

# SS10·SS20·SS40 series

Slim type  
Light Curtain Sensors



- Beam interval: 10/20/40mm
- Anti Interference feature for parallel installation (M/S switching)
- Longest-in-class detecting distance of 7m (SS20/SS40 Series)

## Type

Series	Detection method	Detecting distance	Beam interval	No. of optical axes	Detecting width	Set model No.		Operation mode	Detecting object
						NPN	PNP		
↑ SS10	Through beam	2m	10mm	16	150mm	SS10-T16	SS10-T16-PN	<ul style="list-style-type: none"> <li>• A/O switching</li> <li>A: Output transistor activated when light beams of all axes are received (all axes ON)</li> <li>O: Output transistor activated when light beam of any axis is received (any axis ON)</li> <li>• M/S switching</li> <li>M: Master</li> <li>S: Slave</li> <li>(For prevention of interference between adjacently installed units)</li> </ul>	Opaque φ 17mm or more
				24	230mm	SS10-T24	SS10-T24-PN		
				32	310mm	SS10-T32	SS10-T32-PN		
				48	470mm	SS10-T48	SS10-T48-PN		
				64	630mm	SS10-T64	SS10-T64-PN		
				80	790mm	SS10-T80	SS10-T80-PN		
↑ SS20	Through beam	7m	20mm	96	950mm	SS10-T96	SS10-T96-PN		
				8	140mm	SS20-T8	SS20-T8-PN		
				12	220mm	SS20-T12	SS20-T12-PN		
				16	300mm	SS20-T16	SS20-T16-PN		
				20	380mm	SS20-T20	SS20-T20-PN		
				24	460mm	SS20-T24	SS20-T24-PN		
↑ SS40	Through beam	7m	40mm	32	620mm	SS20-T32	SS20-T32-PN		
				40	780mm	SS20-T40	SS20-T40-PN		
				44	860mm	SS20-T44	SS20-T44-PN		
				48	940mm	SS20-T48	SS20-T48-PN		
				4	120mm	SS40-T4	SS40-T4-PN		
				6	200mm	SS40-T6	SS40-T6-PN		
				8	280mm	SS40-T8	SS40-T8-PN		
				10	360mm	SS40-T10	SS40-T10-PN		
				12	440mm	SS40-T12	SS40-T12-PN		
				16	600mm	SS40-T16	SS40-T16-PN		
SS-H5 SS-H10	Discrete model No.	Length	Description	20	760mm	SS40-T20	SS40-T20-PN		
				24	920mm	SS40-T24	SS40-T24-PN		

## Optional parts

Set model No.	Discrete model No.	Length	Description
SS-H5 SS-H10	SS-H5L(For transmitter)	5m	Cable with connector (6.8mm outer diameter, 0.5mm <sup>2</sup> x4 cores, gray (transmitter) or black (receiver) covering)
	SS-H5R(For receiver)		
	SS-H10L(For transmitter)	10m	
	SS-H10R(For receiver)		

# SS10 · SS20 · SS40

## Rating/Performance/Specification

Series	NPN output	SS10 series	SS20 series	SS40 series
	PNP output	(See "Type.")	(See "Type.")	(See "Type.")
Detection method	Through beam			
Detecting distance	2m		7m	
Detecting object	Opaque $\phi$ 17mm or more		Opaque $\phi$ 32mm or more	Opaque $\phi$ 52mm or more
No. of light axes	(See "Type.")			
Detecting width	(See "Type.")			
Optical axis interval	10mm		20mm	40mm
Power supply	12 - 24V DC $\pm$ 10% / Ripple 10% or less			
Output mode	NPN output	NPN open collector (*) Rating: Sink current 100mA (30VDC) or less		
	PNP output	PNP open collector (*) Rating: Source current 100mA (30VDC) or less		
Operation mode	A/O operation mode switchable A: ON only when receiving all optical axes (OFF when not receiving even one optical axis) O: ON when receiving at least one optical axis (OFF when receiving no optical axis)			
Response time	30ms or less		15ms or less	7ms or less (4 - 24 optical axes), 15ms or less (26 - 48 optical axes)
Light source (wavelength)	Infrared LED (860nm)		Infrared LED (950nm)	
Light-sensitive element	Photo transistor			
Indicator	Transmitter: M/S indicator (red LED) / Power indicator (green LED) Receiver: Stable light reception indicator (green LED) / Operation indicator (red LED)			
Auxiliary functions	Output short circuit protection, Anti Interference feature provided for adjacent installation			
Switch	Transmitter: M/S mode switch (M: master / S: slave); integrated under screw on the back Receiver: Operation mode switch (A: illuminated when beams of all axes are received / O: activated when beam of any axis is received); integrated under screw on the back			
Material	Case: aluminum / Front cover, lens: Acrylic			
Connection	Attached cable with connector 0.2m, 0.5mm <sup>2</sup> x4 cores dia. 6.8 mm			
Weight	Approx. 250 - 800g (transmitter/receiver)			
Accessory	Cable with connector 5m, Weight: 350g, mounting brackets, operation manual			

