power supply with the earth connected.**

**Always use an adaptor cable to connect a MaxiScan 3100 to the MaxiScan 3010. Never connect a MaxiScan 3100 directly to the MaxiScan 3010.**

**Maximum current accepted between the '+' and '-' of the SYNCHROS port is 50 mA max (higher current can damage the synchronization driver !).**

## Checklist of items for your installation

- MaxiScan 3010 Network System connection box
- this MaxiScan 3010 Network System Installation Guide
- terminator connector - P/N 3-500029-01

Options:

- Intermec Product Information cd-rom with EasySet System Setup software supporting MaxiScan 3010 Network System - P/N 0-900029-00
- Standard MaxiScan 3300 RS-232 C cable (also used to download setup commands from EasySet) - P/N 0-530022-01

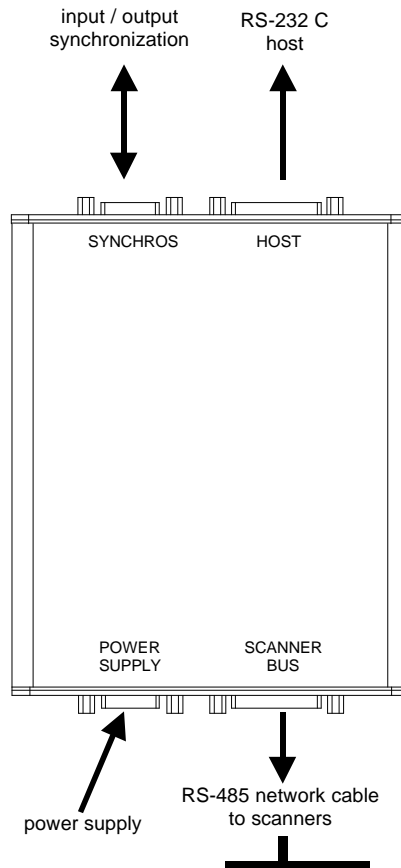
## Installation considerations

<b>Environment</b>	MaxiScan 3010 Network System complies with IP51 norms. A dry and dust-protected environment is recommended.
<b>Setup</b>	You can use a standard RS-232 cable for MaxiScan to set up your MaxiScan 3010 Network System with EasySet. Test your setup before you install the MaxiScan 3010 Network System permanently.
<b>Cabling</b>	<ul style="list-style-type: none"><li>• Twisted pair for data lines is strongly recommended on the SCANNER BUS port.</li><li>• Depending on cable characteristics (twisted pair, shield, etc.), an RS-485 connection theoretically allows a cabling distance of a few hundred meters.</li></ul>
<b>Power supply</b>	<ul style="list-style-type: none"><li>• Always use a power supply with the earth connected.</li><li>• A voltage between 7 and 25 VDC is required (see the <i>Pinouts</i> section).</li></ul>
<b>MaxiScan 3100</b>	Compatible with all MaxiScan 3100 firmware versions.
<b>MaxiScan 3300</b>	Use MaxiScan 3300 firmware version 1.06 or later.
<b>Configuration with EasySet</b>	Use EasySet software Rev 3.0 (32-bit version) minimum or Rev 2.0 (16-bit version) minimum with the dedicated MNS 3010 command file.

## 2 Connections

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### Connections



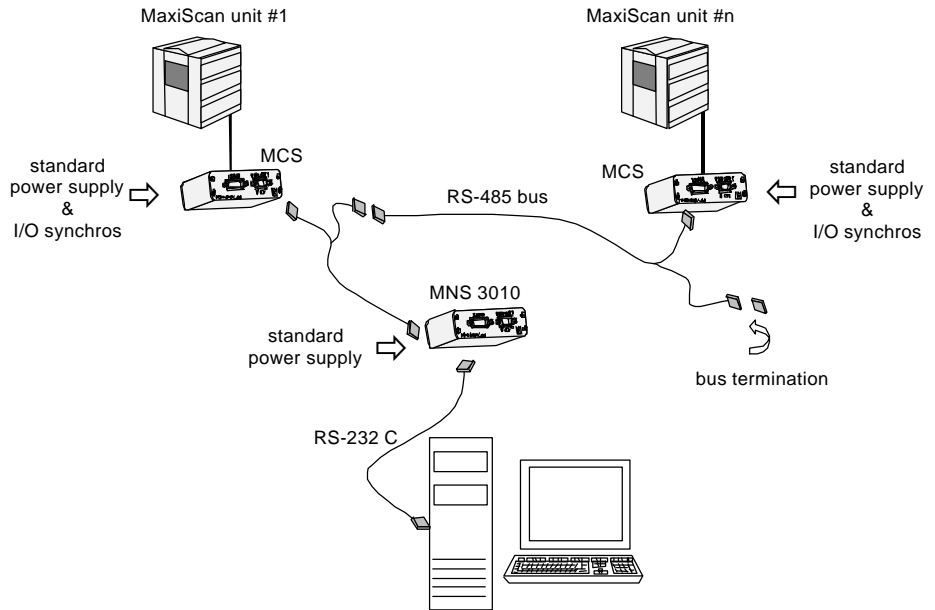
See the *Pinouts* and *Intermec scanner bus cables* sections to make your physical connections.

How you connect up your MaxiScan 3010 Network System depends on the number and type of scanners in the network and the power rating of the power supply connected to the MNS 3010.

## Network of more than 2 MaxiScan 3300 units (with MCS boxes)

The MaxiScan units are connected to their respective standard MaxiScan Connexion System (MCS) boxes. All standard MCS boxes are then interconnected to the MaxiScan 3010 Network System through an RS-485 network bus.

Each MaxiScan has its own power supply and manages its own I/O synchronization lines.



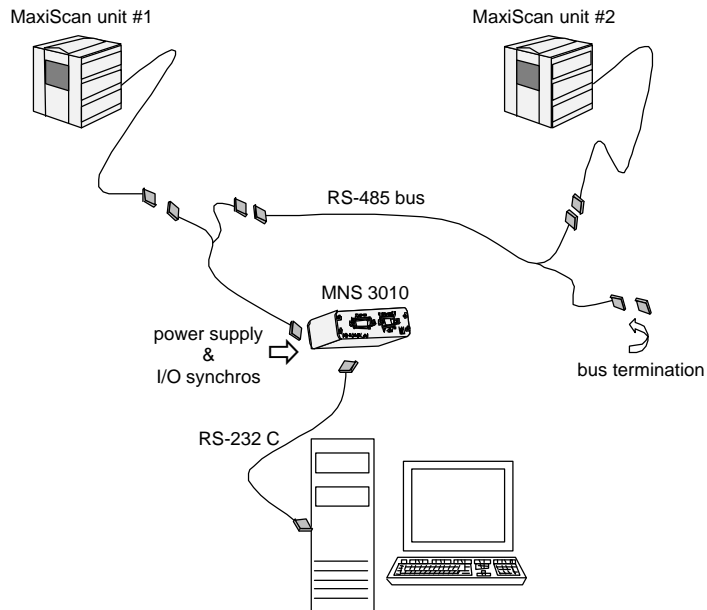
See *Accessories* section for part numbers.



