Hitachi Astemo,Ltd.

User Manual for 76 - 77 GHz Adaptive Radar Sensor MRS3754-XXX

1．Description/製品概要

Radar Sensor MRS3754-XXX uses FMCW method. The FMCW method transmits radio waves that have been modulated so that the frequency of the transmitted signal rises linearly with the passage of time. The IF signal is generated by synthesizing the transmitted wave and received wave. By using this IF signal, the distance, speed, and angle of the object are detected.

MRS3754-XXX installed in vehicle detects objects around the vehicle. If any collisions are likely to happen, MRR3754-XXX alert the driver to support safe driving.

レーダーセンサMRS3754-XXXは、FMCW方式を使用します。FMCW（周波数連続変調）方式は、送信信号の周波数を時間の経過に応じて直線的に上昇するように変調を行った電波を送信します。送信信号と受信信号を合わせることで、IF信号を生成します。このIF信号を利用することで、対象物の距離、速度、角度を検出することができます。車両に搭載されている MRS3754-XXX は車両周辺の物体を検出します。衝突が発生する可能性がある場合、MRR3754 は安全運転をサポートするためにドライバーに警告します。

2．Product Specification/製品仕様

Table 1　Specification

No.	項目 Item	仕様 Specification
1	Detection system/ 検出方式	FMCW mode
2	Rated voltage/ 定格電圧	12VDC, 24VDC
3	Center frequency/ 中心周波数	76.5GHz
4	Operation temperature/ 動作温度	-40~+85deg
5	Output interface/ 出力インターフェイス	CAN　2ch
6	Field of view/視野角	±75deg(Horizontal Direction)
7	Distance/ 検出距離	80m (RCS 10dBsm)
8	Dimensions/ 外形	83.1×92×19.4mm
9	Weight/ 重量	86±10g

