

# Product Update

## IO-Link Power Supply Balluff's HEARTBEAT® function




Power supplies are key components in automation but can easily be overlooked or last on the agenda. When a power supply fails, the sensors, actuators and the controller all come to a halt to figure out which part of the system has failed. It is up to the controller to figure out which part caused the halt in production. The power supply is often replaced long before it is necessary to prevent the risk of automation component failure, which ultimately leads to loss of productivity.

### The Balluff Difference

Balluff's HEARTBEAT® function, which consists of stress level indicator, load level indicator and life expectancy indicator, lets the user visually know how the power supply is doing and when a power supply would need to be replaced. Ultimately this will allow the full life of the power supply, years longer than the standard replacement time.






### Load Level

Symbol	Meaning
 Green	0...80% load
 Yellow	81...100% load
 Red	>100...150% load, typically when a higher current is required, max. 4 s




The load level (Bars) provides information about the actual load condition on the output. If the standard load is too much for one power supply, the bar level will turn yellow. This will indicate either load needs to be removed or another power supply is needed. By taking action to reduce the load, this ensures no damage to the power supply.

### Stress Level

Symbol	Meaning
 Green	Low pulse speed: everything OK, a long service life can be expected.
 Yellow	Pulse speed increasing: thermal load not optimum. No immediate risk of overheating. Slightly accelerated aging. Reduce the load or improve ventilation!
 Red	High pulse speed: poor internal thermal state, service life at serious risk. Check the load and improve ventilation!

The stress indicator (Pulse) takes into account the load as well as the ambient temperature to determine the stress level. Temperature is one of the factors that will reduce the life of a power supply. If the stress level is up but not the load level, it is a clear indicator the temperature is too high and is causing stress on the power supply.

### Life Expectancy

Symbol	Meaning
 Green	Power supply with long service life
 Yellow	Service life less than 3 years, replace during next maintenance cycle
 Red	Power supply at end of service life, replace immediately

Visually the HEARTBEAT® function informs users of the life expectancy display (Hour glass) with a minimum service life of 15 years at 100% load and 40°C. The red hourglass indicates it is time to replace the power supply.

The three indicators help operators to use the power supply within an optimal range. The IO-Link function enables getting information parameters to the control system in the least costly manner. The control system can then alert operators for counter actions to prolong the use of the power supply to the maximum possible life. In this manner, IO-Link assures continuous condition monitoring of the system.

### Other advantages:

- High energy efficiency (>93% efficiency)
- Electrically durable (power boost 150% for 4 seconds)
- Long lasting (minimum service life of 15 years at 100% load and 40°C)
- Vibration and shock resistant
- IO-Link Clip integrated
- Galvanic isolation between power and IO-Link



Voltage	Current	IP	Order Code	Description	Network
24V	2.5 A	IP20	BAE00TR	BAE PS-XA-1W-24-025-101	
24V	5 A	IP20	BAE00T4	BAE PS-XA-1S-24-050-102	
24V	10.A	IP20	BAE00LJ	BAE PS-XA-1S-24-100-103	
24V	20 A	IP20	BAE00M3	BAE PS-XA-1S-24-200-104	
-	-	IP20	BAE00TF	BAE SC-AE-I01	IO-Link clip for IP20 versions
24V	3.8 A	IP67	BAE00TH	BAE PS-XA-1W-24-038-601-I	DeviceNet - Isolated output
24V	3.8 A	IP67	BAE00TJ	BAE PS-XA-1W-24-038-602-I	EtherNet - Grounded output
24V	3.8 A	IP67	BAE00TK	BAE PS-XA-1W-24-038-603-I	PROFI & CC-Link - Isolated output
24V	3.8 A	IP67	BAE00TP	BAE PS-XA-1W-24-038-607-I	EtherNet - Isolated output
24V	8 A	IP67	BAE00TL	BAE PS-XA-1W-24-080-604-I	EtherNet - Isolated output
24V	8 A	IP67	BAE00TM	BAE PS-XA-1W-24-080-605-I	PROFI & CC-Link - Isolated output
24V	8 A	IP67	BAE00TN	BAE PS-XA-1W-24-080-606-I	EtherNet- Grounded output