## Network of 1 or 2 MaxiScan 3300 units (without MCS boxes)

The MaxiScan units are directly interconnected to the MaxiScan 3010 Network System through an RS-485 network bus.

All MaxiScan units share the same power supply and I/O synchronization lines.



See *Accessories* section for part numbers.



If you use a standard MaxiScan 3100 / 3300 power supply (15 V), this solution is only possible if you connect 1 or 2 MaxiScan units to the MaxiScan 3010 Network System.

If you want to connect more than 2 MaxiScan units, you must use the alternative connection method described on the previous page or provide a power supply with sufficient power calculated as follows:

**The power supply must withstand at least (  $n \times 5$  Watt ).**

$n$  = number of MaxiScan units connected, with peaks of up to 2 or 3 times this value

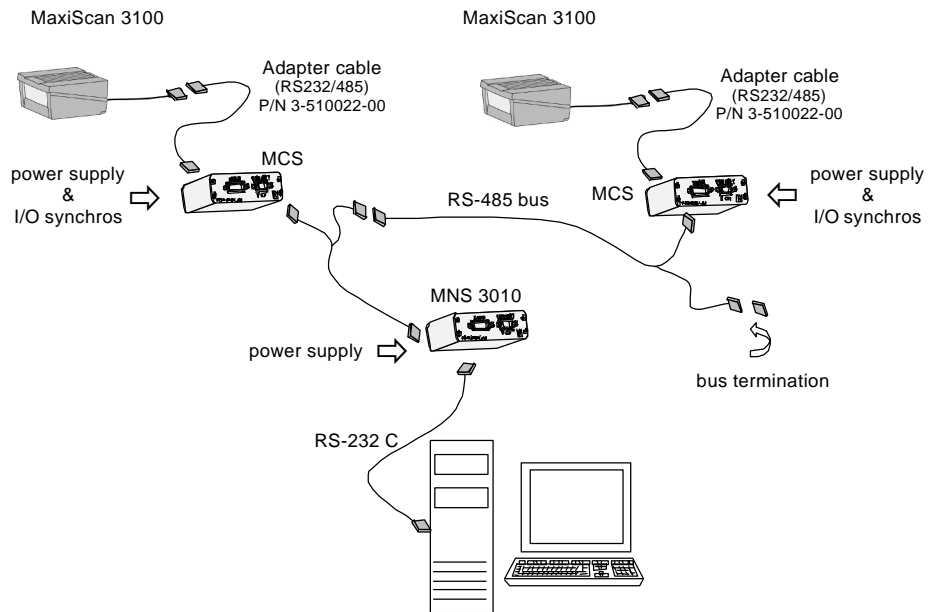
The value obtained does not take into account other external devices (synchronization devices etc.) supplied by the MaxiScan 3010 Network System power unit.

Voltage output : 7 – 25 V

## Network of more than 2 MaxiScan 3100 (with MCS boxes)

The MaxiScan 3100 are connected to their respective standard MaxiScan Connexion System (MCS) boxes through an RS-232/485 adapter cable. All standard MCS boxes are then interconnected to the MaxiScan 3010 Network System through an RS-485 network bus.

Each MaxiScan has its own power supply and manages its own I/O synchronization lines.

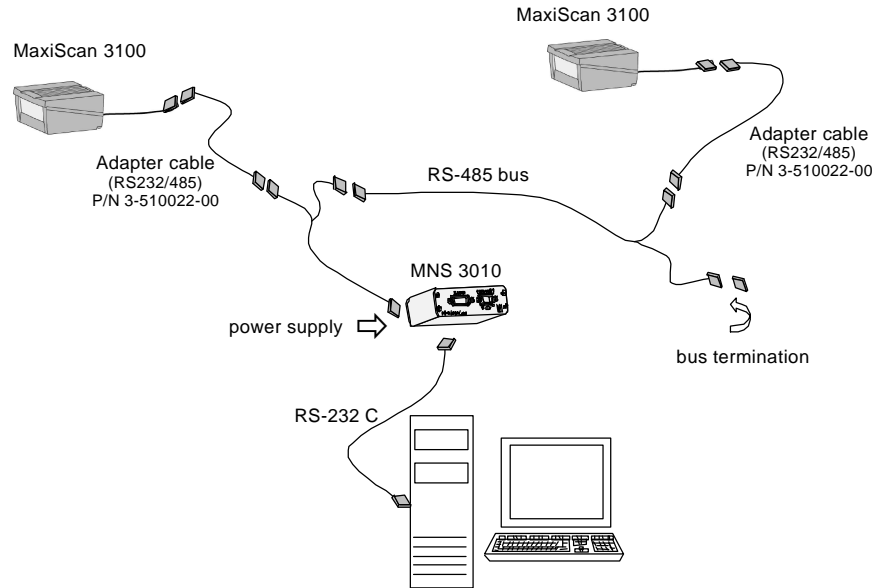


See *Accessories* section for part numbers.

## Network of 1 or 2 MaxiScan 3100 (without MCS boxes)

The MaxiScan 3100 and an RS-232/485 adapter cable are directly interconnected to the MaxiScan 3010 Network System through an RS-485 network bus.

All MaxiScan 3100 share the same power supply and I/O synchronization lines.



See *Accessories* section for part numbers.

If you use a standard MaxiScan 3100 / 3300 power supply (15 V), this solution is only possible if you connect 2 or 3 MaxiScan units to the MaxiScan 3010 Network System.

If you want to connect more than 2 MaxiScan 3100, you must use the alternative connection method described on the previous page or provide a power supply with sufficient power calculated as follows:

**The power supply must withstand at least (  $n \times 2.5$  Watt ) .**

$n$  = number of MaxiScan 3100 connected, with peaks of up to 2 or 3 times this value

The value obtained does not take into account other external devices (synchronization devices etc.) supplied by the MaxiScan 3010 Network System power unit.



