



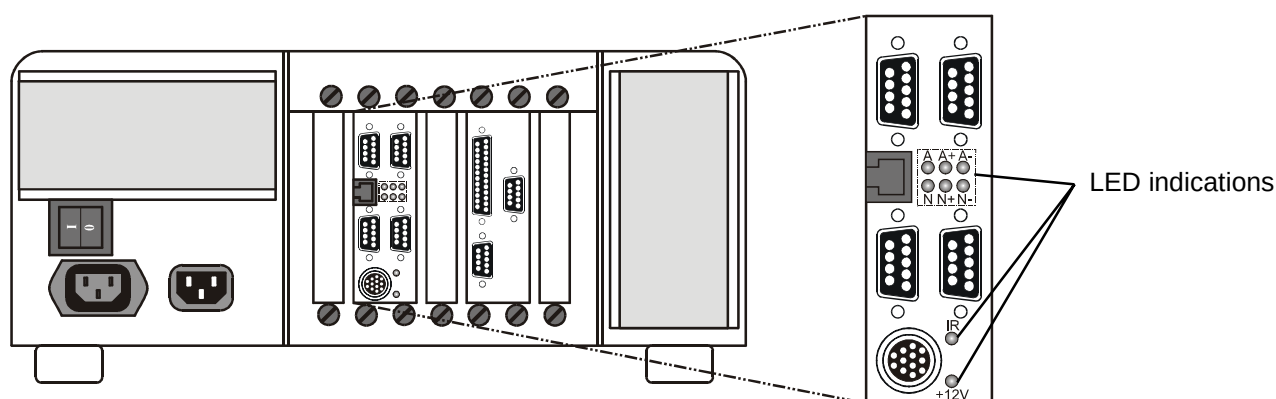
**BST PRO MARK Video Web Inspection Systems**

**Sensor Board**  
***SUPER HANDYSCAN 2000 /***  
***PROSCAN 2000***

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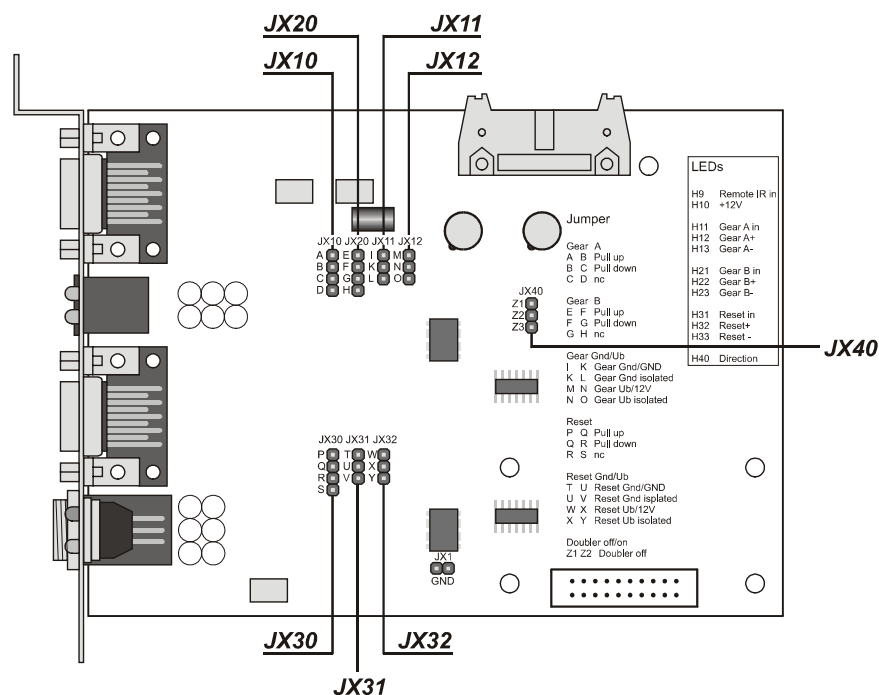
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## 1. LED indications on the sensor board



| LED     | inscription | signal    | signification                                                                                                                                                                                                                              |
|---------|-------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H9      | IR          | IR in     | Input remote control                                                                                                                                                                                                                       |
| H10     | +12V        | +12V      | Power supply for external sensors/encoders                                                                                                                                                                                                 |
| H11     | A           | Gear A in | <p>Direct signal indication "Gear A" before internal optoelectronic coupler<br/>Test of encoder and cabling</p> <p>H11 on = input level high<br/>H11 off = input level low</p> <p><b>Pulses only visible with low input frequency!</b></p> |
| H12     | A+          | Gear A +  | <p>"Antiparallel" signal indication after internal optoelectronic coupler<br/>Test, if signal corresponds to level specification</p> <p>H12 on H13 off = input level low<br/>H12 off H13 on = input level high</p>                         |
| H13     | A-          | Gear A -  | <p>H12 on H13 on = <b>input pulse train</b><br/>H12 off H13 off = board defective</p> <p><b>With signal frequencies too high (&gt;20 kHz) one LED might be off!</b></p>                                                                    |
| H31     | N           | Reset in  | <p>Direct signal indication "Reset in" before internal optoelectronic coupler<br/>Test of encoder and cabling</p> <p>H31 on = input level high<br/>H31 off = input level low</p> <p><b>Pulses only visible at low input frequency!</b></p> |
| H32     | N+          | Reset +   | <p>"Antiparallel" signal indication after internal optoelectronic coupler<br/>Test, if signal corresponds to level specification</p>                                                                                                       |
| H33     | N-          | Reset -   | <p><b>Pulses might be weakly visible and only for a short time (depending on machine speed and pulse length)!</b></p>                                                                                                                      |
| H21–H23 |             | Gear B    | <b><u>Not inserted!</u></b>                                                                                                                                                                                                                |
| H40     |             | Direction |                                                                                                                                                                                                                                            |