## Environmental Specification

Ambient light	9,000lx or less
Ambient temperature	-10 - +55°C (non-freezing)
Ambient humidity	35 - 85%RH (non-condensing)
Protective structure	IP66
Vibration	10 - 55Hz / 1.5mm double amplitude / 2 hours each in 3 directions

### • Number of axes

Models with numbers of axes other than mentioned in the "Type" table are available. See "Dimensions of portions" in "Dimensions." Contact Takex for details.

### • Types with unnecessary optical axis disabled

Custom mode sensors with unnecessary optical axes disabled are available on request.

## Indicator Operation

	Name	Color	Description
Transmitter	Power indicator	Green	Illuminated when power is supplied
	M/S indicator	Red	Illuminated to indicate M mode Dis-illuminated to indicate S mode
Receiver	Stable light reception indicator	Green	Illuminated when the receive light intensity level is 120% or more of the operation level
	Operation indicator	Red	Illuminated when output transistor is activated A: illuminated when light beams of all axes are received O: illuminated when light beam of any axis is received

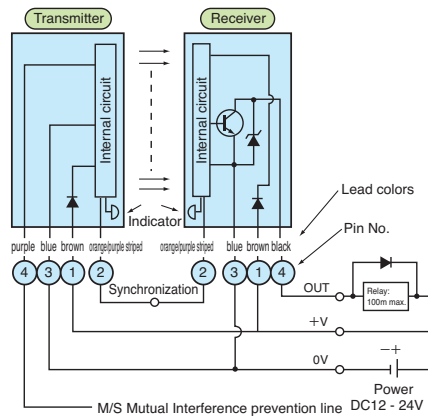
## • Current consumption by model

Model	Current consumption
SS10-T16	90mA or less
SS10-T24	103mA or less
SS10-T32	116mA or less
SS10-T48	142mA or less
SS10-T64	168mA or less
SS10-T80	194mA or less
SS10-T96	220mA or less
SS20-T8	70mA or less
SS20-T12	80mA or less
SS20-T16	90mA or less
SS20-T20	100mA or less
SS20-T24	110mA or less
SS20-T32	130mA or less
SS20-T40	150mA or less
SS20-T44	160mA or less
SS20-T48	170mA or less
SS40-T4	50mA or less
SS40-T6	55mA or less
SS40-T8	60mA or less
SS40-T10	65mA or less
SS40-T12	70mA or less
SS40-T16	80mA or less
SS40-T20	90mA or less
SS40-T24	100mA or less

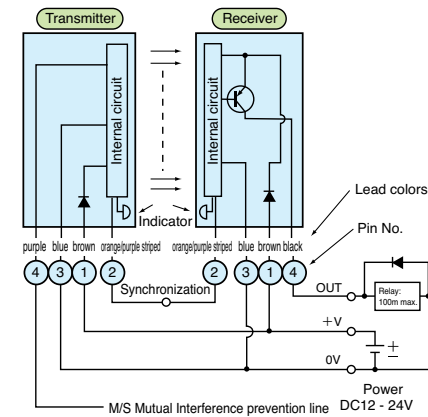
# SS10 · SS20 · SS40

## Input/Output Circuit and Connection

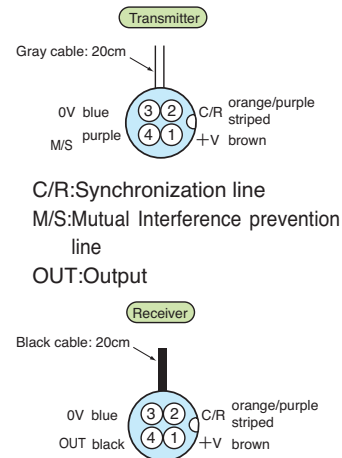
### • NPN output



### • PNP output



### Connector pin assignment

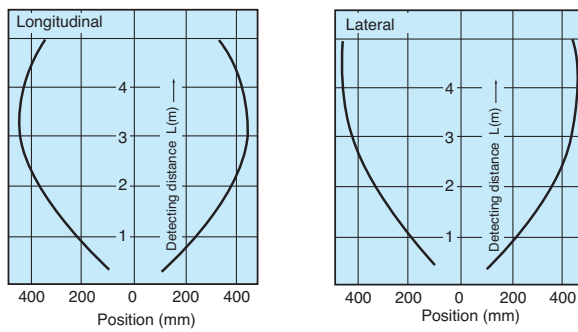


- The output transistor turns off when load short circuit or overload occurs. Check the load and turn the power back on.
- When not using the Anti Interference feature, leave the M/S Mutual Interference prevention line unconnected and ensure it will not come in contact with any other cable.