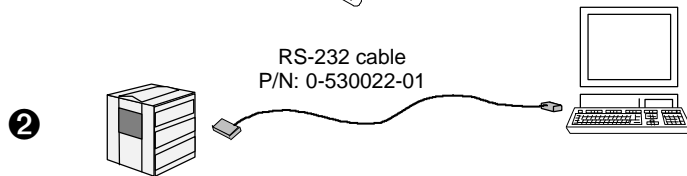
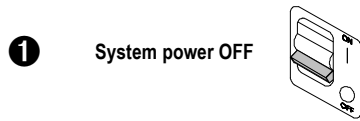
# 3 Setup

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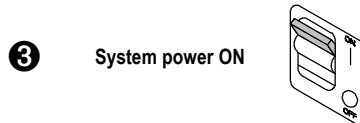
## Online setup

Refer to the EasySet online help for a detailed explanation of how to use the EasySet System configuration software.

### 1. Set up each MaxiScan slave unit



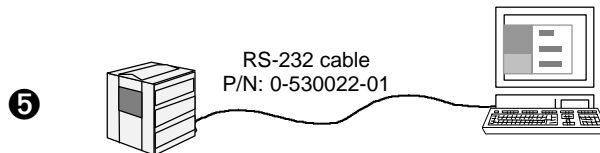
Connect the MaxiScan slave unit to the PC where EasySet is installed



MaxiScan 3100 only: Scan this code to enable online setup with EasySet

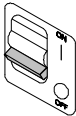
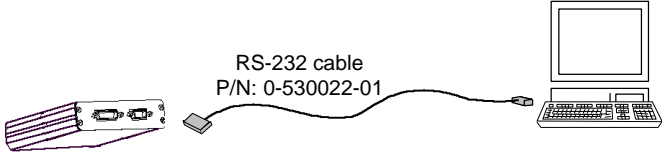


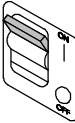
Set the COM port parameters to 19200 baud, 8 data bits, no parity



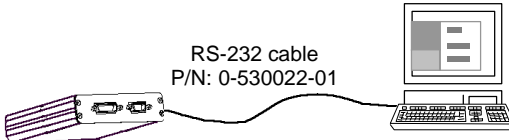
Activate each MaxiScan unit as a slave with its own slave ID number, activate symbologies and synchronization (if applicable).

## 2. Set up the MaxiScan 3010 Network System

- 1** System power OFF
- 
- 2**
- 
- RS-232 cable  
P/N: 0-530022-01
- Connect the MaxiScan 3010 Network System to the PC where EasySet is installed

- 3** System power ON
- 

- 4** Start EasySet  
(set PC/Reader communication to 19200, 8, N, 2)
- 

- 5**
- 
- RS-232 cable  
P/N: 0-530022-01

Set up the MaxiScan 3010 Network System:

- number of slaves (MaxiScan units) on the network (default = 10)
- RS-232 C settings for communication with the host system (default = 9600, 7 data bits, even parity, 2 stop bits, no global preamble, global postamble CR/LF)

At power-up, the MNS 3010 remains in configuration mode (19200, 8, N, 2) until it receives data from a MaxiScan (when the MaxiScan reads a barcode).

## Offline setup

You can use EasySet to print out configuration bar codes for offline setup.

Here are some basic configuration bar codes to configure up to 5 MaxiScan 3100 or 3300. The EasySet software provides the full set of configuration options to configure up to 20 MaxiScans.

### All MaxiScan units

slave configuration - reset factory defaults (optional)



\46\42\60

### MaxiScan 3100 only

slave configuration – activate slave – MaxiScan 3100 - slave 1



\41\4A\0F\2A\47\3E\05\60

slave configuration – activate slave – MaxiScan 3100 - slave 2



\\41\4A\0F2A\47\3E\07\60

slave configuration – activate slave – MaxiScan 3100 - slave 3



\\41\4A\0F2A\47\3E\08\60

slave configuration – activate slave – MaxiScan 3100 - slave 4



\\41\4A\0F2A\47\3E\09\60



slave configuration – activate slave – MaxiScan 3100 - slave 5



\4114A\0F2A\473E\0A\60

## MaxiScan 3300 only

slave configuration – activate slave – MaxiScan 3300 - slave 1



\48\47\01\40\43\46\00\48\3E\06\49\3E\15\41\08\40\4E\45\53\3E\02\45\54\3E\03\47\3E\05\45\57\60

slave configuration – activate slave – MaxiScan 3300 - slave 2



\48\47\01\40\43\46\00\48\3E\06\49\3E\15\41\08\40\4E\45\53\3E\02\45\54\3E\03\47\3E\07\45\57\60

slave configuration – activate slave – MaxiScan 3300 - slave 3



\48\47\01\40\43\46\00\48\3E\06\49\3E\15\41\08\40\4E\45\53\3E\02\45\54\3E\03\47\3E\08\45\57\60

slave configuration – activate slave – MaxiScan 3300 - slave 4



\48\47\01\40\43\46\00\48\3E\06\49\3E\15\41\08\40\4E\45\53\3E\02\45\54\3E\03\47\3E\09\45\57\60

slave configuration – activate slave – MaxiScan 3300 - slave 5



\48\47\01\40\43\46\00\48\3E\06\49\3E\15\41\08\40\4E\45\53\3E\02\45\54\3E\03\47\3E\0A\45\57\60



## 4 System configuration checklist

---

To operate in a network configuration, each MaxiScan slave unit has its own ID number and is polled periodically for network data collection.

System configuration basically comprises the following steps:

- ❶ Configure the MaxiScan slave units (online or offline setup)—each MaxiScan slave unit must have its own ID number.
- ❷ Configure the MaxiScan 3010 Network System (online setup)—parameters include the number of MaxiScan slave units on the network, RS-232 C settings for communication with the host system.
- ❸ Disconnect all power supplies.
- ❹ Connect the network cables and MaxiScan slave units to the SCANNER BUS port, connect the HOST cable, and connect the SYNCHROS cable if applicable.
- ❺ Connect the MaxiScan slave unit power supplies to the MCS boxes if applicable.
- ❻ Connect the MNS power supply (and I/O sync device if applicable) to the MaxiScan 3010 Network System.



# 5 Input/output synchronization

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## Input synchronization

Note: the Intermec photoelectric switch (P/N 3-500029-03) is fully compatible with the MaxiScan 3010 input synchronization port.