## 2. Jumpers on the sensor board



| socket | jumper                      | function                                                              | standard setting |
|--------|-----------------------------|-----------------------------------------------------------------------|------------------|
| JX10   | A – B                       | Pull up against 12V for Gear A input                                  | A – B            |
|        | B – C                       | Pull down to GND for Gear A input                                     |                  |
|        | C – D                       | No potential link-up of the signal                                    |                  |
| JX11   | I – K                       | Connection Gear Return (Pin 7) to GND (Pin 5)                         | I – K            |
|        | K – L                       | No potential link-up of Gear Return (Pin 7) to GND of the controller  |                  |
| JX12   | M – N                       | Connection +12V Gear (Pin 2) to internal +12V                         | M – N            |
|        | N – O                       | No potential link-up of +12V Gear (Pin 2) to the controller           |                  |
| JX30   | P – Q                       | Pull up against 12V for Reset input                                   | P – Q            |
|        | Q – R                       | Pull down to GND for Reset input                                      |                  |
|        | R – S                       | No potential link-up of the signal                                    |                  |
| JX31   | T – U                       | Connection Reset Return (Pin 9) to GND (Pin 5)                        | T – U            |
|        | U – V                       | No potential link-up of Reset Return (Pin 9) to GND of the controller |                  |
| JX32   | W – X                       | Connection +12V Reset (Pin 1) to internal +12V                        | W – X            |
|        | X – Y                       | No potential link-up of +12V Reset (Pin 1) to the controller          |                  |
| JX40   | Z1 – Z2                     | No frequency doubling for gear signal                                 | Z1 – Z2          |
|        |                             | <b>Do not change jumper setting Z1 – Z2!</b>                          |                  |
|        | Z2 – Z3                     | (frequency doubling for gear signal)                                  |                  |
| JX20   | <b><u>Not inserted!</u></b> |                                                                       |                  |

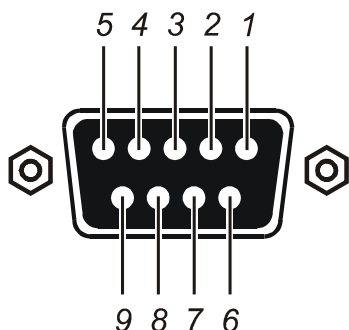
### 3. Technical specification of the synchronization signals

| General data                            |                 |
|-----------------------------------------|-----------------|
| Signal level low:                       | < 4V and > -16V |
| Signal level high:                      | > 8V and < 30V  |
| Signal flanks: High → Low<br>Low → High | < 1 μs          |
| Max. current load:                      | ± 30 mA         |

| Machine cycle (Gear)          |                                                           |
|-------------------------------|-----------------------------------------------------------|
| Potential separation: (BST)   | possible for active signals (e.g. push-pull output)       |
| Max. frequency machine cycle: | with repeat signal: 20kHz<br>without repeat signal: 10kHz |
| Signal length Low / High:     | > 10μs<br>optimum pulse-duty factor is 1:1                |
| Recommended resolution:       | 1 pulse / 1mm web feed                                    |

| Repeat pulse (Reset)         |                                                     |
|------------------------------|-----------------------------------------------------|
| Potential separation: (BST)  | possible for active signals (e.g. push-pull output) |
| Signal length Low / High:    | > 30μs<br>optimum pulse-duty factor is 1:1          |
| Max. frequency repeat pulse: | 500Hz                                               |

### 4. Pin configuration (9 channel sub D jack)



| pin number | signal                                                                           |
|------------|----------------------------------------------------------------------------------|
| 1          | +12V Reset output                                                                |
| 2          | +12V Gear output                                                                 |
| 3          | IR Signal input                                                                  |
| 4          | +5V output<br><b>Only for connection of the IR sensor for the remote control</b> |
| 5          | GND                                                                              |
| 6          | Reset input                                                                      |
| 7          | Gear return input                                                                |
| 8          | Gear input                                                                       |
| 9          | Reset return input                                                               |

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## 5. Setting of synchronization

1. Shortly press the key '**MENU**' to call the menu '**Gear Count**'.  
The selected synchronisation mode (see menu '**USER SETTINGS**') is displayed on the monitor.



- a) If the menu '**Gear Count**' is displayed, you must enter the number of teeth of the print cylinder (e.g. label printing machine).

|            |      |
|------------|------|
| IMPULSZAHL | 0061 |
|------------|------|

- b) If the menu '**Gear and Reset**' is displayed, you have to enter the repeat length in inches or millimetres. After that the number of resets per repeat has to be set (e.g. flexo printing machine).

|               |           |
|---------------|-----------|
| RAPPORTLÄNGE  | 610.00 MM |
| RESET IMPULSE | 01        |

- c) If the menu '**Zero-Pulse**' is displayed, you must enter the repeat length in inches or millimetres.  
The system is automatically set for one reset pulse per repeat (e.g. rotogravure printing machine).

|              |           |
|--------------|-----------|
| RAPPORTLÄNGE | 610.00 MM |
|--------------|-----------|

2. Press the **arrow key 'RIGHT'** or '**LEFT'** to move to the desired value of the menu.
3. To change a highlighted value, press the **arrow key 'UP'** or '**DOWN'** until the desired value is displayed on the monitor.
4. Press the key '**MENU**' to save your selections and exit the menu '**Gear Count**'.