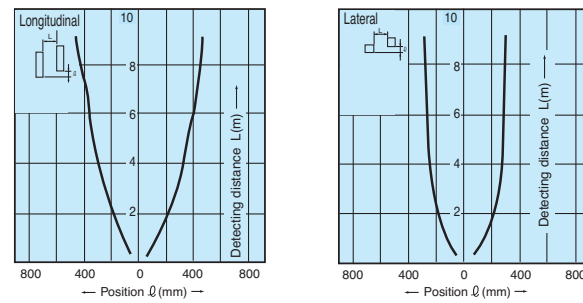
## Performance Curves (Typical)

### • Response Curves: Lateral Gap / Longitudinal Gap

SS10 series

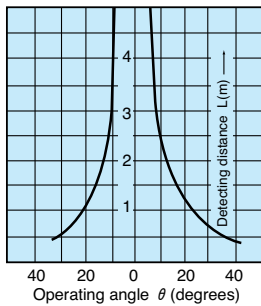


SS20/SS40 series

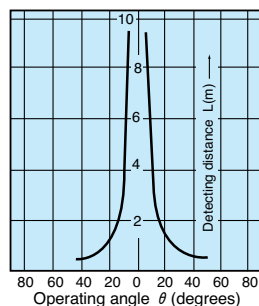


### • Response Curves: Tilt Angle

SS10 series

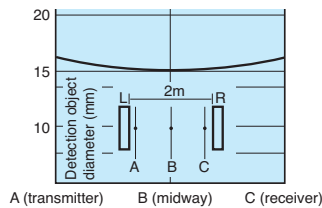


SS20/SS40 series

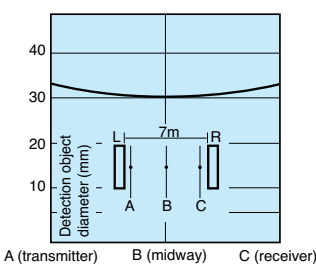


### • Response Curves: Minimum Detection Object

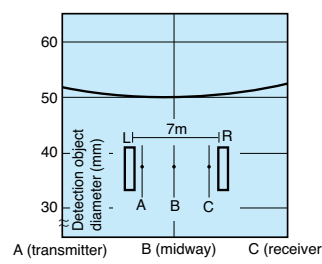
SS10 series



SS20 series



SS40 series



# SS10 · SS20 · SS40

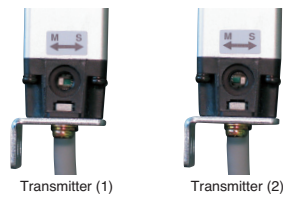
## For Correct Use



- Be sure to follow the instructions in the operation manual provided for correct use of the product.
- This sensor cannot be used as a power press safety device or other safety device to prevent death or injury that requires conformity to domestic or overseas standards or certification concerning protection of human body. Use for such purposes may lead to death or serious injury.
- This sensor is designed to detect an object passing over a certain point or line.
- When using this sensor for safety purposes except those mentioned above, ensure safe operation of the system as a whole including detection and control function.
- Mutual interference prevention function can be used only between products in the same series.

## M/S (master/slave) Switching

This feature is for Mutual prevention prevention.  
(With the screw on the back of the transmitter removed)



- Set the switch of either transmitter to M (master) and of the other to S (slave) and connect the Anti Interference lines of both (purple (orange) = pin No. 4) to each other. The M/S indicator of the master transmitter is illuminated (when activated) and the M/S indicator of the slave transmitter remains unilluminated.
- For standalone use, be sure to set the switch to M to enable the M/S indicator.