### MaxiScan 3010 trigger event

<b>Current on</b>	Maxiscan reading is active when current flows between the MaxiScan 3010 inputs SI+ and SI-. Reading remains active until the current stops flowing.
<b>Current off</b>	Maxiscan reading is active when no current flows between the MaxiScan 3010 inputs SI+ and SI-. Reading remains active until current starts to flow.
<b>Rising edge</b>	Maxiscan reading is triggered by a rising edge current between the MaxiScan 3010 inputs SI+ and SI-. Reading remains active until the input synchronization timeout is reached.
<b>Falling edge</b>	Maxiscan reading is triggered by a falling edge current between the MaxiScan 3010 inputs SI+ and SI-. Reading remains active until the input synchronization timeout is reached.
<b>Rising &amp; falling edge</b>	Maxiscan reading is triggered by a rising or falling edge current between the MaxiScan 3010 inputs SI+ and SI-. Reading remains active until the input synchronization timeout is reached.

## Output synchronization

### Hardware synchronization

#### Output device trigger event

- |                        |  |
|------------------------|--|
| <b>Good read</b>       | The output device is triggered by a good read.   |
| <b>No read</b>         | The output device is triggered when the MaxiScan unit does not perform a good read (no read before timeout). An input synchronization trigger is required. |
| <b>Network failure</b> | The output device is triggered when a problem occurs on the network protocol (bad frame, bad CRC etc.).  |

#### Output device activation current

- |                    |   |
|--------------------|---|
| <b>Current on</b>  | The output device operates when current flows between the MaxiScan 3010 outputs SO+ and SO-.    |
| <b>Current off</b> | The output device operates when no current flows between the MaxiScan 3010 outputs SO+ and SO-. |

### Software action

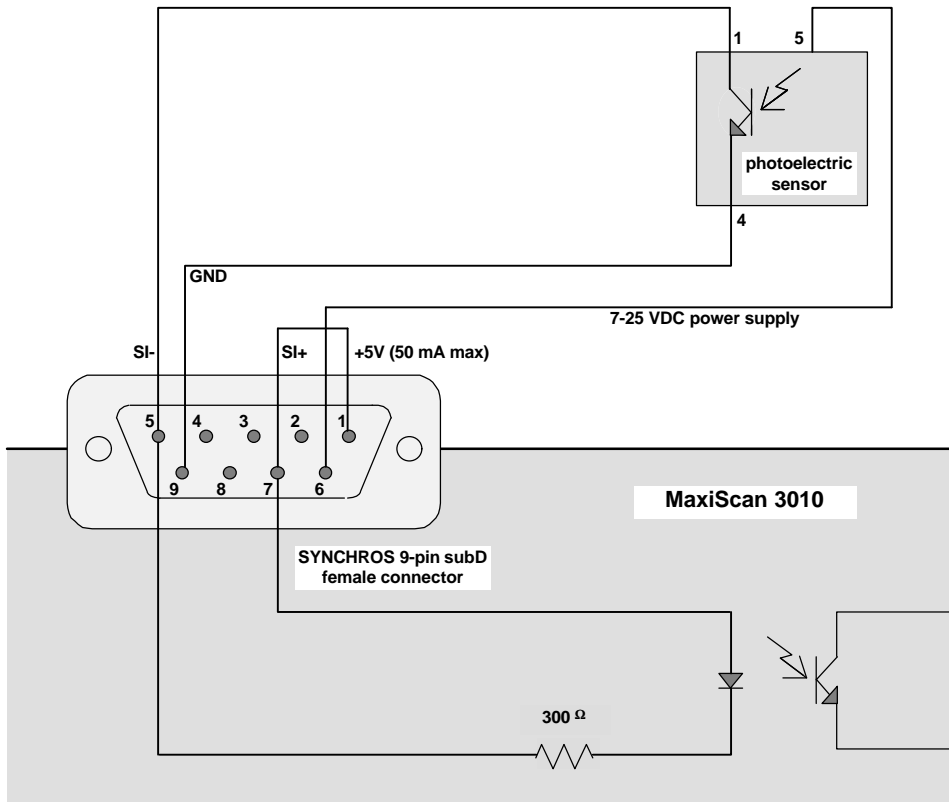
The MaxiScan 3010 can send a message to the host system after a good read, no read or network failure.



## Examples

### Input synchronization using the MaxiScan 3010 with a 5 VDC voltage

*Example: Reading triggered by an opto-coupled MLV 40-8/28 (VISOLUX) cell.*

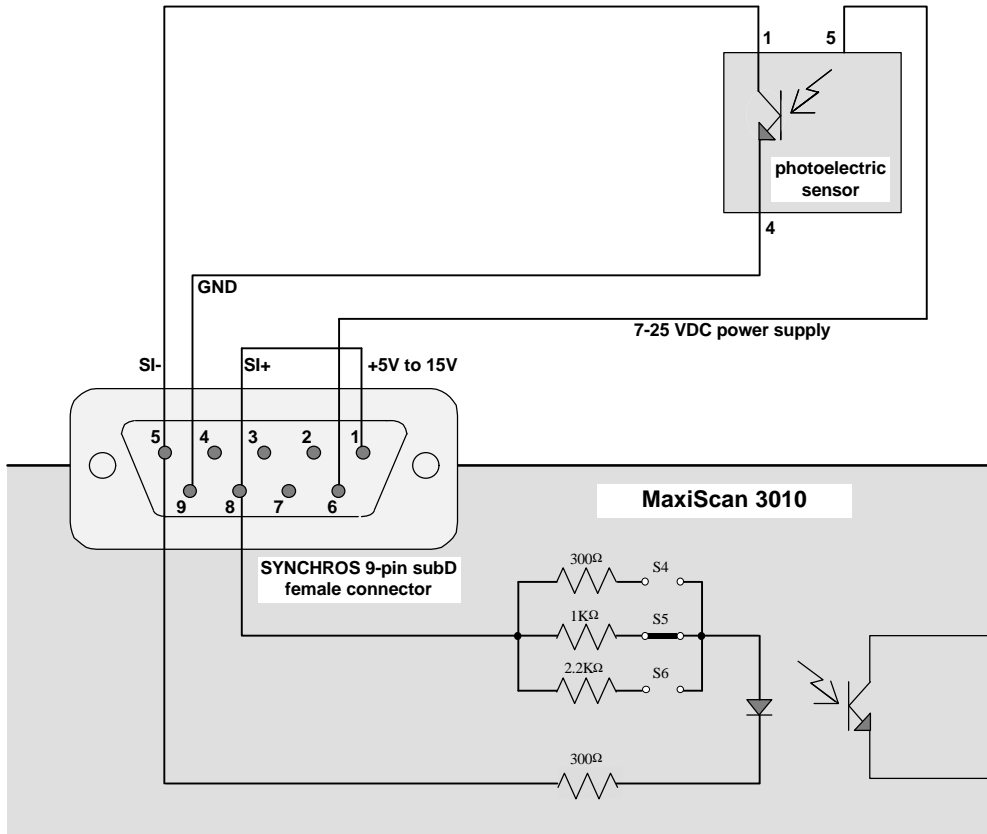


Pin 7 brings the SI+ signal to the MaxiScan 3010.