3．External dimensions/外形寸法

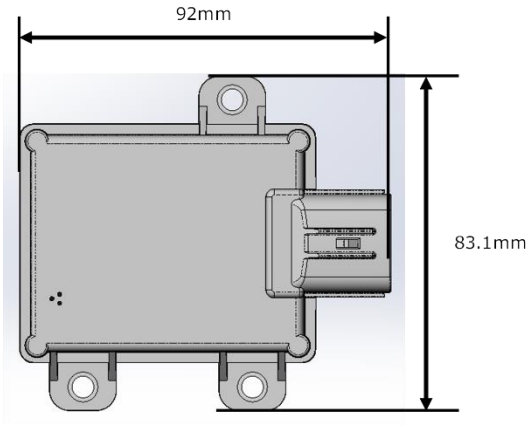

Fig 1　Top view

Fig 2　Side view

4．Main Parts Description/部品構成図

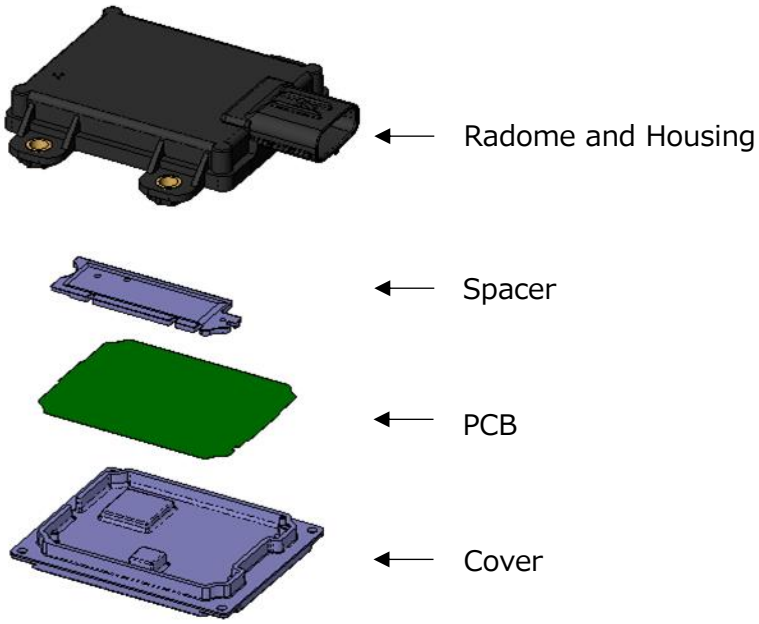

Fig 3　Description of Radar parts

5．Pin assignment/端子配列

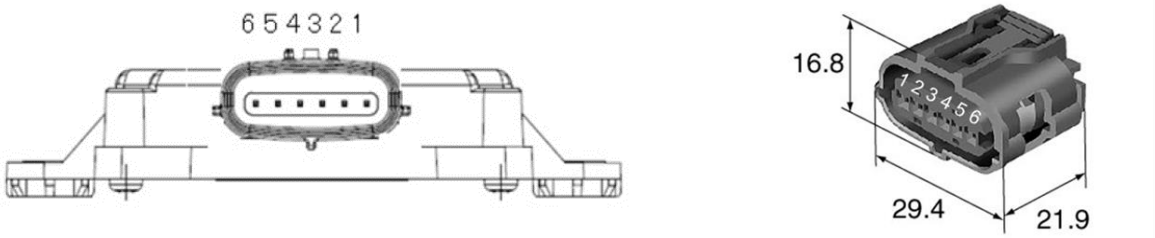

Fig 4　Connecter pin position

Table2 Pin assignment

Pin No.	Designation
1	V_IN
2	GND
3	CAN_H（CH1）
4	CAN_L（CH1）
5	CAN_H（CH0）
6	CAN_L（CH0）

6．Application/機能

MRS3754-XXX supports 4 types of alert functions.

/ MRS3754-XXXは、4種類の警報機能に対応している。

(1) SA (Side Assist)

Scene : Turn left or right at the intersection/交差点での右左折

If there is a possibility of a collision in front of the vehicle, the SA application alerts the driver. /車両前方に衝突の可能性がある場合、運転手に警報信号を発する。

(2) TA (Turn Assist)

Scene : Turn left/左折時

If there is a possibility of getting caught on the left side of the vehicle, the TA application alerts the driver. /車両左側面に巻き込みの可能性がある場合、運転手に警報信号を発する。

(3) FCTA (Front Cross Traffic Alert)

Scene : Go straight at the intersection/交差点での直進時

If there is a possibility of a collision in front of the vehicle, the FCTA application alerts the driver. / 車両前方に衝突の可能性がある場合、運転手に警報信号を発する。

(4) LCA (Lane Change Assist)

Scene : Driving /走行中

If there is a possibility of a collision due to a lane change, the LCA application alerts the driver. /車線変更によって衝突の可能性がある場合、運転手に警報信号を発する。

7. Marking

■FCC

FCC ID: 2A3Y7MRS3754-00A-00

Notation Requirements :

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.

FCC CAUTION:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

■ISED

Model Name : MRS3754-017, MRS3754-018, MRS3754-019

IC: 11731A-MRS375400A

Notation Requirements :

-English notation-

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.

2. This device must accept any interference, including interference that may cause undesired operation of the device.

-French notation-

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;

2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

8. Exposure information/ 暴露情報

MRS3754-XXX should be installed at a distance of at least 20 cm from the driver.

/ MRS3754-XXXは、運転手との間に20cm以上の距離を置いて設置すること。

9. Operating Frequency, Maximum Output Power/ 動作周波数と最大出力

MRS3754-XXX should be complied with following spec.

- Operating Frequency : 76.5Ghz
- Maximum Output Power : 22.7dBm

/ MRS3754-XXXは、以下の仕様を満足すること。

- 動作周波数 : 76.5GHz
- 最大出力 : 22.7dBm