## Operation Mode Switching

(With the screw on the back of the receiver removed)



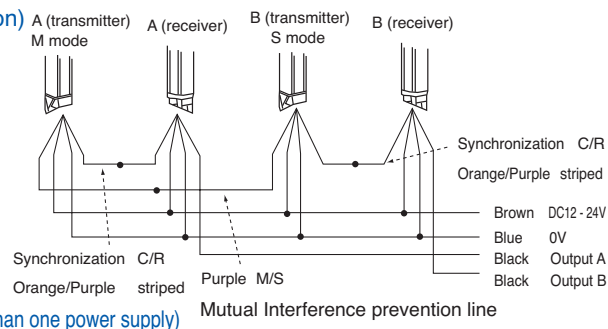
- A: Output transistor activated when light beams of all axes are received (all axes reception ON)
- O: Output transistor activated when light beam of any axis is received (any axis reception ON)

(Factory setting: A)

## Mutual Interference

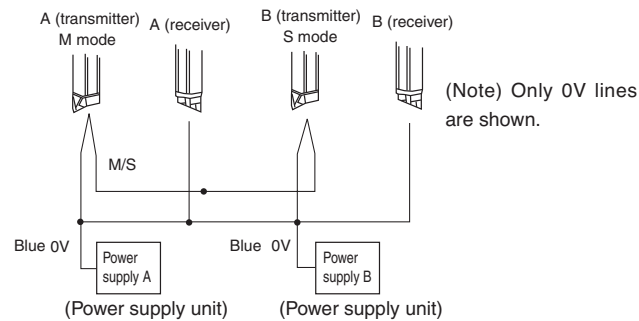
- When using two sets of sensors installed adjacently, connect the mutual Interference prevention lines (purple) of Transmitters A and B with each other.
- Connect the 0 V lines of the Transmitters A and B and Receivers A and B together.
- Set the M/S (master/slave) mode switch of Transmitter A to M and of Transmitter B to S.
- When all wiring has been completed, supply power and check the operation of the M/S indicators of the transmitters:  
Transmitter A (M mode): M/S indicator illuminated  
Transmitter B (S mode): M/S transmitter not illuminated
- When not using Anti Interference, leave the line for this feature unconnected and ensure it will not come in contact with any other cord.
- Mutual interference prevention function can be used only between products in the same series.

(Connection)



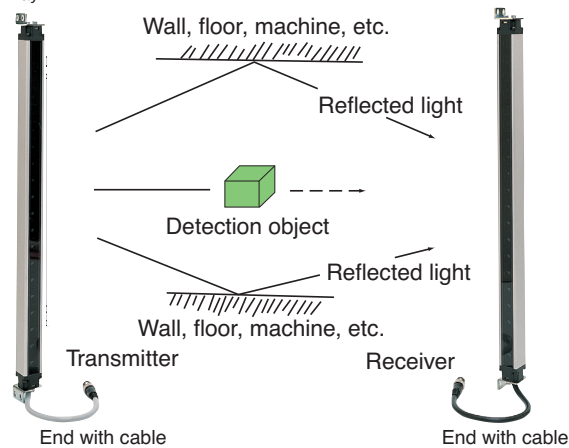
(With more than one power supply)

Connect the 0V lines of the Transmitters A and B and Receivers A and B together.



## Notes on Installation

- Any reflecting object (wall, floor, machine, etc.) within the effective range between the transmitter and receiver may allow the light of the sensor to go around the detection object, which is supposed to block the light, and reach the receiver. Choose the installation location carefully.
- Make sure that the ends of the transmitter and receiver with the cord are oriented either upward or downward. The sensor does not function if the transmitter and receiver are not oriented the same way.