*In all cases, the synchronization current provided by the external input device must be limited to 20 mA max (15 mA is a good average value).*

## Input synchronization using the MaxiScan 3010 with other voltages

**Example:** Reading triggered by an opto-coupled MLV 40-8/28 (VISOLUX) cell.



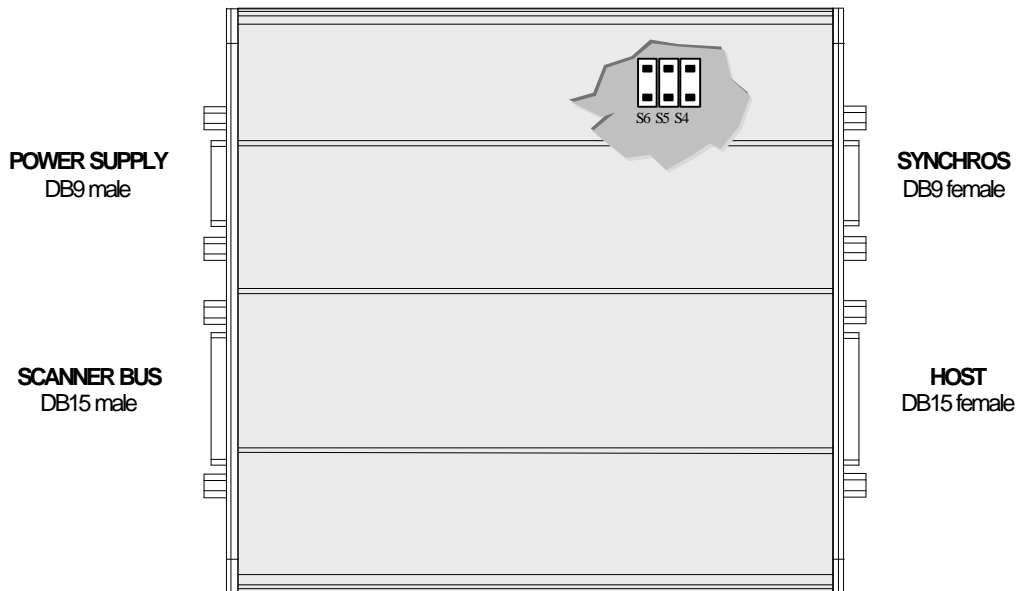
Pin 8 brings the SI+ signal to the MaxiScan 3010 in an adjustable configuration of resistors (via 3 jumpers) for different voltage inputs.

***In all cases, the synchronization current provided by the external input device must be limited to 20 mA max (15 mA is a good average value).***

## Jumper configuration

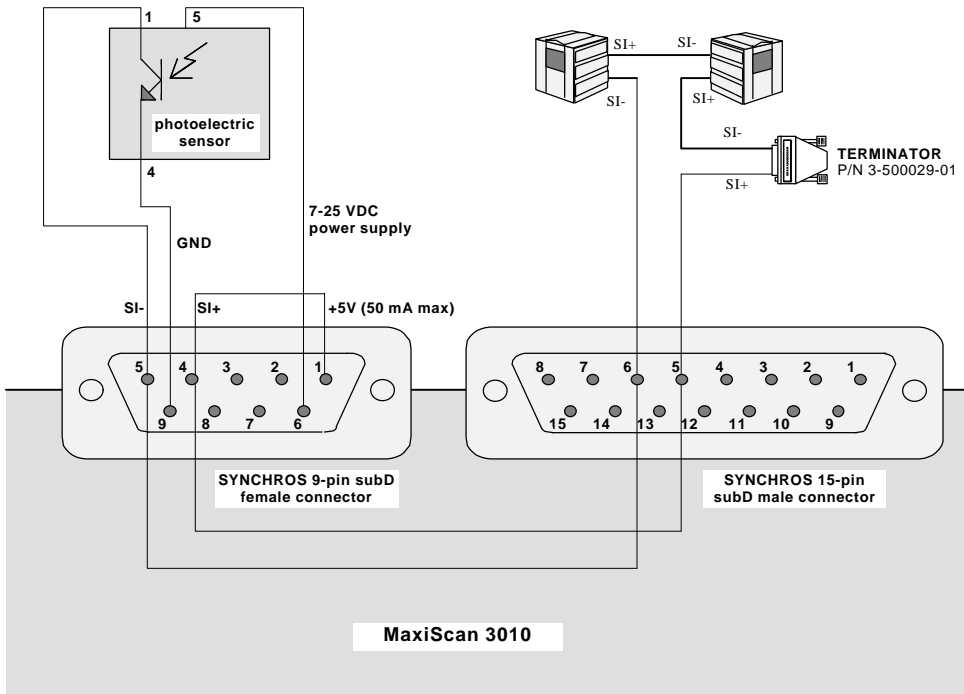
To reconfigure jumpers, unscrew the front and rear panels of the MaxiScan 3010 network module and slide out the mother board. In the default configuration, no jumper is installed (voltage = 5V).

VOLTAGE	JUMPER
6 to 15V	S5
16 to 24V	S4
25 to 50V	S6



## Input synchronization—serial connection through MaxiScan units

**Example:** Reading triggered by an opto-coupled MLV 40-8/28 (VISOLUX) cell.



Pin 4 brings the SI+ signal to the Scanner Bus Port only (this is only possible for a maximum of 3 or 4 units). In this example, the synchronization is controlled by each MaxiScan unit and not by the MaxiScan 3010. The synchronization parameters of each MaxiScan unit must be configured separately.

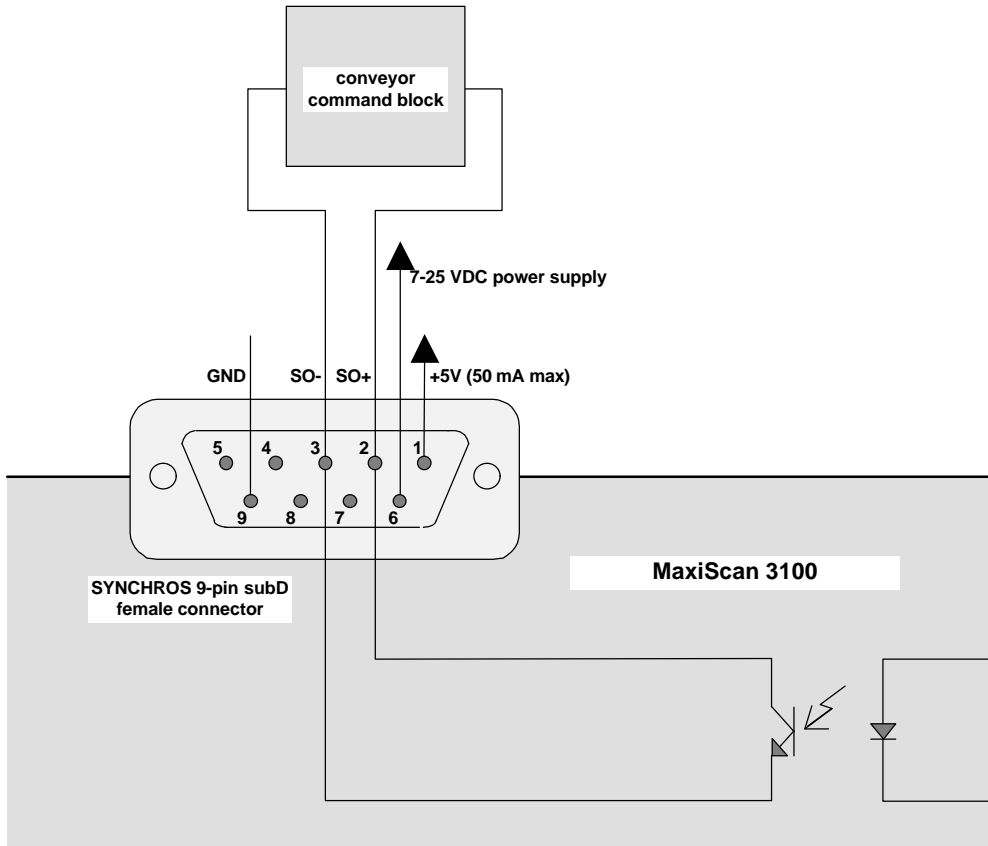
**Note :**

*This is an example of what can be done using 2 network cables (P/N 3-504039-01 or 3-504039-00) and a terminator (P/N 3-500029-01).*

***In all cases, the synchronization current provided by the external input device must be limited to 20 mA max (15 mA is a good average value).***

## Output synchronization

*Example: Opto-coupled control output.*



*The synchronization current provided by the external output device must be limited to 20 mA max (15 mA is a good average value).*

## Synchronization setup

To set up the synchronization controlled by a MaxiScan 3010 connected to a synchronization system device :

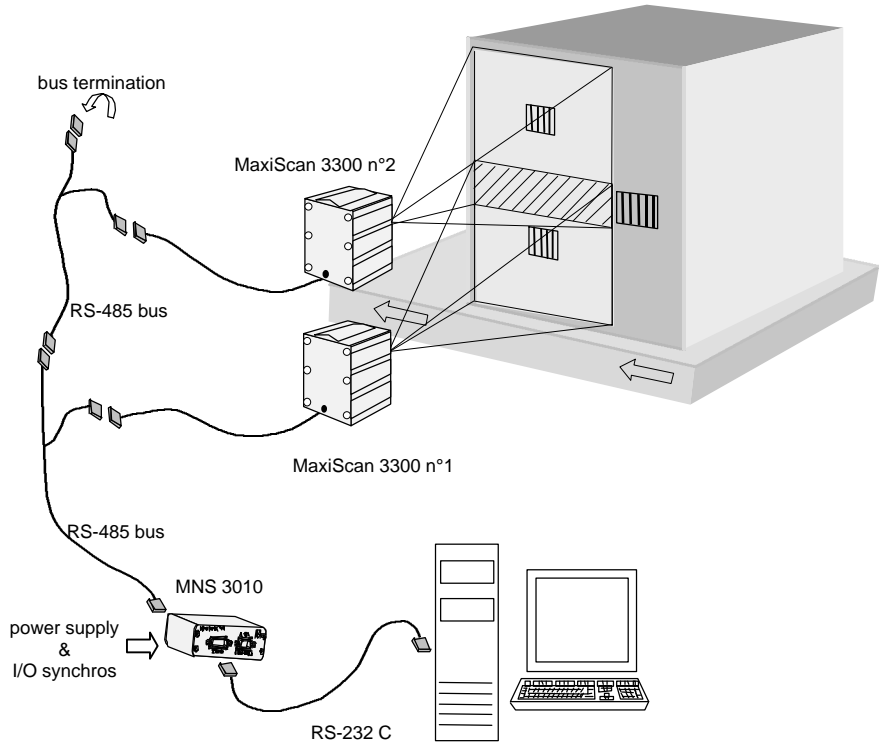
- 1 Read this code with all MaxiScan units



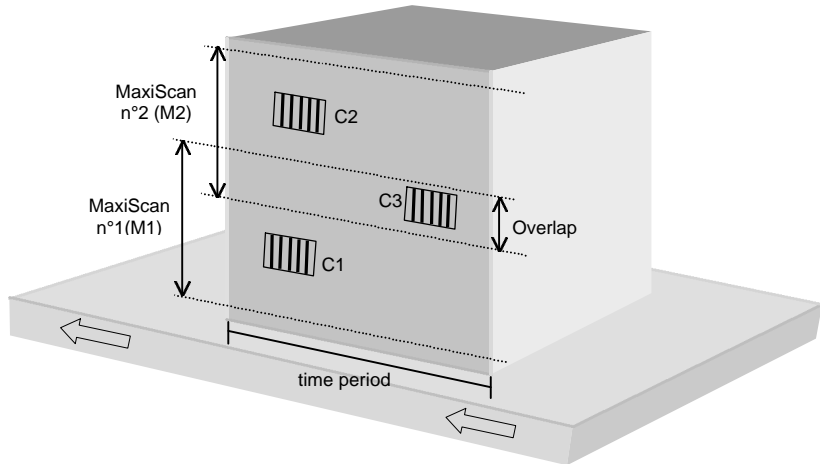
- 2 Configure the MaxiScan 3010 with EasySet (operating settings, input/output synchronization etc.)