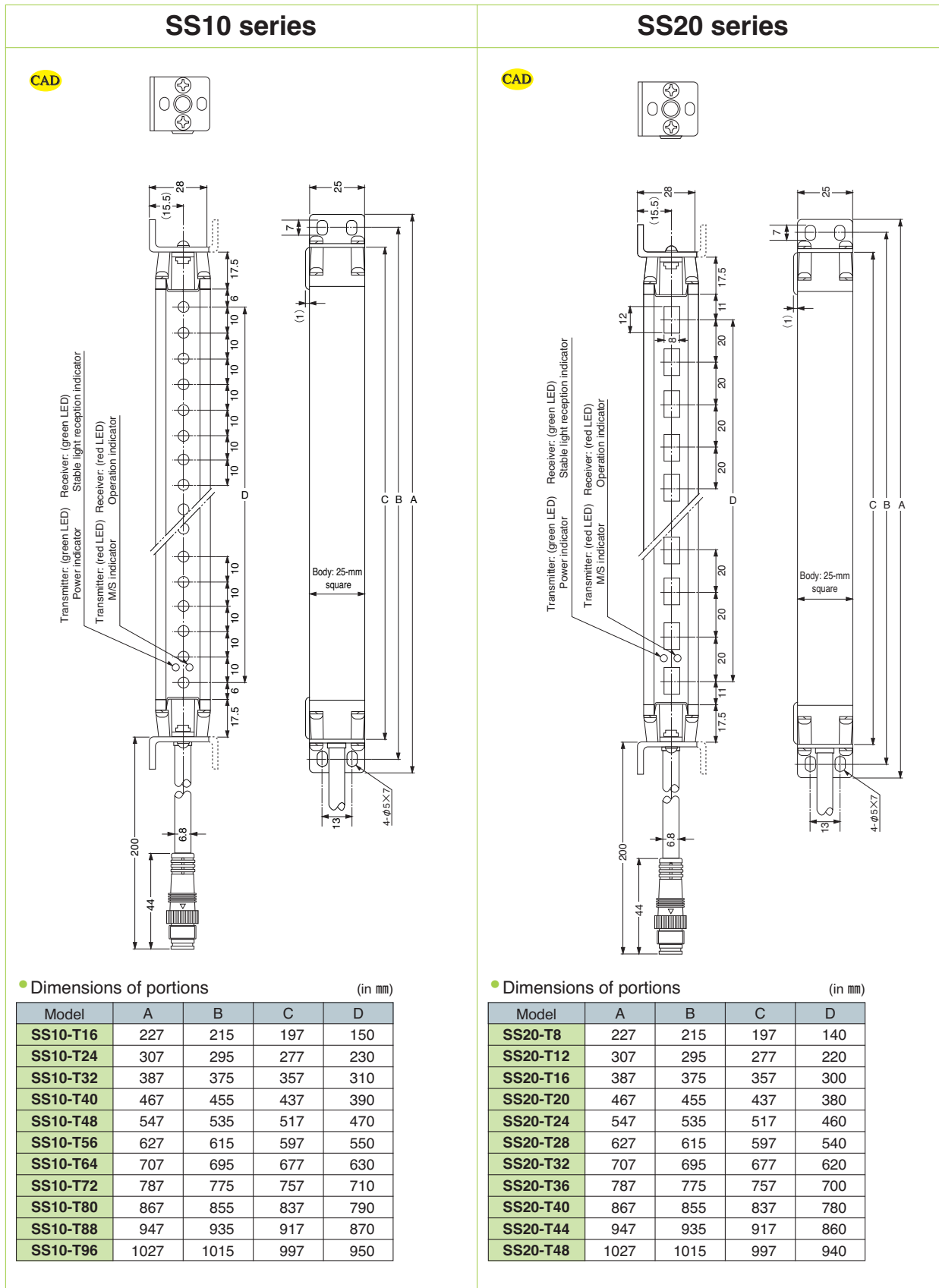


## Cable Extension

- C/R synchronization line (orange/purple striped)  
The total length of the cable between the transmitter and receiver should be within 50 m.
- M/S Anti Interference line (purple)  
The total length of the cable between the transmitters of the two sets of sensors should be within 50 m.

# SS10 · SS20 · SS40

Dimensions (in mm)(Only receiver is shown in the figure as an example. With transmitter, orientation of mounting bracket is reversed.)



# SS10 · SS20 · SS40

## Dimensions (in mm)

### SS40 series

**CAD**

(Only receiver is shown in the figure as an example. With transmitter, orientation of mounting bracket is reversed.)

Transmitter: (green LED) Receiver: (green LED)  
Power indicator Stable light reception indicator  
Transmitter: (red LED) Receiver: (red LED)  
M/S indicator Operation indicator

Body: 25-mm  
4-φ5×7

### Back view (common to all sensors of the series)

### Cable with connector (accessory)

For transmitter: SS-H5L (covering: gray)  
For receiver: SS-H5R (covering: black)

Model:SS-H5L    Model:SS-H5R

• Dimensions of portions (in mm)

Model	A	B	C	D	Model	A	B	C	D
SS40-T4	207	195	177	120	SS40-T28	1167	1155	1137	1080
SS40-T6	287	275	257	200	SS40-T30	1247	1235	1217	1160
SS40-T8	367	355	337	280	SS40-T32	1327	1315	1297	1240
SS40-T10	427	435	417	360	SS40-T34	1407	1395	1377	1320
SS40-T12	527	515	497	440	SS40-T36	1487	1475	1457	1400
SS40-T14	607	595	577	520	SS40-T38	1567	1555	1537	1480
SS40-T16	687	675	657	600	SS40-T40	1647	1635	1617	1560
SS40-T18	767	755	737	680	SS40-T42	1727	1715	1697	1640
SS40-T20	847	835	817	760	SS40-T44	1807	1795	1777	1720
SS40-T22	927	915	897	840	SS40-T46	1887	1875	1857	1800
SS40-T24	1007	995	977	920	SS40-T48	1967	1955	1937	1880
SS40-T26	1087	1075	1057	1000					