# 6 Multihead

Multihead is a way of combining several MaxiScan 3300 or MaxiScan 3100 units to cover a larger scanning area.

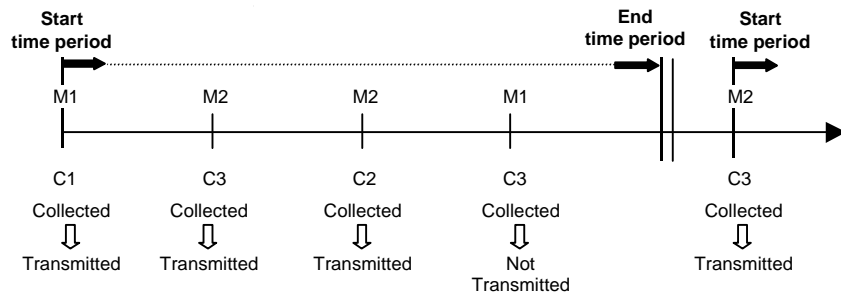


## Scanning area



Overlap : zone covered by at least 2 MaxiScans. For example, both MaxiScans (M1 and M2) can read the code C3.

To avoid transmitting the same code twice, data read by the MaxiScans within a specified period of time is checked and filtered.



## Configuration

Use EasySet to set the multihead / network mode and to define the timeout (Network parameters > multihead > network configuration).



# 7 Technical characteristics

## Data

<b>Interface</b>	Supported products	<ul style="list-style-type: none"> <li>• MaxiScan 3100</li> <li>• MaxiScan 3300</li> </ul>
	Network capacity	up to 20 MaxiScan slave units
	Host system interface	RS-232 C (default = 9600, 7, E, 2)
	I/O synchronization	one input sync from external device one output sync to external device
<b>Electrical characteristics</b>	Power requirements	7-25 VDC $\pm$ 5%
	Current consumption	0.675 W, peaks of up to 2 or 3 times this value at power-up
<b>Physical characteristics</b>	Dimensions (Width x depth x height)	14.2 x 11.3 x 3 cm (5.59 x 4.45 x 1.18")
	Weight	300 grams (10.6 ounces)
	Connectors	DB9 and DB15 connectors
<b>Environmental specifications</b>	Operating temperature	0°C to 40°C (32°F to 104°F)
	Storage temperature	-25°C to 60°C (-13°F to 140°F)
	Relative humidity	10% to 90% non-condensing
	Electrostatic discharge	CE approved
	Shock resistance	Withstand 5 drops from 1m high on concrete floor
	Sealing (dust etc.)	IP51
	MTBF	> 50 000 hours

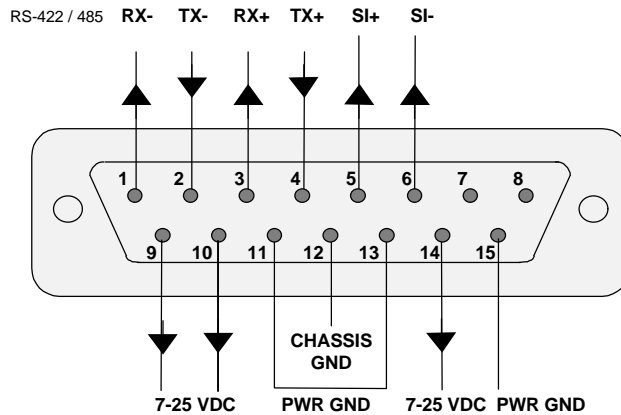
## Accessories

<b>Cables</b>	standard MaxiScan 3300 RS-232 C cable	0-530022-01
	1 m network cable	3-504039-00
	3 m network cable	3-504039-01
	terminator connector	3-500029-01
	The case of the MaxiScan 3010 must be connected to the earth. Use shielded cables for the SCANNER BUS line. Twisted pair is recommended for data lines on the SCANNER BUS port.	
<b>Power supply</b>	US	0-531029-08
	Europe (except UK)	0-531029-02
	UK	0-531029-04
<b>Sync switch</b>	Intermec photoelectric switch	3-500029-03



# 8 Pinouts

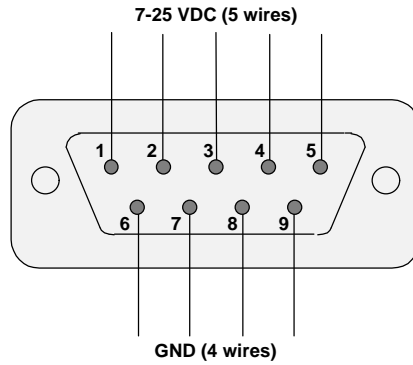
## Scanner bus



15-pin subD male connector

pin	function
1	receive data RX- (RS-422 / 485)
2	transmit data TX- (RS-422 / 485)
3	receive data RX+ (RS-422 / 485)
4	transmit data TX+ (RS-422 / 485)
5	positive synchronization input (SI+)
6	negative synchronization input (SI-)
7	Not Connected
8	Not Connected
9	power in (7 to 25 VDC)
10	power in (7 to 25 VDC)
11	power ground
12	Shield
13	power ground
14	power in (7 to 25 VDC)
15	power ground

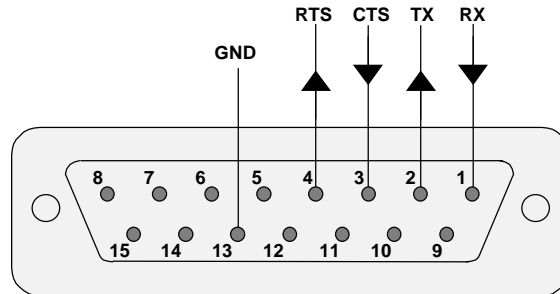
## Power supply



9-pin subD male connector

pin	function
1	power in (7 to 25 VDC)
2	power in (7 to 25 VDC)
3	power in (7 to 25 VDC)
4	power in (7 to 25 VDC)
5	power in (7 to 25 VDC)
6	power ground
7	power ground
8	power ground
9	power ground

## Host

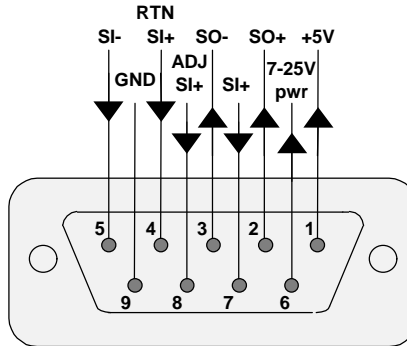


15-pin subD female connector

pin	function
1	receive data (RS-232 C)
2	transmit data (RS-232 C)
3	clear to send (RS-232 C)
4	request to send (RS-232 C)
5	Not connected
6	Not connected
7	Not connected
8	reserved
9	reserved
10	reserved
11	reserved
12	reserved
13	signal ground (RS-232 C)
14	reserved
15	reserved

## Synchro

**In all cases, the synchronization current provided by the external input/output device must be limited to 20 mA max (15 mA is a good average value) !**



9-pin subD female connector

pin	function
1	+5 VDC out (65 mA max)
2	positive synchronization output (SO+) (50 mA max )
3	negative synchronization output (SO-) (50 mA max)
4	<b>RETURN positive synchronization input (SI+) (50 mA max)</b> brings the SI+ signal to the SCANNER BUS port only (serial connection to slaves with MNS 3010 network cables)
5	negative synchronization input (SI-) (50 mA max)
6	7-25 VDC 10 Watt
7	<b>Maxiscan 3010 positive synchronization input (SI+) (50mA max)</b> brings the SI+ signal to MaxiScan 3010 only
8	<b>Adjustable Maxiscan 3010 positive synchronization input (SI+) (50 mA max)</b> brings the SI+ signal to MaxiScan 3010 only with adjustable resistors configuration
9	power ground

## 9 Intermec scanner bus cables

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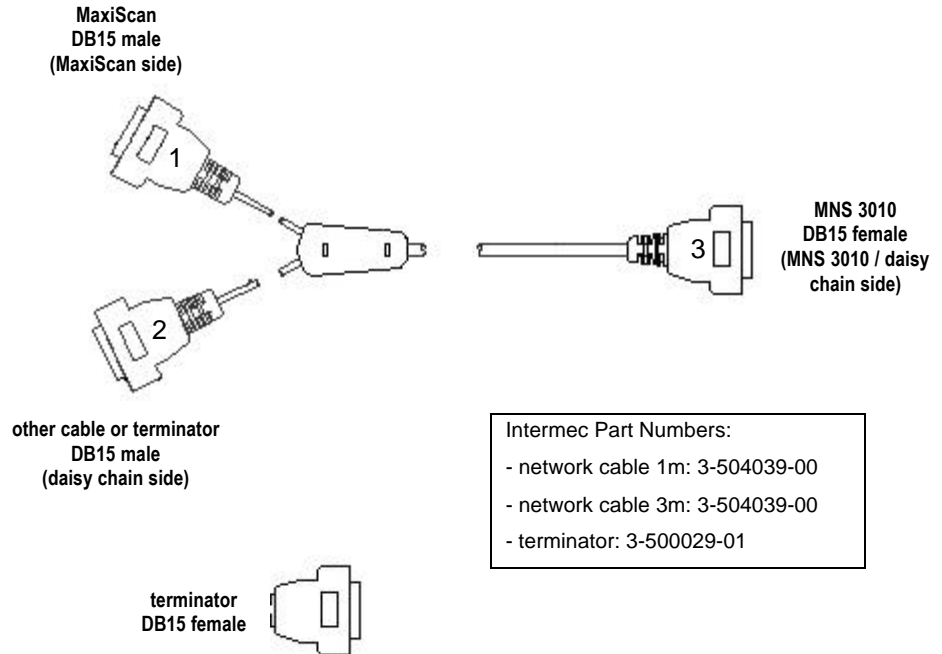
Intermec can supply SCANNER BUS cables with standard lengths (1m, 3m) for your network configuration. Custom lengths can be provided on request.

These cables can provide power supply and sync signals to the MaxiScan slave units on the network via the MaxiScan 3010 Network System if required.

Each cable can be daisy-chained to another by connecting connector 2 of the first cable to connector 3 of the second cable.

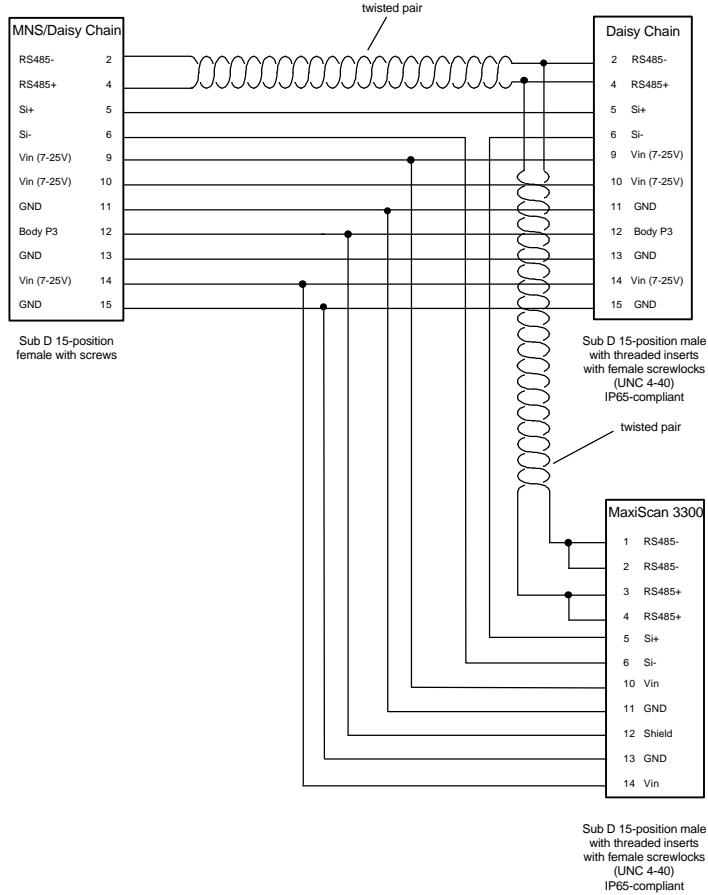
On the last cable, connect the terminator connector to connector 2.

### Cable overview



# Pinouts

## Network cable (1 m or 3 m)



## Terminator

